January 4, 2019 | View as webpage



in

TOP NEWS



Video: Ark. LEO risks life to save baby during standoff with armed dad

- III. sheriff books himself into jail to learn about prisoners' complaints: The sheriff said he hoped the move showed inmates that he's invested in their lives
- Man charged with murder of Calif. officer: The man was in the country illegally and had previous arrests for driving under the influence of alcohol

Low Cost Use-of-Force Firearm Simulator

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Ariz. sheriff agrees to equip deputies with overdose reversal drug



Deputy disciplined for failure to respond to Parkland school shooter

- Ore. man arrested after attempting to steal bike outside police station
- LEOs charged after women drowned in van swept away by floodwaters
- Mich. girl arrested after police car joyride
- Fla. robbery, carjacking, pursuit injures 2 officers, victim

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when to shoot and how long to shoot for to eliminate a threat.

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POLICE PRODUCTS



By Ron LaPedis, P1 Columnist Consider your equipment needs and accessibility when choosing a type of organizer.

INVESTIGATION

Keys to managing a cybercrime scene



By Ron LaPedis, P1 Columnist A cybercrime scene can be just as challenging as a physical crime scene for investigators.

FEATURED JOBS

Lateral Police Officer Vancouver, Washington \$5,711-\$7,289* Monthly

FEATURED DEALS



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POLICING MATTERS PODCAST

Facial recognition in LE



By Jim Dudley and Doug Wyllie, P1 Columnists Police are using the software to identify wanted criminals and missing people spotted on video.

PHOTO OF THE WEEK

Red and Blue



By PoliceOne Members This photo was submitted by Ofc. James P.R. Leedy of Petoskey, Michigan.



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The news you need as a law enforcement leader. April 21, 2016

Illinois legislation would encourage reporting of sexual assault Lincoln Courier (AP) - April 21, 2016 Translate

IMPD spreading the word about gun safety to kids WISHTV.com - April 21, 2016 Translate

Launch of Australia's Cyber Security Strategy Malcolm Turnbull MP - April 21, 2016

Translate

ACPD tech helping Atlantic City resident-police relationship PressofAtlanticCity.com - April 20, 2016

Translate

Programs offer support to police after traumatic incidents

Sudbury.com - April 20, 2016 Translate

Which nation's police force is outfitting police vehicles with 360-degree facial recognition systems?

Government Technology - April 20, 2016 Translate

Leahy hails bill to reauthorize bulletproof vest grant program Vermont Business Magazine - April 20, 2016 Translate

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Hello Chief Kasper,

I am writing to introduce you to Vigilant Solutions and to inquire about your possible ALPR needs for the future. Vigilant Solutions creates highly innovative and essential tools for law enforcement – tools that ultimately save lives. As an example, Vigilant Solutions' <u>Automated License Plate Recognition (ALPR / LPR)</u> product is the most comprehensive offering available, with over tens of thousands of users around the world and thousands of success stories. We now offer:

ALPR

Facial recognition Systems ALPR Mobile Companion App NVLS – National Vehicle Locator Service (offered to LEO's for partial and full plate look up)

Our company would like to know how we may be notified if you have an RFP (bid) go out that matches our commodities.

I would also like to send a brochure packet if you are interested in our products or services or would like to learn more about how ALPR can be a force multiplier to your agency. Please click here to watch a short video about Vigilant Solution's ALPR products: <u>https://youtu.be/SFWCDUArMGs</u>

Thank you in advance.

Lisa Dalisa, Sales Administrator (c/o Erin Carpenter) Lisa.dalisa@vigilantsolutions.com O +1 (925) 398-2079 ext 717 M +1 (925) 337-7348



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Thank you

Hey Kara,

Thought this was a good read. Btw I got certified through this agency three years ago so I have some knowledge about sports safety stuff.

Josh

Sent from my iPhone

Begin forwarded message:

From: NCS4 Southern Miss. <<u>ncs4@usm.edu</u>> Date: August 28, 2018 at 10:31:13 AM EDT To: <<u>jwallace@northamptonma.gov</u>> Subject: NCS4 Best Practices & Security Snapshot Reply-To: NCS4 Southern Miss. <<u>ncs4@usm.edu</u>>

NATIONAL CENTER FOR SPECTATOR SPORTS SAFETY AND SECURITY

At the beginning of every newsletter, we share a NCS4 Best Practice Take-Away from our <u>Safety and Security Best Practice Guides</u>.

Best Practice Take-Away: Behavioral Issues

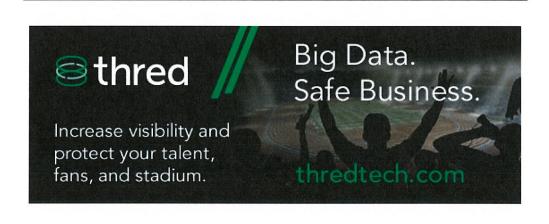
At every sports event you have fans that come and are extremely passionate about their team or favorite players. This passion is what fuels the electric atmosphere that is part of the fan experience. Occasionally however, passion and fanaticism may cross the line in a way that compromises safety or the enjoyment of other guests. Today's best practice take-away addresses ways to reduce, prevent, and respond to these types of situations.

DOWNLOAD TAKE-AWAY



Digital Best Practice Guides and Print Orders

Ask and you shall receive! We have heard your requests for digital best practices with easy viewing and accessibility. The NCS4 has partnered with Mimeo to offer a digital platform that allows users to engage with content on any device, from anywhere – even when offline. The platform offers a variety of tools, such as search capabilities, note taking, and highlighting that are not available in a basic PDF format. Through the Mimeo Marketplace, you can purchase digital and/or print copies of the NCS4 Best Practices Guides. Mimeo's cutting-edge print technology ensures the highest quality production and delivers a spiral-bound copy of selected document(s) directly to you. Check out the Mimeo Marketplace





Security Snapshot: MetLife Stadium Relocates Fans during Two Concerts Due to Severe Weather

MetLife Stadium attracts some of the most popular headlining entertainment acts in the country on a regular basis. In the month of August, the Stadium was host to the Beyoncé-Jay-Z "On the Run II" and Kenny Cheney's "Trip Around the Sun" tours. At both events, the security team and frontline event staff successfully managed the relocation of thousands of fans from the the playing field and seating bowl to covered, protected areas inside the Stadium. Vice President of Safety Services, Daniel DeLorenzi, credits routine staff training and exercise on crowd management, evacuation, and relocation procedures for the team's preparedness and skillful handling of both situations.

Read the Full Security Snapshot

SPORT SECURITY WATCH

Shootings Outside High School Football Games in Three States A spate of shootings outside high school <u>football</u> games in three states on Friday night left two dead and at least three injured. The football season is just getting underway, but this is already the second weekend in which shootings have taken place near local football games. <u>Read More</u>

Twitter User Threatened 'To Commit the Biggest Mass Shooting' at Penn State's Beaver Stadium

The FBI and Penn State University police are investigating a threat "to commit the biggest mass shooting in the history of the world," at Penn State's Beaver Stadium, according to Becky Metric of Penn Live. Read More

Shooting at Jacksonville, FL High School Football Game A shooting at a high school football game in Jacksonville, FL on Friday night left one person dead and two injured, officials said. The shooting happened about 10 p.m., 15 minutes after the game ended at Raines High School, where about 4,000 spectators attended. <u>Read More</u>

Gunman kills two, then himself at video game tournament A gunman opened fire Sunday at an online video game tournament as it was being livestreamed from a Florida mall, killing two people and then fatally shooting himself in a rampage that wounded several others, authorities said. Read More.

Unauthorized Flyover at Lambeau Field During Preseason Game When a pair of helicopters flew over Lambeau Field early in the first quarter of Thursday's preseason game between the <u>Packers</u> and <u>Steelers</u>, it seemed a little late for the traditional flyover. That's because it was unplanned and unauthorized. <u>Read More</u>

Fans Injured at Backstreet Boys Concert as Storm Rolls Through At least 14 people were sent to the hospital Saturday after a storm knocked over concert entrance trusses at an Oklahoma outdoor concert venue hosting the Backstreet Boys and 98 Degrees. The staff at the venue had begun evacuating fans after lightning was spotted. <u>Read More</u>

Suspected Terrorist Crashes Car into Cyclists and Barrier at British Parliament

London Metropolitan Police officials arrested a man who allegedly drove into a group of cyclists and crashed into the barriers outside the British Parliament in Westminster on Tuesday. The incident is being treated as a terrorist incident, authorities said. <u>Read More</u>

How to Design a School in the Era of Mass Shootings

For school designers and architects, the current debate about how to make schools safer focuses too much on add-on measures. Metal detectors? More resource officers? Armed teachers? Bulletproof backpacks? <u>Read More</u>

Facial Recognition System Set to be Used in Olympic Security A facial recognition system will be used across an Olympics for the first time as Tokyo organizers work to keep security tight and efficient at dozens of venues during the 2020 Games. The NeoFace technology developed by NEC Corp. will be customized to monitor every accredited person at more than 40 event venues. <u>Read More</u>

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TOP NEWS



Dallas PD fires officer who fatally shot man in his apartment

- Md. officer wounded, suspect killed in shootout that sounded like 'a war': The officer was taking part in a crime suppression initiative in a violence-prone area when he was shot Sunday
- Former Mass. officer suing city for firing: Leon Stuart is alleging that his firing was in retaliation for complaints he made about alleged departmental misconduct

Quiet Warrior: How a Florida Deputy Gave an Infant a Second Chance at Life

Deputy Jeremie Nix is thankful



Video: Man shooting AK-47 at cops, killed in wild shootout



Cop, EMT brothers team up to deliver baby in Times Square

- Idaho sheriff takes heat for Facebook meme
- Officials: Teen who wanted to be cop hacked into police computer system
- Ky. trooper saves child from man threatening him with box cutter
- Video: Calif. deputy injured after teen bodyslams, disarms him

Never Go to Your Trunk for Armor Again

Ambushes are a real threat for every law



Read the story

he was in the right place at the right time to save a baby who had stopped

enforcement officer. Protection at a higher level can be standard issue. Learn how Angel Armor provides

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P1 EXCLUSIVE

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Anti-police rap ruling a victory for Pittsburgh cops



By Mike Callahan, P1 Columnist Jamal Knox's rap song's lyrics contained a reference to Richard Poplawski, who murdered three Pittsburgh officers in 2009.

Conviction affirmed >

FEATURED VIDEO

BALL TRAINER

Dogtra BALL TRAINER -Agility Training

The Dogtra Ball Trainer is a unique dual-function trainer that launches and drops balls, designed for training working dogs.

FIREARMS

New pistol releases from Glock cater to law enforcement



By Sean Curtis, P1 Columnist Three new models fill out Glock's 9mm line of handguns, with one specifically designed for police.

How they stack up >

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TRAINING

QUIZ

Coaching the floor to feet position with weapon transitions



By Jerrod Hardy, P1 Contributor Officers need to consciously evaluate the threat presented and the distance available, and prioritize what they need to do first

Moves to keep you safe >

Test your knowledge of de-escalation tactics and strategies



By PoliceOne Staff How'd you do? Make sure to share your results and challenge your colleagues to match or beat your score

Question 1>

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How facial recognition solves cases in Indiana



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The state fusion center helps local agencies develop leads and catch criminals using facial recognition from Vigilant Solutions.

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At the beginning of every newsletter, we share a NCS4 Best Practice Take-Away from our <u>Safety and Security Best Practice Guides</u>.

Best Practice Take-Away: Mass Casualty

Mass casualty is something that every event operator fears may become a reality in their venue. When looking at this type of situation, many people think about mass shootings, bombings, or other terroristic acts. While those acts may be the ones that will cause the most damage, these acts are not the most common mass casualty incidents. When creating a plan, there needs to be a holistic approach for all events that may be considered mass casualty. The most common event may be heat related at an outside venue...

DOWNLOAD TAKE-AWAY



MANAGING CROWDS AT SPORT AND ENTERTAINMENT EVENTS WORKSHOP

Thursday, March 28, 2019 Hard Rock Hotel - Biloxi, MS / 9am-6:30pm

In conjunction with the <u>Rapiscan Systems Classic</u> (PGA TOUR Champions) and in support of the Mississippi Gulf Resort Classic Foundation, this NCS4 workshop is designed for attendees who plan and manage the movement of people at sports and entertainment events. Attendees will explore the underlying causes of crowd incidents as well as learn techniques for crowd analysis and crowd safety and security that can help minimize and even eliminate occurrence altogether.

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Registration is COMPLIMENTARY!

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NCS4 SAFETY AND SECUTIY SUMMITS

SEATING IS LIMITED - DON'T DELAY, REGISTER TODAY!

National Commercial Sport and Entertainment Facilities Safety and Security Summit (February 19-21, Durham, NC) National Interscholastic Athletics and After-School Activities Safety and Security Summit (April 3-5, Katy, TX)



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SPORT SECURITY WATCH

Police and Security Carried a Protestor Off the Field at the CFP National Title Game

Monday's CFP national title game got off to a crazy start with Tua Tagovailoa throwing a pick-six on Alabama's opening drive against Clemson. It evidently had Levi's Stadium security stunned too... <u>Read More</u>

Immersive AV Revolutionizes the Fan Experience

It's no secret that rapid advancements in home theater and entertainment technology have made in-home sports viewing more popular than ever. To get fans back into the stadium, venue owners and operators... <u>Read More</u>

Texas Mascot Topples Barricade, Charges Georgia Bulldog

NEW ORLEANS — The Texas football program's mascot, a large white and brown longhorn steer named Bevo, caused a stir at the Sugar Bowl on Tuesday when it knocked down its barricade and briefly charged in... <u>Read More</u>

Taylor Swift Used Facial Recognition Software to Detect Stalkers at LA Concert

The periphery of a Taylor Swift concert is as thought out as the show she presents on stage. Beyond the traditional merchandise stands, there are often dedicated selfie-staging points and staff distributing light-up bracelets. When Swift performed at the Los Angeles Rose Bowl venue on... <u>Read More</u>

Experts say Times Square NYE Crowd is Smaller than People Think Crowd size experts scoff at those mammoth figures — floated annually by city officials and event organizers — saying it's impossible to squeeze that many of even the skinniest revelers into such a relatively small space... <u>Read More</u>



GAMEDAY SECURITY

Welcome to our Fall issue of *Gameday Security*! Our theme for this issue is "Developing a Security Workforce for the Sports and Entertainment Industry." In the post-911 era, changes and enhancements to employee training and development must take place to address new risks and threats. We'll take a deeper look at how to prepare the current and future workforce for all the uncertainties that may arise. <u>TAKE A LOOK!</u>

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TOP NEWS



Videos show fatal OIS of knife-wielding man who charged at LEOs

- SCOTUS limits warrantless vehicle searches near homes: The justices said the automobile exception doesn't apply when searching vehicles parked adjacent to a home
- Officers attend boy's graduation in place of fallen LEO father: When Kaleb looked at the audience, he saw nine of his dad's former colleagues cheering him on



Atlanta FBI agent dies after exposure to 9/11 toxins



2 Belgium officers stabbed, killed with their service weapons

- Texas ATF agent dies after suffering heart attack during training
- NJ officers reassigned after UOF incident captured on video
- Kan. officer finishes lawn mowing job for woman
- Orlando police chief defends use of facial-recognition software





OPTICS

Aging eyes and modern optics: Can technology make cops young again?



By Richard Fairburn, P1 Columnist If your fellow old-fart friends suggest you need a red dot sight on your pistol, you may want to listen.

DRUG INTERDICTION / NARCOTICS

How illegal synthetic drugs are changing sentencing guidelines



By David E. Hubler, American Military University Powerful illegal synthetic drugs known as "analogues" are a particular problem for law enforcement these days.

ACTIVE SHOOTER

POLICE TECHNOLOGY

3 ways self-deployed cops wreak havoc

4 ways speech recognition technology improves police efficiency, safety



By Joel F. Shults, P1 Columnist While no one wants to fault a hero for showing up to help, there are diminishing returns when self-deployed responders arrive immediately after an event.



By Ed Davis, Nuance Communications Paperwork is crucial, but there's a reason they call it a necessary evil. It takes too much time and can keep us away from one of our most important tasks.



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POLICEONE ON FACEBOOK

- 3.6K National Law Enforcement Officers Museum set to open this fall
- L¹ 1.2K Slain Md. LEO buried two days before her 30th birthday
- ▲ 1K Neb. troopers make one of the largest fentanyl busts in US



Free eBook: How to train for mass gatherings, protests and riots

- 🖞 930 Poem: One Officer Down
- In B67 Fla. officers attend boy's graduation in place of fallen LEO father



This free eBook brought to you by PoliceOne Academy covers best practices to prepare both police officers and police leaders to effectively respond to a variety of mass gathering events.

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CS4 NATIONAL CENTER FOR SPECTATOR SPORTS SAFETY AND SECURITY THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Welcome to the new and improved NCS4 newsletter!

We decided the start of a New Year would be the ideal time to revamp our <u>website</u> (pictured below), along with our newsletter. Hopefully, you'll like our changes and enhancements. Feel free to give us your <u>feedback</u>!



CHECK OUT WEBSITE

Venue Spotlight: Legacy Stadium (Katy, TX)



With a total seating capacity of 12,000, Legacy Stadium hosts district-wide high school athletics, fine arts, and extracurricular activities. It also serves as a venue to host District and non-Katy ISD events at the local, regional and state level.

VIEW SPOTLIGHT

The CSSP Review Course Guidebook is now available for purchase!

The Guidebook covers the six knowledge domains of the CSSP exam. A set of practice test questions is provided to help you identify areas for further study and assess your readiness to take the actual exam.



ORDER GUIDEBOOK

National Sports Safety and Security Conference



Grab a seat and join us for the 9th annual NCS4 Conference on July 10-12 in Louisville, KY! The theme this year is *Enhancing Situational Awareness in the Sports Safety and Security Industry*.

REGISTER NOW!



Learn more about the NCS4 Conference! Click arrow above to WATCH VIDEO

SPORT SECURITY WATCH

Super Bowl Anti-Terrorism Documents Left on Plane

The Department of Homeland Security documents critiquing the response to a simulated anthrax attack on Super Bowl Sunday were marked "For Official Use Only" and "important for national security." <u>READ MORE</u>

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Super Bowl Brings Massive Security Resources to Minneapolis

Concrete barriers and chain-link fencing are going up around the site of the Super Bowl, where a contingent of local, state and national agencies is working to ensure that the game and dozens of related events are safe. <u>READ MORE</u>

5 Simple Risk Management Tips for Super Bowl LII

In regards to Super Bowl LII, what risk management issues are affecting the game and fans? Here are five that explain how we got here and what may be next. READ MORE

TEEX Helps Minneapolis Emergency Personnel Prepare For Super Bowl

More than 1,100 emergency responders in the Minneapolis metropolitan area are better prepared for the upcoming Super Bowl LII thanks, in part, to training they received from the Texas A&M Engineering Extension Service (TEEX). <u>READ MORE</u>

Security Deployed at Super Bowl is Largest in Minnesota History

It's an enormously complex effort involving hundreds of officers from 60 police departments across the state, 40 federal agencies, the Guard and more. <u>READ MORE</u>

Super Bowl Fan Event in Minneapolis Replaces Security Firm: Report

The company providing security to Super Bowl Live, a nightly fan event in Minneapolis connected to Sunday's NFL championship game, has been replaced because of insufficient background checks... LEARN MORE

Tokyo 2020 to Employ Facial Recognition for Athletes

The Tokyo 2020 Olympics and Paralympics will employ facial recognition technology for the entry of athletes, officials and journalists into game venues. Spectators will still be asked to show their tickets and submit to luggage checks... LEARN MORE

Three Pillars of Sports Venue Security

Stadium security has gotten a lot more complicated than apprehending seat jumpers, defusing confrontations and ejecting rowdy fans. You'd be hard pressed to find a spectator venue today that doesn't deploy... <u>READ MORE</u>

From Minneapolis to Inglewood, The Shifting Politics of NFL Stadium Design The architectural nostalgia that poured into nearly every corner of Major League Baseball a

generation ago, uncorked by the opening in 1992 of Baltimore's willfully eccentric and doggedly old-fashioned Camden Yards. <u>READ MORE</u>

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TOP NEWS



Chiefs, sheriffs in Colo. shift attitudes toward recruits' past marijuana use

- Cop killer to be set free after troopers' union loses appeal: John Ruzas was convicted of killing New York State Trooper Emerson Dillon in 1974
- 2 Wash. officers recovering after being shot: One officer was released from the hospital while the other underwent surgery but is in "satisfactory" condition
- Chief who oversaw police response to Charlottesville rally retires: In a brief statement, the city did not give a reason for Chief Al Thomas' departure



Officers journey from Colo. to Minn. to bring fallen LEO home



Retired NYPD captain who worked Ground Zero on 9/11 dies by suicide

- At least 6 killed after Amtrak train hurtles off Wash. overpass
- Governor defends investigators in Justine Damond case
- Sheriff's employees deployed to help battle Calif. wildifires
- Police captain recalls shooting of Kan. Costco gunman
- Officers who subdued NYC subway terror suspect help needy children
- 2018 Police Video Guide: The emerging tech, training and tactics shaping law enforcement

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POLICE TRAINING

The trainer's gift: How all cops play a role in peer-to-peer learning



By Chief Joel F. Shults, P1 Columnist If a police officer fails to realize they are already an influencer, no matter what their rank or status, they may be missing the point.

PRODUCT VIDEOS

Gould & Goodrich Is Simplifying the Duty

POLICE K-9

A day in the life of a U.S. Fish & Wildlife Service K-9



By John Heil, U.S. Fish & Wildlife Service Whether it's on a wildlife refuge or a warehouse, "man's best friend" is making a difference for the U.S Fish and Wildlife Service.

FEATURED DEALS

Feature Rich Body Cameras Designed for Law



Holster

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More Featured Deals

POLICING IN THE VIDEO AGE

How virtual reality could transform law enforcement

FACIAL RECOGNITION

As use of facial recognition expands, what are the implications for police?



By Cole Zercoe, Associate Editor VR headsets are becoming increasingly affordable, and the technology's evolution shows no signs of slowing down.

what are the implications for police?



By Val Van Brocklin, P1 Columnist If citizens willingly permit the use of FRT outside of LE, they arguably no longer have any reasonable expectation of facial privacy.

A Training System Where Technology and Practical Application Blend Together

UTM's training model provides a roadmap on

eBook: Understanding and Managing Law Officer Stress

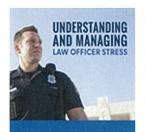
Law officers need these tools to help them recognize and



how to develop training that tests agency protocols, reverse engineers training from real events, and

bridges the gap between firearms, tactics and combatives.

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manage the negative effects of job stress and PTSD.

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POLICEONE ON FACEBOOK

- 2.6K Retired NYPD captain who worked Ground Zero on 9/11 dies by suicide
- P375 Officers journey from Colo. to Minn. to bring fallen LEO home
- 865 Ind. trooper shot in the head thanks first responders for treating him
- Mo. officer shot by handcuffed suspect still fighting for life
- M¹ 696 biology 696 biolo

P1) BRANDFOCUS

How a former LEO now serves through private security



Mark Phillips uses his policing skills to serve the community and earn a living in the private sector with a Signal 88 Security franchise.

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Dear PoliceOne Member,

Throughout 2017, we have examined how video is shaping policy, training and community relations as part of our ambitious four-part coverage series, <u>"Policing in the Video Age."</u>

The conclusion to our yearlong coverage series takes a look at how video will continue to revolutionize policing in the future. In today's newsletter, we feature two articles from the final installment of the series. Author Tim Dees takes a look at the future of body cameras, and Doug Wyllie explores how AI software could monitor real-time camera feeds to detect criminal behavior. You can find the rest of the special coverage here.

If you haven't already, be sure to <u>download your copy</u> of the latest PoliceOne Digital Edition, <u>2018</u> <u>Police Video Guide: The emerging tech, training and tactics shaping law enforcement</u>, to find out how your police department can use emerging video technologies to enhance officer safety and improve operational efficiencies.

— The PoliceOne Team

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By Amir Khillah, P1 Contributor To ensure you have a safe and effective law enforcement career, the only person you can rely on is yourself.



By Michael Schlosser, PhD, & Daniel Simons, PhD Many cops failed to notice a gun on a vehicle's dashboard during a simulated traffic stop. Could inattentional blindness be to blame?

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Dear PoliceOne Member,

In today's world, nothing is making a bigger impact on law enforcement than video. >From throwable robots to footage shot by the public, the rise of video technologies is shaping everything from training and policy to community relations and investigations.

The latest PoliceOne Digital Edition, <u>2018 Police Video Guide: The emerging tech, training and</u> <u>tactics shaping law enforcement</u>, explores how departments can best utilize emerging video technologies to enhance police officer safety and improve operational efficiencies.

In this <u>special P1 report</u>, we outline the issues bystander videos present for law enforcement, discuss how to turn BWC footage into actionable data for police officer training purposes, and review how to safely store and protect your video data, among other topics.

— The PoliceOne Team

TOP NEWS



Police: Gunman in NM school shooting disguised himself, killed at random



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2 NM men questioned in Texas Border Patrol Agent's death



Minn. officer dies unexpectedly while

OIS in hotel: The shooting occurred after cops asked Daniel Shaver to exit his hotel room and refrain from sudden movements

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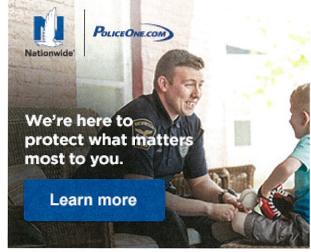
- Video: Rookie San Francisco officer fatally shoots carjacking suspect
- Video shows Ore. K-9 taking down combative inmate
- Slain Fla. officer posthumously awarded agency's highest honor
- Police: Texas man shoots, kills robber threatening family at Popeyes
- Cop faces investigation after helping out hungry shoplifting suspect



POLICE TRAINING

What to consider before implementing facial recognition software

Virtual tool allows first responders to train across jurisdictions, disciplines



TECHNOLOGY



By Val Van Brocklin, P1 Columnist Police agencies need to know how to vet the technology and its vendors.



By Michele Coppola, TechBeat Magazine A free virtual training tool allows first responders from different disciplines to train together for critical incidents.

PRODUCT VIDEOS



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Unusual ride-along



By Doug Wyllie and Jim Dudley, P1 Contributors Clearly, state and local governments are on a collision course with the federal government.



By P1 Members Deputy Jonathan Grimes was with a driver when he noticed a bird sitting on the steering wheel.

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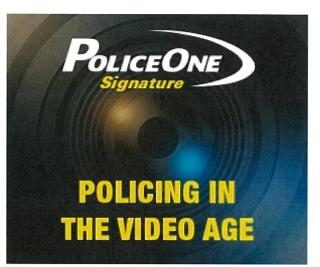
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P1) BRANDFOCUS

Infographic: Are you prepared to protect yourself from hazardous materials at crime scenes?



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Dear PoliceOne Member,

The last few years have seen a technological revolution in policing with the use of video leading the way. Throughout 2017, we have examined how video is shaping policy, training and community relations as part of our four-part coverage series, "Policing in the Video Age."

In the conclusion to our yearlong coverage, we take a look into the future of video in law enforcement, including how the incorporation of artificial intelligence software, augmented reality and live scan facial recognition will transform policing; how FirstNet will aid police use of mobile video technologies; and how virtual reality could transform law enforcement operations and training.

Also be sure to check out our latest PoliceOne Digital Edition – <u>2018 Police Video Guide: The</u> <u>emerging tech, training and tactics shaping law enforcement</u> – in which we explore how departments can best utilize emerging video technologies to enhance police officer safety and improve operational efficiencies.

— The PoliceOne Team



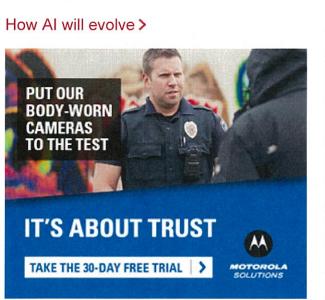
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How AI software could monitor realtime camera feeds to detect crime What is the future of body-worn cameras in policing?

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By Doug Wyllie, P1 Senior Contributor Using AI and facial recognition software for realtime crime reporting is the next logical progression in how police are already using existing technology.



POLICE TRAINING



By Tim Dees, P1 Columnist There may come a day when a central station will be able to activate a BWC by remote command and obtain a video stream when an officer is under duress.

Augmented reality >



LEGAL ISSUES

How virtual reality could transform law enforcement

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By Cole Zercoe, P1 Associate Editor Virtual reality headsets are becoming increasingly affordable, and the technology's evolution shows no signs of slowing down.

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CASE STUDY



By Val Van Brocklin, P1 Columnist If citizens permit widespread use of FRT outside of LE, you could argue they no longer have any reasonable expectation of facial privacy.

A look ahead >



COPS WEIGH IN

How FirstNet helped a Texas agency improve use of mobile video tech

How police agencies are training LEOs on the use of body cameras



By Jacque Miller-Waring, P1 Contributor In order for police to reap the full benefits of mobile video technologies, public safety must have access to a robust and reliable network.

Why interoperability is key >

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By P1 Staff

As PDs look toward the inevitable future of every cop carrying a BWC, it's important to consider the level of training required to ensure success.

Training methods >







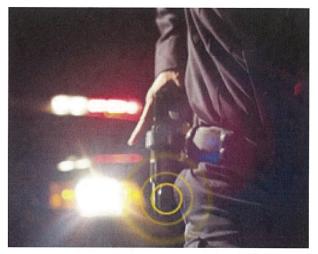
4 ways the new LE5 body-worn camera from Safariland VIEVU supports transparency for police agencies

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Dear PoliceOne Subscriber,

PoliceOne recently launched our <u>2017 Guide to Emerging Technologies</u> — a special coverage series focused on the tools shaping future law enforcement operations.

This special report features expert analysis on soundwave technology, facial recognition software, handheld narcotics analyzers, the future of traffic stops, how constitutional law impacts the collection of data for investigations, and how advancements in biometric technologies will help improve correctional facilities.

From crafting policy to tactical considerations, <u>this guide</u> will help your agency best prepare as adoption of these technologies becomes more widespread.

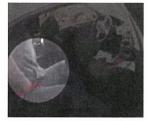
— The PoliceOne Team

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Police union gears up for fight after cop who fatally shot Tamir Rice is fired

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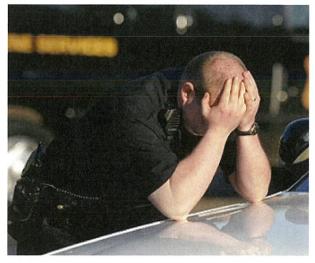
MENTAL HEALTH

5 common crimes committed by sovereign citizens



By Chris Meyer, PoliceOne Contributor

PTSD quiz: Find out if your symptoms qualify



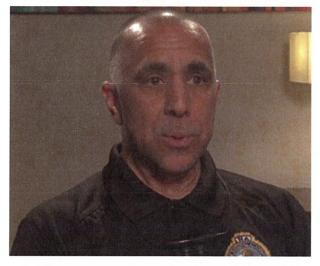
By PoliceOne Staff

Law enforcement must understand the sovereign citizen movement, and be able to identify specific components that make up the movement, in order to protect themselves.

Intimidation and obstruction of LE >

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Officer-involved shootings: The PD's role in the healing process



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- Video: Felon attacks cop, tries to grab service weapon during stop: At one point, the officer's radio became disconnected
- Australian constable fatally shot by felon during traffic stop: Senior
 Constable Brett Forte's death is the first
 LODD of the year in Australia



Officer who fatally shot Tamir Rice fired



Sheriff: Miss. shooting suspect dodged officers by swapping cars

- W.Va. officer killed, 3 injured after multi-vehicle pursuit crash
- Maine officer critical after attempted river rescue
- Video: Undercover buy that erupted in gunfire leads to policy changes
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By Greg Benson and Mike Fagel, P1 Contributors Interagency planning, training and exercises are critical components of response actions.

Interagency involvement >

POLICE TECHNOLOGY

Facial recognition technology and a 'reasonable expectation of privacy'

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By Jonathan Page, PoliceOne Columnist Once skills are automated and schemas are activated, a large portion of information processing is taken care of in the subconscious brain.

Applying expertise to policing ▶

P1 EXCLUSIVE

Why handheld narcotics analyzers are worth the investment



By Val Van Brocklin, PoliceOne Columnist Law enforcement might consider using discretion before a court decides whether police need a warrant to scan someone's face.

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By Julie Planchet, PoliceOne Contributor These devices prioritize crime lab workloads and dramatically cut drug testing costs.

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Roundtable: Police tech experts gaze into the crystal ball



By PoliceOne Staff Four experts on the frontline of law enforcement technology tell us what to expect 15 years out.

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Texas police save the day after no one shows up to boy's birthday party



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PATC LEGAL ARTICLES

Police Cannot Force Some Phone Unlocks

February 2019

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Jim Chapman, Attorney, Public Agency Training Council

In In the Matter of the Search of a Residence in Oakland, California, ____ F. Supp. 3d___, 2018 WL 176937 (N.D. Cal. Jan. 10, 2019), a United States Magistrate Judge in the United States District Court for the Northern District of California issued a ruling that is contrary to most rulings across the United States. Unlike other judges, United States Magistrate Judge Kandis Westmore held that law enforcement officers cannot force people to unlock their smartphones using their face, eyes, or fingerprints because such an act is testimonial for purposes of the Fifth Amendment, and the Fifth Amendment prohibits law enforcement officials from compelling a person to testify against himself.

In this case, the Government was investigating two individuals believed to be involved in extortion in violation of 18 U.S.C. § 875(d). According to the Government, the suspects allegedly used Facebook Messenger to communicate with a victim in which they threatened to distribute an embarrassing video of him if he did not pay them. The Government submitted an application for a search and seizure warrant to seize various items presumed to be located at a residence in Oakland, California ("Subject Premises") connected to the two named suspects. The application further requested the authority to seize various items, including electronic devices such as mobile telephones and computers ("digital devices"). Upon review, Magistrate Judge Westmore found that there were sufficient facts to support a finding of probable cause to conduct a search of the Subject Premises.

However, the Government also sought the authority to compel any individual present at the time of the search to press a finger (including a thumb) or utilize other biometric features, such as facial or iris recognition, for the purposes of unlocking the digital devices found in order to permit a search of the contents as authorized by the search warrant. Magistrate Judge Westmore found that the Government's request ran afoul of the Fourth Amendment and the Fifth Amendment and denied that portion of the search warrant application.

As for the Fourth Amendment, Magistrate Judge Westmore held that the request to search the Subject Premises was proper, but the request to search any and all electronic devices found during the search

and to use the phones' biometric features to retrieve data from the phones was overbroad. Magistrate Judge Westmore noted that the Fourth Amendment protects the right of the people to be secure in their persons, houses, papers, and effects against unreasonable searches and seizures. The basic purpose of this Amendment is to safeguard the privacy and security of individuals against arbitrary invasions by governmental officials. After reviewing the warrant application, Magistrate Judge Westmore concluded that there were sufficient facts in the affidavit to believe that evidence of the crime would be found at the Subject Premises, and so, the Government had probable cause to conduct a lawful search, so long as it comported with the Fourth Amendment.

On the other hand, Magistrate Judge Westmore concluded that the Government's request for an order that would allow agents executing the warrant to compel any individual, who is found at the Subject Premises and reasonably believed by law enforcement to be a user of the device, to unlock the device using biometric features was overbroad. Although there were two suspects identified in the affidavit, the request was not limited to a particular person or to a particular device. Therefore, Magistrate Judge Westmore found that the warrant application did not establish sufficient probable cause to compel any person who happened to be at the Subject Premises at the time of the search to provide a finger, thumb, or other biometric feature to potentially unlock any unspecified digital device that may be seized during the otherwise lawful search.

Furthermore, Magistrate Judge Westmore found that the Government's request to search and seize all digital devices at the Subject Premises was similarly overbroad. The Government cannot be permitted to search and seize a mobile phone or other device that is on a non-suspect's person simply because they are present during an otherwise lawful search because, to do so, would violate the Fourth Amendment's reasonableness requirement. In other words, Magistrate Judge Westmore determined that such a request was too broad to comport with the Fourth Amendment's requirements.

As for the Fifth Amendment, Magistrate Judge Westmore stated that, even if probable cause existed to seize devices located during a lawful search based on a reasonable belief that they belong to a suspect, probable cause does not permit the Government to compel a suspect to waive rights otherwise afforded by the Constitution, including the Fifth Amendment right against self-incrimination. The Fifth Amendment provides that no person shall be compelled in any criminal case to be a witness against himself. The proper inquiry is whether an act would require the compulsion of a testimonial communication that is incriminating. Magistrate Judge Westmore opined that the issue is whether the use of a suspect's biometric feature to potentially unlock an electronic device is testimonial under the Fifth Amendment.

Unlike other federal judges across the country, Magistrate Judge Westmore held that use of a suspect's biometric features to unlock a smart phone was testimonial under the Fifth Amendment. In reaching this conclusion, Magistrate Judge Westmore noted that courts have an obligation to safeguard constitutional rights and cannot permit those rights to be diminished merely due to the advancement of technology. Citizens do not contemplate waiving their civil rights when using new technology, and the United States Supreme Court has concluded that, to find otherwise, would leave individuals at the mercy of advancing technology.

In addition, Magistrate Judge Westmore stated that users have had the ability to lock their electronic devices by using an alpha-numeric code for decades and that courts that have addressed the passcode issue have found that a passcode cannot be compelled under the Fifth Amendment because the act of communicating the passcode is testimonial. Testimony is not restricted to verbal or written communications. Acts that imply assertions of fact can constitute testimonial communication for the purposes of the Fifth Amendment. Specifically, a witness's act of production itself could qualify as testimonial if conceding the existence, possession and control, and authenticity of the documents tended to incriminate them.

Magistrate Judge Westmore acknowledged that certain acts, while incriminating, are not within the privilege, such as furnishing a blood sample, submitting to fingerprinting, providing a handwriting or voice exemplar, or standing in a lineup. But a distinction has emerged, often expressed in different ways, in that the privilege is a bar against compelling communications or testimony but that compulsion which makes a suspect or accused the source of real or physical evidence does not violate it.

Magistrate Judge Westmore found that utilizing a biometric feature to unlock an electronic device is not akin to submitting to fingerprinting or a DNA swab because it differed in two fundamental ways. First, the Government conceded that a finger, thumb, or other biometric feature may be used to unlock a device in lieu of a passcode. In this context, biometric features serve the same purpose of a passcode, which is to secure the owner's content, pragmatically rendering them functionally equivalent. As the Government acknowledged, there are times when the device will not accept the biometric feature and require the user to type in the passcode to unlock the device.

For example, a passcode is generally required when a device has been restarted, inactive, or has not been unlocked for a certain period of time. This feature is, no doubt, a security feature to ensure that someone without the passcode cannot readily access the contents of the phone. In fact, the Government expressed some urgency with the need to compel the use of the biometric features to bypass the need to enter a passcode. This urgency appeared to be rooted in the Government's inability to compel the production of the passcode under the current jurisprudence. It followed, that if a person cannot be compelled to provide a passcode because it is a testimonial communication, a person cannot be compelled to provide one's finger, thumb, iris, face, or other biometric feature to unlock that same device.

Second, requiring someone to affix their finger or thumb to a digital device is fundamentally different than requiring a suspect to submit to fingerprinting. A finger or thumb scan used to unlock a device indicates that the device belongs to a particular individual. In other words, the act concedes that the phone was in the possession and control of the suspect and authenticates ownership or access to the phone and to all of its digital contents. Thus, the act of unlocking a phone with a finger or thumb scan far exceeds the "physical evidence" created when a suspect submits to fingerprinting to merely compare his fingerprints to existing physical evidence (another fingerprint) found at a crime scene because there is no comparison or witness corroboration required to confirm a positive match. Instead, a successful finger or thumb scan confirms ownership or control of the device, and unlike fingerprints, the authentication of its contents cannot be reasonably refuted.

Magistrate Judge Westmore also found it noteworthy that many smartphone applications provide access to personal, private information-including medical records and financial accounts-and allow users to utilize biometric features in lieu of passcodes to access those records. Therefore, Magistrate Judge Westmore determined that a phone's biometric feature is analogous to the nonverbal, physiological responses elicited during a polygraph test, which are used to determine guilt or innocence, and are considered testimonial.

Magistrate Judge Westmore sympathized with the Government's interest in accessing the contents of any electronic devices that it might lawfully seize. Nevertheless, Magistrate Judge Westmore asserted that there were other ways that the Government could access the contents of those devices that do not trample on the Fifth Amendment. For example, the Government could obtain any Facebook Messenger communications from Facebook under the Stored Communications Act or a warrant based on probable cause. While it may be more expedient to circumvent Facebook and to attempt to gain access by infringing on the Fifth Amendment's privilege against self-incrimination, Magistrate Judge Westmore held that it was both an abuse of power to do so and that it was unconstitutional to do so, and the fact that the Government may never be able to access the complete contents of a digital device otherwise did not affect the analysis.

Accordingly, Magistrate Judge Westmore denied the Government's warrant application and held that the Government may not compel or otherwise utilize fingers, thumbs, facial recognition, optical/iris, or any other biometric feature to unlock electronic devices. Instead, the Government could only seize those digital devices that law enforcement reasonably believed are owned and/or possessed by the two suspects named in the affidavit.

Note: Court holdings can vary significantly between jurisdictions. As such, it is advisable to seek the advice of a local prosecutor or legal adviser regarding questions on specific cases. This article is not intended to constitute legal advice on a specific case.

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Did you know that you can access all of our solutions from one platform? Vigilant Investigative Center (VIC) is an investigative platform that houses all of our solutions $\hat{a} \in ALPR$, facial recognition, ballistics analysis, gun crime mapping and more $\hat{a} \in i$ in one place.

Interested in learning more about VIC? Join us for our webinar, Come Meet VIC, hosted by retired NYPD Lieutenant Commander, Tom Joyce. See firsthand how VIC can take your investigations to another level!

DATE: Thurs, November 8th TIME: 1500 - 1600Â EDT



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ABOUT SOLUTIONS CONTACT



VIGILANT SOLUTIONS ACQUIRES EDESIX, LTD.

Dear Michael,

We are very excited to announce today that Vigilant Solutions has acquired Edesix Ltd, the number one manufacturer of body worn cameras in the United Kingdom.

Founded in Edinburgh in 2002, Edesix has a global footprint of customers from the UK and the United States to Abu Dhabi and Australia in industries ranging from law enforcement and airport security to fire safety, rail safety, university security and healthcare. Its body worn video system – VideoBadge[™] – employs footage encryption and a wire-free design that make it extremely versatile for various types of users and applications. Similarly, its VideoManager[™] software solutions enable web-based viewing and editing of incidents, and preparation of evidence packages. The software is designed to control and manage cameras, their footage and footage from other sources in a highly efficient and secure manner. Additionally, its in-car cameras will seamlessly integrate with our suite of technologies.

So, what does this mean for our customers?

- Anyone who works with Vigilant Solutions knows that we are passionate about the fact that our solutions help to keep communities and law enforcement safe. And, by providing law enforcement with body worn and in-car cameras, we are able to achieve both goals by aiding the law enforcement community in your efforts to promote transparency in your engagements with the public.
- Law enforcement agencies no longer need to keep their ALPR, facial recognition, ballistics analysis, gun crime and body worn/in-car camera images siloed in multiple systems. All the images you capture can easily be integrated into our investigative platform, so we can provide law enforcement with a single platform for securely managing images all in one place.
- 3. There is a new player in the body worn camera market. And, that means increased competition for law enforcement's dollars, which translates to competitive pricing and continued innovation in technology development.

If you are interested in learning more about Edesix products, please reach out to your Account Manager or contact us at Sales@VigilantSolutions.com.

Be Safe. Be Smart. Be Vigilant.

Shawn Smith Founder and President, Vigilant Solutions

What new products are you most looking forward to learning more about? **We want to hear from you!** Complete this two question survey and let us know!

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Dear Detective,

Hello, my name is Fran from Suspect Technologies. We developed a highly accurate facial recognition technology that works for any cameras to make identification of people, easier and faster. In turn, we hope it will make identification of suspects easier, save resources, save time, and of course reduce crime. We are currently trying to gather insights to see if this technology works for you, any suggestions or comments, and if this is something that you think would be helpful for you in investigations and possibly the field. Just to be clear, I'm not necessarily trying to sell you anything. We are a spin-off from MIT. We are trying to understand if detectives want this or not and how they are currently using facial recognition and related technologies. Any feedback is helpful. Are you available to answer some quick questions via email or phone?

Best Regards, Fran Suspect Technologies

ABOUT SOLUTIONS CONTACT





Join us for Happy Hour at IACP 2018 in Orlando, FL!

We will be hosting happy hours on both Sunday, October 7th and Monday, October 8th. Drop by our booth to grab a drink and some food, and also learn more about license plate recognition, facial recognition, ballistics analysis, gun crime mapping, and some of our new product offerings!

Where: Vigilant's Booth #1139

When: Sunday, October 7th and Monday, October 8th at 1500-1630hrs

What: Cold drinks, yummy food and good company

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ABOUT SOLUTIONS CONTACT





Are You the Agency We're Looking For?

Has your agency been using technology in an innovative way to keep communities safe? We want to know! Nominate yourself for the Vigilant Communities Award, which recognizes agencies who are using LPR, facial recognition, ballistics analysis and/or firearms mapping in an innovative way.

Nominations are currently open until September 7, 2018 at 11:59PM PST. You may nominate your agency or someone else. Winners will receive a \$2,000 donation to their fallen officers fund.

Nominate your agency today!

LEARN MORE

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ABOUT SOLUTIONS CONTACT



THE 5 STEP PROCESS BEHIND EVERY FACIAL RECOGNITION SEARCH

In the past year, facial recognition use by public safety has seen significant improvements in matching accuracy. Although the confidence level in the technology is rising, there are still many best practices they are missing out on such as human involvement, a critical deciding factor of whether returned leads are viable or not.

Join Director of Client Relations for Vigilant Solutions and Retired NYPD Detective, Roger Rodriguez as he explains the 5 Steps of the Facial Recognition Investigative Workflow. See firsthand how agencies nationwide are generating positive results with FaceSearch, Vigilant's facial recognition solution.

During Roger's tenure as a lead detective in the New York City Police Department's first dedicated facial recognition unit, he acquired the skills and first-hand experience in best practices for facial recognition in public safety. The success of this unit was driven by establishing a defined workflow which helped develop strong investigative leads and close cases faster.

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5/20/2019

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WHEN Thursday, September 13, 2018 | 3:00 PM - 4:00 PM EDT

HOSTS Roger Rodriguez

Director of Client Relations, Vigilant Solutions Detective, NYPD (RET.)

REGISTER NOW



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June 7, 2018 | View as webpage



Dear Police Leader,

Modifying use-of-force policy and training is a complex issue with many factors to consider. In this month's PoliceOne Leaders eNewsletter, we take a look at the costs of raising the UOF standard, how one agency educates prosecutors about the realities of deadly force, and what officers, their families, and communities deserve from UOF training.

We also explain why patience is one of the most powerful tools in all aspects of policing, and why police agencies need to link crime and health data.

— The PoliceOne Team

FEATURED ARTICLE



What are the costs of raising police use of force to a higher standard?

AUP



What do LEOs, their



MORE POLICE LEADER COLUMNS >

Risks of modification >

Learn How to Curb Sick Leave Abuse in Your Department ELSAG Plate Readers Now See Make, Type, Color



P1 conducted surveys asking about the effect of sick leave abuse. The results were clear: Sick leave abuse is

happening, and it is affecting staffing decisions and relationships inside departments.

Download the free white paper



Find suspect vehicles faster by asking for make, type and color when querying your ELSAG license plate reader

data.

Get the details

LESSONS IN LEADERSHIP

When patience is a police officer's best weapon



By Rich Emberlin, P1 Columnist Patience exerts a powerful and primary influence not just in tactical operations, but in all aspects of policing.

Follow a formula >

Free eBook: Public Safety in the Age of Connectivity

Find out how modern PDs use technology to increase situational awareness for

RESEARCH ANALYSIS

Why integration of public health and public safety data makes sense



By Catherine R. Counts, P1 Contributor Camden ARISE – a new initiative out of New Jersey –demonstrates that merging disparate data sources can lead to surprising findings.

Lessons learned >

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LEADERSHIP NEWS

- Sheriff hires LEO fired after patrol car hit fleeing suspect
- LA mayor picks 36-year veteran as next police chief
- Conn. chief thanks 3 people who saved stabbed LEO's life
- Orlando police chief defends use of facialrecognition software

MORE POLICE LEADER NEWS >

in NOW ON LINKEDIN



Officer Safety on the Highway The Spring 2018 PoliceOne Digital Edition is out now! See what's inside and let us know what you think.

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Law Enforcement

Webinar Series

Register for the February 28th human trafficking webinar for tips to find victims and stop criminals



<u>Human Trafficking: Tools and Methods for Successful Cyber</u> <u>Investigations</u> February 28 at 2:00 pm EST

The Internet has changed how human traffickers operate, enabling them to advertise their victims easily, anonymously, and to a large audience of buyers through various dating and relationship sites and various classified advertising platforms. This webinar, produced in partnership between Marinus Analytics and LexisNexis Risk Solutions, will show the best tools and methods to make use of this huge amount of data to find victims and traffickers successfully. It will cover how the data from LexisNexis law enforcement solutions like Accurint Virtual Crime Center in conjunction with Traffic Jam's artificial intelligence tools such as facial recognition through FaceSearch, can help rescue victims and complete searches in seconds. Join this webinar to gain tips and tools to make the most out of your time, to effectively find victims of human trafficking and bring their exploiters to justice.

Register Today



Introduction the Accurint Virtual Crime Center by LexisNexis March 29 at 3:00 pm EST

Law enforcement experts will introduce how Accurint Virtual Crime Center is the next generation solution for investigations and nationwide data sharing. This solution helps your agency to solve more crimes and discover hard to find information by linking 10,000 public records sources to national law enforcement data to find non-obvious connections and generate leads with one search.

Register Today

Webinar Schedule

Apr 25, 2018 2:00 PM EST	Introducing the Accurint Virtual Crime Center by LexisNexis
May 23, 2018 1:00 PM EST	Making Connections: Linking Crimes at Local, Regional, and National Levels
Jun 26, 2018 2:00 PM EST	Introducing the Accurint Virtual Crime Center by LexisNexis
Jul 26, 2018 1:00 PM EST	Introducing the Accurint Virtual Crime Center by LexisNexis
Sep 26, 2018 3:00 pm	Introducing the Accurint Virtual Crime Center by LexisNexis

For more information on Accurint Virtural Crime Center, please click here.

Quick Links

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Keep both hands on the steering wheel, focus attention on the road, and reduce clutter on the dash.

Find out more >

Tactical Blanket Systems by Instant Armor



The DuraForce PRO by Kyocera is rugged, waterproof, and tough enough for any job.

Why Kyocera is right for cops >



Lightweight, large coverage for officers against pistol and rifle fire. Find out why Instant Armor has been called the "most versatile piece of equipment" in the field.

Protect your officers >

Multifunctional Light for Running Boards, Push Bumpers, Tailgates...



Outliner increases the visibility of any vehicle with its capabilities to be used as a warning light or traffic advisor.

Available now >

Never Go to Your Trunk for Armor Again

How Vigilant Solutions Helps Solve Major Crimes



Learn how to develop leads, solve crimes and protect officers with license plate recognition (LPR), analytics and facial recognition in this free eBook.

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Angel Armor's RISE vest with Truth SNAP rifle plates provide rifle protection that can be worn comfortably all day.

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Hi Detective Michael Briggs,

Thank you for your interest in Vigilant Solutions.

Vigilant Solutions is a global provider of law enforcement solutions including LPR / ANPR and Facial Recognition.

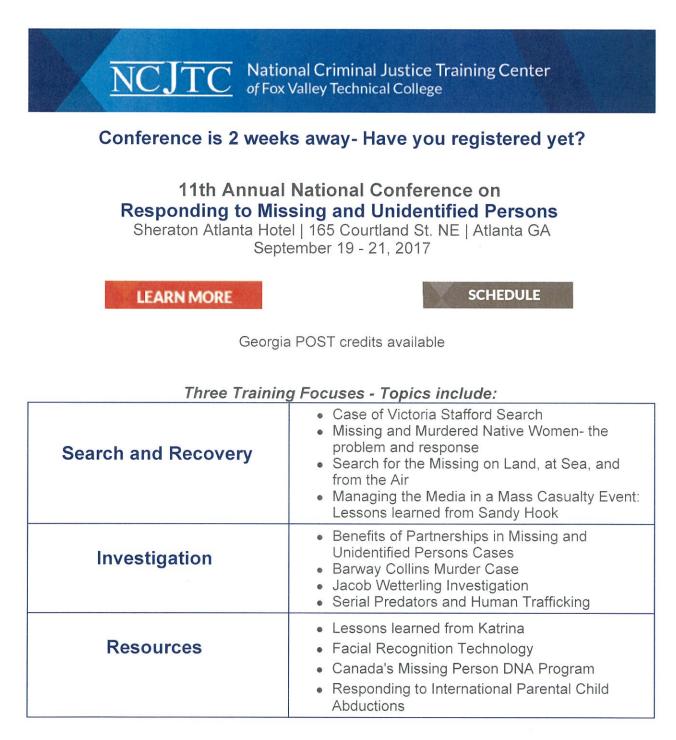
In order for me to properly handle your information request, please tell me a little more about your interest. Any information you can provide me relative to your current project, products of interest, or agency initiatives would be greatly appreciated.

Helpful information:

- Product of Interest
- Number of cruisers in fleet
- LE agency name
- Number of Sworn
- Budget \$\$ for project
- City, State & County (if applicable)
- Pain Points (i.e. Burglary, Auto Theft, Gangs, Narcotics)

Please also include some available times in the coming week(s) so that we can set aside some time to discuss.

Regards, Jaremy Savage Inside Sales Representative Vigilant Solutions Protecting Officers, Families and Communities (817) 975-0353 Images not showing up? Click here



Spots still available for FEMA Course!

Emergency Operations Plans for Rural Jurisdictions

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Certification Course- MGMT 383

September 21, 2017 Part 1 - 8:30 am - 12:00 pm Part 2 - 1:30 pm - 5:00 pm

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Ready to be a better investigator? Join our Facial Recognition Webinar

There are still a few open spots for our upcoming webinar, Validate or Exonerate: The Importance of Facial Recognition Checks and Balances.

In this webinar, Retired NYPD Detective, Roger Rodriguez, will show you how a fully integrated CJIS compliant system, with good enhancement tools and built-in auditing and reporting can assist agencies to validate or exonerate persons wanted in criminal investigations.

Topics Include:

- · The importance of reporting and annotation tools
- · Checks and balances
- · Privacy and compliance
- Use case examples

When: Thursday, July 13th 3:00 PM EST / 2:00 PM CST

Register Now→

Space is limited, please register early to save your spot.



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Registration Open for 2017 Conference!

11th Annual National Conference on Responding to Missing and Unidentified Persons Conference

Multiple Victim Events: Implications for Investigation, Search, Rescue, and Recovery September 19 - 21, 2017 | Atlanta, GA

Individual Registration \$400

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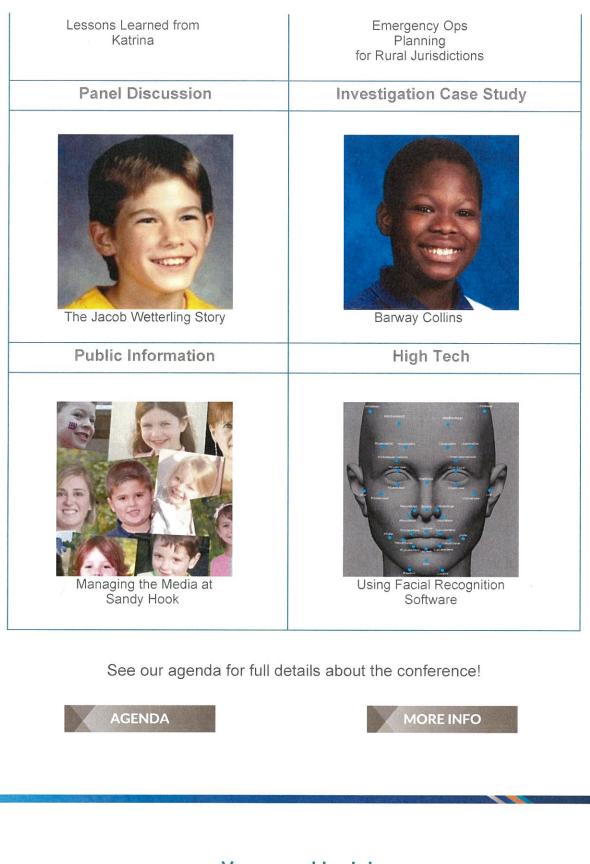
Groups of 3+ \$350 per registrant

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2017 Conference Highlights

Emergency Preparedness	FEMA Certification
	FEMA

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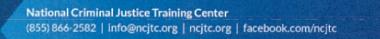
Sheraton Atlanta Hotel | 165 Courtland Street NE | Atlanta, GA (404) 659-6500

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Questions? Please contact us at (888) 347- 5610 or email dcoffice@fvtc.edu







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TOP NEWS



Austin officer dies days after motorcycle wreck

- NJ officer shot in head improves: Officer Joshlee Vadell remains critical, but stable after being shot in the head outside an Atlantic City casino
- La. first responders lose homes in flooding: Hundreds worked long hours during the days and weeks after the floodwaters began to rise even as their own homes sank
- Colo. deputy critically wounded in shootout: Detective Daniel Brite was critically wounded after a suicidal suspect opened fired on officers





Officers threaten to boycott 49ers games, chief vows safety



Texas trooper critically injured by suspected drunk driver

- As homicides rise, Chicago mayor looks to hire more cops
- Maine sheriff's deputy assaulted by suspect
- Orlando police chief defends shooting data
- Boston police union goes to court over body cams
- Armed officers placed at jail where shooting occurred
- Police: Miss. man claimed to be immune from arrest

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single frame.

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HEALTH AND WELLNESS

Are we complicit in police suicide?



By Jeff McGill, PoliceOne Columnist Officers train together to manage violence, discuss the latest tactics and have a commitment to ensure they all go home, but rarely discuss their mental health.

Identification and prevention >

PRODUCT VIDEOS

Vigilant Solutions Facial Recognition Technology Overview Vigilant Solutions' facial

recognition technology

OFFICER SAFETY

Small handguns: Choose your loads carefully



By Richard Fairburn, PoliceOne Columnist Mouse gun calibers lack the oomph to give both expansion and adequate penetration.

Picking the right firearm >

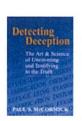
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Detecting Deception. Learn to effectively, accurately & consistently DETECT DECEPTION! With LooseLeaf Law

P1 Member Newsletter



suite includes FaceSearch and Lineup.



PRODUCT NEWS

BOOM! IG restores @WorldOfTroy, TROY celebrates!

Now Available from OfficerStore: The Exclusive Blue Leatherman Raptor

More Product News



Grants Help Now Available for an Intuitive RMS Platform! With Mark43

More Featured Deals

DRUG INTERDICTION

Kratom: What cops need to know about the drug the DEA plans to ban



By Keith Graves, PoliceOne Columnist Kratom, currently sold as a health supplement, is often used by individuals as an alternative to heroin.

Becoming more aware >

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High-speed pursuit ends in attack on cops



Clowns terrorize SC town



Body Armor: Why 4 Panels Are Better Than 2

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Propper's new 4PV armored vest provides greater comfort and protection than a twopanel 'clamshell' design.

Read the full article here

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- ▲ 1.6K Officers threaten to boycott 49ers games, chief vows safety
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Wednesday, October 26, 2016



MAR1071 1-4.5 x 24mm - March Optics

MAR1071 1-4.5 x 24mm was specifically designed for the Service Rifle match shooter who shoots at various distances up to 600 yards.



Si500 Body-Worn Camera - Motorola Solutions

The Si500 Body-Worn Camera integrates voice communications, video, images, voice recording, and emergency alerting into a sleek, rugged, and feature-rich design with a built-in remote speaker microphone



Dragon Law Enforcement - Nuance

Dragon Law Enforcement delivers on the need of law enforcement professionals, including police officers and sergeants, for a fast, accurate way to safely and efficiently meet daily reporting and documentation demands - all by...



CVE Wheel/Axle Scales Unit - OPS PUBLIC SAFETY

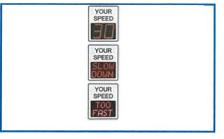
OPS Public Safety has released the new CVE Wheel/Axle Scale Unit, specifically designed for commercial vehicle enforcement.



Two-In-One Plate Carrier - Point Blank Enterprises

Point Blank's Two-In-One Plate Carrier features front and back plate pockets for NIJ Level III or IV hard armor

plates.



TC-600 Speed Display Sign -Radarsign

Radarsign's TC-600 is a full matrix radar speed sign with a 13â€³ LED display with directional beam technology.



ZigKick Tactical Series - Reebok Duty

Reebok Duty ZigKick Tactical boots feature FootFuel Footbed Comfort Technology.



Iris - Spillman

Introducing Iris, Spillman's new public-facing nonemergency incident reporting app.



Axon Body 2 - TASER

Axon Body 2 lets you capture video in HD without distractions and receives upgrades every 30 days.



6" Duty Composite Safety Toe Waterproof Side-Zip Boot -Timberland

Built specifically to provide public safety professionals with lightweight comfort and protection on the job.

Urban Force TRU Pant - Tru-Spec

Tru-Spec's Urban Force TRU Pant was designed in conjunction with law enforcement officers to encompass an approachable, yet tactical style.



Phantom OPS Pants - Vertx

Built from the same blueprint as the Vertx Original Pants, the Phantom LT 2.0 Pants are designed to deliver optimal performance in an extremely light-weight format.



Retracta-Cade - Visiontron

The patent pending Retracta-Cade was developed by a retired NYPD lieutenant for the purpose of increasing officer safety by providing a durable on-demand barrier control system.



Redactive - WatchGuard Video

Redactive software speeds redaction of video using advanced facial recognition technology.



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LAW and ORDER Newsletter - Product News

Page 1 of 5





Police Shooting in Charlotte Raises Questions About Bodycams

The fatal shooting of a black man by a police officer in Charlotte is only the latest shooting to raise questions about how department uses body cameras... H Read More

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Law enforcement is rapidly developing sophisticated tools to monitor and analyze social media activities... H Read More





McCarthy, Packers donate big to police foundation

Law enforcement is rapidly developing sophisticated tools to monitor and analyze social media activities... H Read More

Latest Law Enforcement Products



OfficerStore Active Shooter Kit



Get effective protection during Active Shooter situations with OfficerStore's Active Shooter Kit, featuring a Condor Modular Operator Plate Carrier and two Armor Express Level IV Single Curve Standalone Plates. You'll get functionality with modular platforms on all sides and mobility with operator-cut front and back harnesses and maximum ballistic protection against rifle threats with rifle plates capable of stopping .30-06 M2 AP ammo at 2880 ft/s. For more information, visit

www.officerstore.com.

Enabled Enterprises Electric Bike

Enabled Enterprises, a business founded by disabled veterans, along with its GSA approved manufacturing partner, developed the first of its kind Electric Patrol Bike for police and military. Pedal, pedal assist, or full power. Streets, trails, snow, grass. Up to 25 mph. "Bike has performed well our guys and the public love them," said Chief John Sliozis, Deerfield, III. PD. For more information visit, www.enabledenterprises.com.



Pryme BTH-300 Bluetooth Headset Wins Mobile Tech Award

Pryme spent years perfecting their new PrymeBlu BTH-300 Bluetooth Headset with built-in wireless PTT. BTH-300 uses any Apple compatible wired audio accessory converting it to wireless operation and dualpairs with Android or IOS cellphone/tablet and two-way radio simultaneously--perfect for undercover applications operations as the Status multi-color LED is almost invisible. Use your earbuds or choose one of PrymeBlu's 8 unique, heavy-duty headset kits including D-Ring Boom Headset; Dualelement Throat Mic; Surveillance Earphones and more. Maximum performance with 10+ hours talk time (50 hours standby) and



OPS Public Safety CVE Wheel/Axle Scales Unit

OPS Public Safety's all-new CVE Wheel/Axle Scales Unit is specifically designed for Commercial Vehicle Enforcement. Engineered for the Ford Explorer, it holds four scales, gear and rifles. Manufactured of heavy gauge aluminum with available features that include a 10"'H X 35"'W X 20"'D Storage drawer with heavy-duty 200 lbs. ball bearing slides, a 36 inch-deep drivers side storage compartment, an anti-skid top surface with perimeter cargo rail, durable anti-skid rubber in drawer bottom and side compartment. includes USB charger. Clips securely almost anywhere for hands-free wireless communications. For more information, visit www.pryme.com/promo/lo.



Vigilant Solutions FaceSearch Facial Recognition Solution

FaceSearch is an easy-to-use facial recognition solution that results in more investigative leads. Developed by Vigilant to deliver a functional, scalable and advanced facial recognition solution that any investigator can use, FaceSearch is available as a PC-based or web-based solution, and is hosted in the cloud and available on Android and Apple OS mobile devices. For more information, visit www.vigilantsolutions.com. The detachable scale compartment has Teflon slide rails. To access the spare tire, simply unfasten and remove the scale compartment. The base and brackets utilize OEM bolt holes that eliminates drilling for installation (optional barrier available). For more information or a demo visit www.OPSPublicSafety.com.



Dickies Tactical Softshell Performance Jacket

The Dickies Tactical Jacket, through its warm lining and articulated elbows, offers comfort and ease of movement. Hidden front and back ID panels and a side holster for simplified CCA access lets this jacket store all your tools and accessories, keeping your hands free when you need them most. The jacket is available in black and blue. For more information, visit

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Dear Detective,

Hello, my name is Fran from Suspect Technologies. We developed a highly accurate facial recognition technology that works for any cameras to make identification of people, easier and faster. In turn, we hope it will make identification of suspects easier, save resources, save time, and of course reduce crime. We are currently trying to gather insights to see if this technology works for you, any suggestions or comments, and if this is something that you think would be helpful for you in investigations and possibly the field. Just to be clear, I'm not necessarily trying to sell you anything. We are a spin-off from MIT. We are trying to understand if detectives want this or not and how they are currently using facial recognition and related technologies. Any feedback is helpful. Are you available to answer some quick questions via email or phone?

Best Regards, Fran Suspect Technologies



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Monday, September 05, 2016

Video: TX Motor Officer Dies After 'Valiant Fight'

The Austin, TX, police officer hurt in a motorcycle crash Thursday died as a result of his injuries Sunday. Officer Amir Abdul-Khaliq, 46, was struck by a car while escorting a funeral procession.

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Video: CO Detective Critically Injured in Shooting, Showing 'Promising Progress'

Det. Dan Brite is making "promising progress" after a shooting with a suspect in Parker, CO, on Friday, the Douglas County (CO) Sheriff's Office said Sunday.

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NJ Police Use Cloud-Based Network to Improve Safety & Efficiencies

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Video: CA Deputies Critically Wounded in Courthouse Shooting

The Fresno County Sheriff's Department has confirmed that two officers were shot Saturday morning during an attack by a convicted rapist at the Fresno County jail in Downtown Fresno.

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Ask the Expert Your Questions About Facial Recognition

Now you can ask an expert your questions about facial recognition and read responses to others' questions on PoliceMag.com.

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Funeral for Slain New Mexico Officer Set for Saturday Funeral arrangements have been set for Alamogordo, NM, Officer Clint Corvinus, who was shot and killed last Friday.

NJ Officer Critically Wounded in Atlantic City Shootout, Suspect Killed

One police officer remains in critical condition and one suspect is dead in an exchange of gunfire outside an Atlantic City casino early Saturday.





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Monday, March 12, 2018

NC Deputy Killed in Crash While Trying to Pull Over Vehicle

Deputy David Lee'Sean Manning, 24, had worked for the Sheriff's Office for about four months.

Austin Police Searching for Serial Bomber, Murderer

Interim Police Chief Brian Manley confirmed that evidence suggested that this bombing was related to two previous blasts from "box-type deliveries†that killed a teenager earlier in the day and a 39-year-old man 10 days ago.

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CA City Holds Vigil for Officer Killed On His Last Day of Training

More than 300 mourners gathered outside Pomona police headquarters Sunday night for a candlelight vigil, where officers wore black mourning bands with the number "16" $\hat{a} \in$ " Casillas' badge number $\hat{a} \in$ " over their badges.

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Video: Colorado Department Releases Footage of Fatal OIS

Officers gave numerous commands to drop the weapon that the suspect ignored, and then the officers fired.



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Family of Fallen Maryland Officer Receives Generous Gift

The grieving family of a fallen Maryland police officer received a generous gift from a local business who wanted

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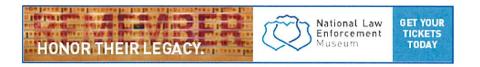
file:///C:/Users/jdicarlo/AppData/Local/Temp/bitrecovermbox/PTT10993.htm

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to help ease the pain -- by paying the family's mortgage for a year.

Florida Court Hearing Appeal of Case Involving Facial Recognition Technology

The court battle, regarded by researchers as the first of its kind in the country to consider how the surveillance tool can be used in a criminal case, is being waged over a statewide biometric database of faces run out of the Pinellas County Sheriff's Office â€" one that extends...



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Video: NC Officer Becomes Department's First Female Sharpshooter

McFaul said it's an honor to be the first female to reach such a prestigious level within the force, and she hopes to inspire other women.

Pennsylvania Sheriff Hires Recent College Grad as Second in Command

Held announced the appointment of Travis Day, 23, of Jeannette to serve as a captain in the sheriff's department, filling a void in the leadership team due to an indefinite medical leave and a resignation.

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Police Product Test: Tru-Spec Men's 24-7 Xpedition Pants

Top to bottom, the Tru-Spec Men's 24-7 Xpedition Pants bring a ton of features to the table. These things mean business.

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Thursday, October 18, 2018

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California Deputy Critically Wounded in Shootout, 2 Suspects in Custody

A San Bernardino County, CA, sheriff's deputy was in critical but stable condition after being wounded in a shootout early Thursday morning at an apartment complex in Adelanto, the agency said.

South Carolina Deputy Making Remarkable Recovery After Being Shot

According to WPDE-TV News, 24-year-old Florence County Deputy Arie Davis has made a remarkable recovery and is doing well.



Court: Police Cannot Force Facebook to Wiretap Calls Via Messenger App

A U.S. District Judge in Fresno (CA) has ruled that law enforcement officials cannot compel Facebook to wiretap voice calls over its Messenger app.

Oregon Man Started Fire in Attempt to Ambush First Responders

The manâ€"identified as 65-year-old Lance Taylor Jacobsâ€"reportedly set the fire in an attempt to lure police officers and firefighters in an ambush attempt.



Georgia Trooper Struck in Ballistic Vest in Gunfight at Traffic Stop

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The trooper was reportedly struck in his ballistic vest. He was transported to a nearby hospital, where officials say he is expected to be OK.

Anonymous Amazon Employee Publishes Op-Ed Opposing Sale of Facial Recognition Tech to Police

An anonymous employee for tech giant Amazon recently posted an opinion article to Medium in which they argue that the sale of facial recognition software to police is wrong because "the product we're selling is a flawed technology that reinforces existing bias."



Illinois Officer Charged With Armed Robbery, Suspended Without Pay

Should Karas be exonerated of the criminal charges and the internal allegations of misconduct, he would be eligible to receive back pay.

New South Carolina Law Helps Criminals Erase Criminal History from Public Record

Lawmakers in South Carolina recently made it easier for the convicted to erase crimes from their publicly available records, expanding the list of convictions eligible for expungement.



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Oregon Police Hold "Summit" to Build Community's Trust

"Building Bridges of Understanding in Our Communities came together in September 2016, at a time of heightened tensions in our country and polarizing political rhetoric," said the City of Portland on its website.

Connecticut Police Officer Fired Over "Trigger Happy" Comment

The department said in a Facebook post that Officer Stephen Barone was fired "after the completion of internal investigations and a formal hearing process regarding charges related to his interaction with a group of people in August 2018 and his supervision of a traffic incident...

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NYPD Unveils New Policy to "Reduce Unnecessary Marijuana Arrestsâ€

A SERVICE OF

According to NYPD projections, the new policy will likely reduce overall marijuana arrests in New York City by about 10,000 per year based on 2017 arrest records and patterns.



Balancing Privacy Rights and Facial Recognition Technology for Police

Disruptive technologies present challenges for everyone $\hat{a} \in \mathbb{C}^{n}$ police administrators included. But such technologies also carry significant benefits not only for police, but for the citizens they are sworn to protect.

Hiring Laterals \$35-\$42 DOE



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NYU Professor Publishes Personal Information on 1,500+ ICE Agents

Sam Lavigne â€" a New York University professor who associates himself with the far-left-leaning group Antifa â€" reportedly posted a database of personal information of more than 1,500 Immigration and Customs Enforcement (ICE) employees.



Sponsored by Columbia Southern University For Community Policing to Succeed, Walking Around Isn't Enough

Community policing is a way for members of a community and the local police to work hand-in-hand, but what all does it require of residents and volunteers, and how does a community ensure a successful program? POLICE HOW-TO

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Rhode Island State Police Send Stuffed Toy to 4-Year-Old New York Boy

A Brooklyn family had been traveling on I-95 in Rhode Island when a stuffed toy belonging to a 4-year-old boy fell out the window of their vehicle.

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Minnesota Officers Help 9-Year-Old Recover from Lemonade Stand Robbery

Officers from the Brooklyn Park (MN) Police Department recently responded to a call that a couple of middle-schoolage kids had stolen a young boy's lemonade stand profits.

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Networking for Law Enforcement Technology Leaders December 2019 | Scottsdale, AZ



Washington to Allow Non-citizens to Apply for Police Jobs

Legislators in Washington state passed Senate Bill 6145, which changes the qualifications for police and firefighter jobs to include "legal permanent residents†with a clean criminal record.

Trial Begins for Ex-cop Accused of Rape at Massachusetts Police Station

A former Massachusetts police officer accused of a 2016 rape in a station holding cell says the sexual acts were consensual.



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Pennsylvania Police Fatally Shoot Man During Traffic Stop

A police officer in the town of East Pittsburgh fatally shot a 17-year-old suspect just seconds after he fled a traffic stop late Tuesday.

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Friday, June 22, 2018

SCOTUS: Tracking Cell Tower Location Data Requires a Warrant

In a 5-4 vote, the United States Supreme Court ruled on Friday that police must first obtain a search warrant before examining location data â€" cell tower records that can show a person's movement for long periods of time â€" stored on a subject's mobile phone.

Amazon Employees Join ACLU, Investors in Protest of Amazon's Sale of Tech to Police

A group of Amazon employees have asked company executives to discontinue its sale of the company's Rekognition facial recognition software to law enforcement agencies.

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Officer Wounded in Texas High School Shooting Heads Home

Officer John Barnes â€" who along with Officer Gary Forward rushed to end the threat of an active shooter at Santa Fe High School in May â€" walked out of a Houston-area hospital on Wednesday.

Video: Actor Dean Cain Sworn in as Idaho Reserve Deputy

Actor Dean Cain â€" whose acting roles include Superman â€" was recently sworn in as a reserve officer with the Saint Anthony Police Department in Idaho.



German Police Set Up Fake Traffic Collision to Test

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Citizen Response

Police in Germany wanted to discover how many people would stop to help victims of a roadside crash, so they set up a fake accident scene complete with two victims made to appear to be badly injured.

FBI, DEA, Local California Agencies, Take Down Major Meth Ring

An eight-month operation by the Fresno County Sheriff's Office, Drug Enforcement Administration (DEA), and Federal Bureau of Investigation (FBI) has resulted in the seizure of large quantities of methamphetamine and marijuana.



Texas City Settles "Pool Party Incidentâ€ Lawsuit

The City of McKinney (TX) announced that it has settled a lawsuit filed on behalf of Dajerria Becton, the bikini-clad teenager who was seen on a viral video being taken to the ground by McKinney Police Officer Eric Casebolt.

DNA Left on Abandoned Bike Leads to Arrest in Florida Murder Case

Police in Miami Gardens (FL) say that DNA collected from a bicycle abandoned at a murder scene in March led to the arrest of 23-year-old David Jones.



Squad Car Collides with Bus in England, Injuring 10

Four people were taken to hospital and six more received minor injuries when a police car answering an emergency call collided with a bus.

Living with PTSD: Your Life Means Something

There will be times that you are going to want to give up â€" you may even want to try to take your own life. Don't.

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Wednesday, May 23, 2018

Video Disputes Woman's Claim That She was Sexually Assaulted by Texas Trooper

After the Department of Public Safety published the full nearly 2-hour body-cam video of the incident, Sherita Dixon-Cole's attorney, Lee Merritt, apologized online and said that the trooper in question had been "falsely accused,"

Video: Man Charged with Trooper's Murder in Fatal North Carolina Crash

Authorities had been looking for 22-year-old Dakota Kape Whitt after Trooper Samuel N. Bullard, 24, of Wilkes County, died late Monday night in a crash along Interstate 77 in Yadkin County during a chase.



Video: Florida Officer Seriously Injured Crashing into Semi Truck

A Florida police officer was seriously injured Monday evening and had to be airlifted after crashing into the back of a semi truck that was already stopped for a previous accident.

Houston Chief in War of Words with NRA Over Gun Control

"@ArtAcevedo plays the part of a police chief ... he says he wants to go after criminals, but for him apparently the easiest way to do that is to make new criminals that are easy to catch â€" make criminals out of law-abiding gun owners," NRATV tweeted late Monday.

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Ohio Deputy Shot in Abdomen Released from Hospital

Deputy Jacob Heaberlin, 29, was escorted home by deputies with the Franklin County Sheriff's Office and officers with the Columbus Division of Police.

ACLU Demands Amazon Stop Providing Facial Recognition Tool to Law Enforcement

In Oregon, the Washington County Sheriff's Office is using the program to look for matches within its own database of booking mug shots, said Deputy Jeff Talbot. The department also confirms each match made through the Rekognition software by another method, he said.



Video: More Officers Dying From Suicide Than Duty Deaths in 2017

A study by the Newton-based Ruderman Family Foundation found police officers and firefighters experience PTSD and depression at rates five times higher than the average public.

Video: West Virginia Officer Shot in Burglary Recognized for Bravery

Patrolman E. Seth Johnson was responding to a burglary on Albert Street when the suspect shot him in the front upper torso which was protected by his Point Blank ballistic vest.



Dallas Officer Wounded in Fatal Shootout with Shoplifting Suspect Leaves Hospital

Almeida, 26, was released from a Dallas hospital Saturday. She and her partner, Rogelio Santander, 27, were shot April 24 outside a Dallas-area Home Depot as they were detaining shoplifting suspect Armando Luis Juarez, 29. Santander was killed in the shooting.

Video: FL Sheriff Orders Armed Officers to Schools After TX Shooting

In response to the shooting at Santa Fe High School in Texas, Polk County, FL, Sheriff Grady Judd has resolved to make sure every school in his county has an armed officer.

From:fva-list-bounces@lists.umanitoba.ca on behalf of Chris Russ <jcr6
@reindeergraphics.com>Sent:Friday, February 17, 2017 10:21 AMTo:Forensic Video AnalysisCc:Chris RussSubject:Re: [FVA-List] Interesting read....Attachments:Untitled attachment 00254.txt

Tim,

We DO use statistical methods to improve images.

Three kinds of "maximum-likelihood" sharpeners immediately come to mind (Kuwahara, Median, and Bilateral filters). They al make best guesses as to the location of edges and along the way toss out what is calculated to be noise according to their respective models. Thus, if you take a "soft" image (basically something that is lacking information near the Nyquist frequency) you're introducing new high frequency information (edges). It is strictly based upon the local area in the case of all of them, not based upon some library compiled by and upon who knows what.

One must be careful trusting data that is at the limit of resolution, particularly the sampling resolution because of Bayer patterns, JPEG/Wavelet compression, noise, and decimation. In a compression environment it may even be difficult to tell what the actual resolution is and this algorithm makes it worse.

This algorithm (fill in higher frequencies — even MOST frequencies — with data from a library because it is pretty) 1) doesn't have a defensible basis, 2) can vary depending upon the library/training set used — even if it is a large training set!!, 3) is most likely trained upon something other than what you're interested in, 4) even if trained on the "right things" that alone would introduce a bias toward what you want to see as opposed to what was actually there.

Imagine in the latent case if we built a training set upon a bunch of prints. Does a ridge run on through an area or should other minutia be put there? Can you depend upon any minutia or lack thereof that might be in an interpolated/hallucinated area? Even if it is perfectly plausible because the training set was filled with various kinds of minutia, doesn't mean it is real.

Another example - facial recognition. We often get views of people where they are not looking directly at the camera. As the gaze angle exceeds 15°, a large part of the face is now missing, yet the datasets we compare faces to are usually straight on. One common trick is to assume bilateral symmetry and to try to fill in a pseudo-rotated face with a mirror image of the other side. DATA FROM THE SAME SOURCE, NO LESS. However we know (and it is really easy to demonstrate) that people are not truly bilaterally symmetric. It is true that bilateral symmetry is a sign of beauty (?? better health during childhood or even in the womb ??).

You can plainly see the difference in the attached images, and they are fairly symmetric! (Celebrities being beautiful people and all...)

Filling in data from unknown or possibly unrepeatable sources can only be worse. I agree with Tom, if anyone walked into court with this it would be a short-lived experience.

-Chris



Original

Left Symmetry

Right Symmetry



Original

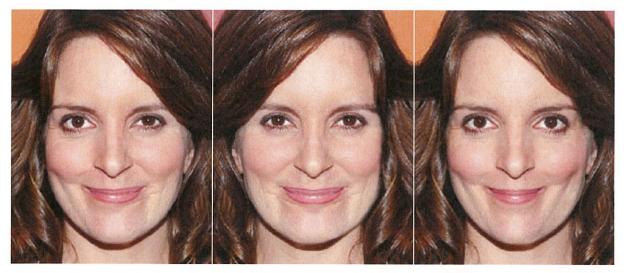


Left Symmetry



Right Symmetry





Original

Left Symmetry

Right Symmetry

reindeer graphics

Chris Russ, Senior Developer phone: 919.342.0209 email: jcr6@reindeergraphics.com website: www.reindeergraphics.com

On Feb 17, 2017, at 1:06 AM, Bienvenu-Bate, Timothy <<u>tim.bate@police.vic.gov.au</u>> wrote:

I don't think Google intended it to be forensic in application, and I agree that it would be very dangerous to use it in a forensic context, but the general idea is not one that should be excluded out of hand – just handled with care. Before you send an outraged reply, please remember I'm talking about the whole problem with hallucination, or more particularly, using training data to implement a probabilistic inference of a large output image from a small input image.

The comments on the limitation of a small training set (small in the sense of the size of the true data set of all possible faces/lighting/positions etc.) and the bias it introduces in very valid, but even if the training set included every possible input/output pair, this would *still* be a bad algorithm to use. The idea, as alluded to, is to choose either the most likely output for a given input, or the least surprising one (slightly different) using some metric. This means that given a reduced set of pixels, even if perfect in all other ways, the algorithm will choose the most generic face that matches that input. Bad news for John Smith, great news for Chad Kroeger (I googled weird looking celebrities). The interpretation of the evidence if presented as a picture is also a big problem; the prejudicial effect would far outweigh the evidential value, most likely.

But this approach may (or may not) have more merit if, for example, it was used to consider various possible original images and determine the relative likelihoods that they resulted in the smaller image, or if the algorithm was trained with a set of images taken from a closed set where a closed population was suspected (must be person A, B or C). For faces, this is still far-fetched. But I can think of (and I have played with) other forensic image applications where the training set can be generated and the population is much smaller, or a relevant closed data set is available and more relevant.

So this particular algorithm is best left to Photoshop, but I just wanted to chip in that we shouldn't be too adverse to probabilistic Bayesian methods. We should be skeptical – we should *always* be skeptical –

but at the same time, I see this article as something that demonstrates future possibilities as well as presenting a threat.

In any case, great and interesting post, and I think all the replies have been very valid.

Tim Bienvenu-Bate | Forensic Officer Audio Visual Unit | Victoria Police Forensic Services Department | Victoria Police email: <u>tim.bate@police.vic.gov.au</u> | phone: (03) 8690 4210 | dx: 210547 address: Level 10, 313 Spencer Street Police Complex, 3008

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From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:fva-list-bounces@lists.umanitoba.ca] On Behalf Of Mark Sugrue Sent: Friday, February 10, 2017 6:53 AM To: Forensic Video Analysis <<u>fva-list@lists.umanitoba.ca</u>> Subject: Re: [FVA-List] Interesting read....

The big issue, as Martino points out, is that these kinds of algorithms use pieces of their training set to 'imagine' what the original image might have looked like. The result isn't a 'restored' image, its just a new one that may or may not look anything like the original.

If you had a training set which contained photos of one ethnic group, for example, all the output results would look like that ethnic group regardless of what the test original images were. (Actually doing an experiment like that would be a great way to demonstrate the danger of this kind of algorithm).

On Fri, Feb 10, 2017 at 2:06 PM, Martino Jerian <<u>martino.jerian@ampedsoftware.com</u>> wrote:

I think this kind of stuff is very dangerous for our field (and of course the headlines are misleading).

We just published today a post on the topic: <u>https://blog.ampedsoftware.com/2017/02/10/googles-csi-like-algorithm-is-not-enhancing-images-its-creating-them/</u>

... and some time ago another on similar techniques <u>http://blog.ampedsoftware.com/2016/09/21/be-conscious-of-the-algorithms-you-use-in-a-forensic-setting/</u>

I was already on the phone today with a couple of persons who were claiming that as an investigative tool this could be valuable (as an identikit), but, as explained in the post, I don't think it's a good idea.

--

Martino Jerian, CEO and Founder Amped Software - Forensic Video Analysis Amped SRL, AREA Science Park, Padriciano 99, 34149 Trieste, Italy Phone: <u>+39.040.3755333</u> - Fax: <u>+39.040.3755335</u> - Mobile: <u>+39.333.4455518</u> Mail: <u>martino.jerian@ampedsoftware.com</u> - Web: <u>ampedsoftware.com</u> Follow us on <u>twitter.com/ampedsoftware</u>

On Fri, Feb 10, 2017 at 2:58 PM, Smit, Jim < Jim.Smit@peelpolice.ca > wrote:

https://thenextweb.com/insider/2017/02/08/google-figured-out-a-way-to-zoom-and-enhance-photos-just-like-in-the-movies/

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--Dr Mark Sugrue Chief Technology Officer

Kinesense, making video evidence smarter

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l

From:fva-list-bounces@lists.umanitoba.ca on behalf of Bienvenu-Bate, Timothy
<tim.bate@police.vic.gov.au>Sent:Monday, February 20, 2017 6:39 PMTo:'Forensic Video Analysis'Subject:Re: [FVA-List] Interesting read....Attachments:Untitled attachment 00259.txt

Chris,

You make good points, but I think you misconstrue my post a little. I don't advocate using this approach in court, quite the opposite. I ask that if you read this, you do so with a generous frame of mind.

I characterise the problem of going from a low resolution image to a high resolution image as a problem of matching a point in a set L to a particular point in set H, where H is a far greater set than L. The issue is that there are many points in H that could all be selected with some reasonable justification and therefore additional constraints are needed in order to select one. These constraints are based on assumptions. I realise this is nothing new, just going into a bit more detail to explain my reasoning.

To briefly examine what I would characterise as the most common interpolation methods, bilinear, bicubic and the "windowed sinc" family through this lens, I would argue that the manner of selecting from the set H is based on very general signal processing ideas; pixels are likely to be a smooth transition from surrounding pixels, the derivative is often smooth as well, and that if we don't know the high frequencies, we should omit them. We know in many cases this is untrue; particularly with sharp edges (particularly bilinear and "sinc").

Filters like the Kuwahara (I've picked on one) of course resolve this by "knowing" that some images have sharp edges, and so it is designed to preserve them. But it models images as having blocky regions, and so the resulting selected image will get blocky artifacts. While we think of these filters being used to generate an output image from the provided low-resolution image, it can equivalently be thought of as selecting the image from the set H which best fits the model and data.

What all of these fail to do is incorporate what we know about the original image. Sure, we can select a method based on the content, and even tune parameters. Creating statistics of probabilities of a point in H given a point in L (or more likely, using image patches) is just another way of selecting the most "probable" point in H. This allows us to incorporate knowledge of our subject which we can't do with these other methods. This is what I mean by a statistical link.

I don't think Google's approach is appropriate for face enhancement, as I said.

- a) If we look at the case of a limited library, it will be biased towards faces (or face parts) which are in that library.
- b) If we look at the impossible case of an exhaustive library, it will select the most generic member of H that meets L (John Smith).
- c) There is no indication of uncertainty; if you gave it a single pixel, this approach (not Google's algorithm specifically) could extrapolate the "average" face, with no indication that while it is the "most likely", not "how much more likely".

I'm not advocating this "build up a library" approach for face enhancement, or necessarily for face anything, any more than any of the other posters. I am suggesting that we don't throw the baby out with the bathwater here though, particularly when I think that this only got thrown into the forensic limelight because of one reporter carelessly bandying about the CSI acronym. I think building up from a statistical database is likely to bear fruit in other ways. Given that "Deep Learning" has shown so much power in video classification, it seems reasonable to think that other "training" approaches may demonstrate similar power in related video fields.

I certainly accept and also advocate that any use of these style of methods requires extreme caution. More perhaps than other methods, as what is really happening "under the hood" can become quite opaque. The old (apocryphal?) tank parable comes to mind (<u>https://neil.fraser.name/writing/tank/</u>). Even if it were a perfect world, we have already discussed that it is inappropriate for many purposes. Certainly we should tread carefully with enhancement, where humans may interpret "looking pretty" as "likely". While my own history was in what I would characterise as heuristic-based algorithms, as much as I resist, I think the future will see a lot more of these training-based approaches. Whether there is some good in them or not may be a point on which we cannot agree.

In any case, I really appreciate your considered responses Chris. You add a lot to these discussions and as always I hold your opinion in high regard, even if/when I don't entirely agree. I often feel that these discussions would work better in person, but for obvious reasons that doesn't seem likely.

Regards, Tim

Tim Bienvenu-Bate | Forensic Officer

Audio Visual Unit | Victoria Police Forensic Services Department | Victoria Police email: <u>tim.bate@police.vic.gov.au</u> | phone: (03) 8690 4210 | dx: 210547 address: Level 10, 313 Spencer Street Police Complex, 3008

P.S. I also accept that data learnt from a dataset is in common usage already; for example, the standard QTs and Huffman codes in JPEG and related compression techniques.

From: fva-list-bounces@lists.umanitoba.ca [mailto:fva-list-bounces@lists.umanitoba.ca] On Behalf Of Vorder Bruegge, Richard W. (OTD) (FBI)
Sent: Saturday, 18 February 2017 02:51
To: Forensic Video Analysis
Subject: Re: [FVA-List] Interesting read....

To answer address two of Chris' points...

(1) Yes - the use of bilateral symmetry for facial recognition is more of a problem than a benefit... Notre Dame (Pat Flynn or Kevin Bowyer would have been the PI) has done research that demonstrates this... and

(2) I would need to look up the specific studies, but the various psychological tests that have been done over the years are - actually - all consistent in the finding that the more symmetrical the face, the LESS appealing it is. Tests using supermodels - or comparable - created mirrored faces versus the nominal asymmetric faces (and controlled for such issues as recognition of the individual models) show a statistically significant difference - people find asymmetric faces more aesthetically pleasing. In one or two papers I think the authors draw a potential correlation to "the uncanny valley" - the idea that the closer a computer-generated face gets to being real, the "creepier" it gets to the viewer. Computer generated faces are far more likely to be symmetrical than asymmetrical, so it makes sense...

Richard W. Vorder Bruegge

Senior Photographic Technologist FBI - OTD - TASB Building 27958A, Pod E Quantico, VA 22135 (703) 985-1192

From: fva-list-bounces@lists.umanitoba.ca <fva-list-bounces@lists.umanitoba.ca> on behalf of Chris Russ
<icr6@reindeergraphics.com>
Sent: Friday, February 17, 2017 10:21 AM
To: Forensic Video Analysis
Cc: Chris Russ
Subject: Re: [FVA-List] Interesting read....

Tim,

We DO use statistical methods to improve images.

Three kinds of "maximum-likelihood" sharpeners immediately come to mind (Kuwahara, Median, and Bilateral filters). They al make best guesses as to the location of edges and along the way toss out what is calculated to be noise according to their respective models. Thus, if you take a "soft" image (basically something that is lacking information near the Nyquist frequency) you're introducing new high frequency information (edges). It is strictly based upon the local area in the case of all of them, not based upon some library compiled by and upon who knows what.

One must be careful trusting data that is at the limit of resolution, particularly the sampling resolution because of Bayer patterns, JPEG/Wavelet compression, noise, and decimation. In a compression environment it may even be difficult to tell what the actual resolution is and this algorithm makes it worse.

This algorithm (fill in higher frequencies — even MOST frequencies — with data from a library because it is pretty) 1) doesn't have a defensible basis, 2) can vary depending upon the library/training set used — even if it is a large training set!!, 3) is most likely trained upon something other than what you're interested in, 4) even if trained on the "right things" that alone would introduce a bias toward what you want to see as opposed to what was actually there.

Imagine in the latent case if we built a training set upon a bunch of prints. Does a ridge run on through an area or should other minutia be put there? Can you depend upon any minutia or lack thereof that might be in an interpolated/hallucinated area? Even if it is perfectly plausible because the training set was filled with various kinds of minutia, doesn't mean it is real.

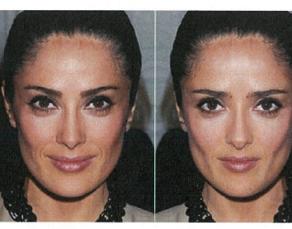
Another example - facial recognition. We often get views of people where they are not looking directly at the camera. As the gaze angle exceeds 15°, a large part of the face is now missing, yet the datasets we compare faces to are usually straight on. One common trick is to assume bilateral symmetry and to try to fill in a pseudo-rotated face with a mirror image of the other side. DATA FROM THE SAME SOURCE, NO LESS. However we know (and it is really easy to demonstrate) that people are not truly bilaterally symmetric. It is true that bilateral symmetry is a sign of beauty (?? better health during childhood or even in the womb ??).

You can plainly see the difference in the attached images, and they are fairly symmetric! (Celebrities being beautiful people and all...)

Filling in data from unknown or possibly unrepeatable sources can only be worse. I agree with Tom, if anyone walked into court with this it would be a short-lived experience.

-Chris





Original

Left Symmetry

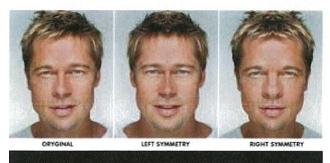
Right Symmetry



Original

Left Symmetry

Right Symmetry





Original

Left Symmetry

Right Symmetry

reindeer graphics

Chris Russ, Senior Developer phone: 919.342.0209 email: jcr6@reindeergraphics.com website: www.reindeergraphics.com

On Feb 17, 2017, at 1:06 AM, Bienvenu-Bate, Timothy <<u>tim.bate@police.vic.gov.au</u>> wrote:

I don't think Google intended it to be forensic in application, and I agree that it would be very dangerous to use it in a forensic context, but the general idea is not one that should be excluded out of hand – just handled with care. Before you send an outraged reply, please remember I'm talking about the whole problem with hallucination, or more particularly, using training data to implement a probabilistic inference of a large output image from a small input image.

The comments on the limitation of a small training set (small in the sense of the size of the true data set of all possible faces/lighting/positions etc.) and the bias it introduces in very valid, but even if the training set included every possible input/output pair, this would *still* be a bad algorithm to use. The idea, as alluded to, is to choose either the most likely output for a given input, or the least surprising one (slightly different) using some metric. This means that given a reduced set of pixels, even if perfect in all other ways, the algorithm will choose the most generic face that matches that input. Bad news for John Smith, great news for Chad Kroeger (I googled weird looking celebrities). The interpretation of the evidence if presented as a picture is also a big problem; the prejudicial effect would far outweigh the evidential value, most likely.

But this approach may (or may not) have more merit if, for example, it was used to consider various possible original images and determine the relative likelihoods that they resulted in the smaller image, or if the algorithm was trained with a set of images taken from a closed set where a closed population was suspected (must be person A, B or C). For faces, this is still far-fetched. But I can think of (and I have played with) other forensic image applications where the training set can be generated and the population is much smaller, or a relevant closed data set is available and more relevant.

So this particular algorithm is best left to Photoshop, but I just wanted to chip in that we shouldn't be too adverse to probabilistic Bayesian methods. We should be skeptical – we should *always* be skeptical – but at the same time, I see this article as something that demonstrates future possibilities as well as presenting a threat.

In any case, great and interesting post, and I think all the replies have been very valid.

Tim Bienvenu-Bate | Forensic Officer

Audio Visual Unit | Victoria Police Forensic Services Department | Victoria Police email: <u>tim.bate@police.vic.gov.au</u> | phone: (03) 8690 4210 | dx: 210547 address: Level 10, 313 Spencer Street Police Complex, 3008

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From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:fva-list-bounces@lists.umanitoba.ca] On Behalf Of Mark Sugrue Sent: Friday, February 10, 2017 6:53 AM To: Forensic Video Analysis <<u>fva-list@lists.umanitoba.ca</u>> Subject: Re: [FVA-List] Interesting read....

The big issue, as Martino points out, is that these kinds of algorithms use pieces of their training set to 'imagine' what the original image might have looked like. The result isn't a 'restored' image, its just a new one that may or may not look anything like the original.

If you had a training set which contained photos of one ethnic group, for example, all the output results would look like that ethnic group regardless of what the test original images were. (Actually doing an experiment like that would be a great way to demonstrate the danger of this kind of algorithm).

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... and some time ago another on similar techniques <u>http://blog.ampedsoftware.com/2016/09/21/be-conscious-of-the-algorithms-you-use-in-a-forensic-setting/</u> I was already on the phone today with a couple of persons who were claiming that as an investigative tool this could be valuable (as an identikit), but, as explained in the post, I don't think it's a good idea.

Comments welcome!

Martino Jerian, CEO and Founder Amped Software - Forensic Video Analysis Amped SRL, AREA Science Park, Padriciano 99, 34149 Trieste, Italy Phone: <u>+39.040.3755333</u> - Fax: <u>+39.040.3755335</u> - Mobile: <u>+39.333.4455518</u> Mail: <u>martino.jerian@ampedsoftware.com</u> - Web: <u>ampedsoftware.com</u> Follow us on <u>twitter.com/ampedsoftware</u>

On Fri, Feb 10, 2017 at 2:58 PM, Smit, Jim <<u>Jim.Smit@peelpolice.ca</u>> wrote:

https://thenextweb.com/insider/2017/02/08/google-figured-out-a-way-to-zoom-and-enhance-photos-just-like-in-the-movies/

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--Dr Mark Sugrue Chief Technology Officer

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From:	fva-list-bounces@lists.umanitoba.ca on behalf of Edward Baker <videoconsultantsnw@comcast.net></videoconsultantsnw@comcast.net>
Sent:	Friday, February 10, 2017 12:36 PM
То:	Forensic Video Analysis
Subject:	Re: [FVA-List] Interesting read
Attachments:	Untitled attachment 00194.txt

Definitely interesting read... scary too. I think you have to applaud their attempts!

I wonder if they used multiple frames processed independently then averaged them... before they compared them to their training set.

(Technically improving their results since it would be derived from a greater amount of information already present).

Would that add more weighted value to their foundation before comparing them with a known data base?

Like most facial recognition applications your setting parameters to a "x" number for how many results you get. It's still up to a human to pick from the herd a potential suspect. (I've seen FR techs enter searches based off of a drivers license that was photo copied with magnification added which was then faxed to them).

Having said all that I've also seen far worse images published on the 6 o'clock news asking the public's help in identifying a suspect which usually results in an anonymous call which police do act on. (emphasis on anonymous)

And... I can't tell you the number of time I've sat across the interview table with a "fva processed image" telling the bad guy that our CSI folks are going process it...only to watch as the blood drains out of their face and their head drops down right before they give a confession.

Last idea: what if the folks at Google could marry the video amplification algorithm from MIT to theirs? Again would it only be "amplified" junk science?

Link to the MIT info: <u>http://people.csail.mit.edu/mrub/evm/</u>

Great insight from everyone!

Enjoy the weekend!

Ed Baker

On Feb 10, 2017, at 7:42 AM, Mark P. Porter <<u>MPPorter@tarrantcountytx.gov</u>> wrote:

1

We would have much better success herding cats and pushing pancake batter uphill than trying to regulate the CCTV industry.. ③ Happy Friday Ya'll!

From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:fva-list-bounces@lists.umanitoba.ca]
On Behalf Of Mark Sugrue
Sent: Friday, February 10, 2017 9:34 AM
To: Forensic Video Analysis
Subject: Re: [FVA-List] Interesting read....

The only solution I can think of is some real regulation of the Camera/DVR industry. Then again, I've been saying that for years... :-)

On Fri, Feb 10, 2017 at 3:31 PM, Chris Russ <<u>jcr6@reindeergraphics.com</u>> wrote: It's not just faces. Tattoos, LICENSE PLATES, any fine detail.

reindeer graphics

Chris Russ, Senior Developer phone: <u>919.342.0209</u> email: jcr6@reindeergraphics.com website: <u>www.reindeergraphics.com</u>

On Feb 10, 2017, at 10:28 AM, Mark Sugrue <<u>mark@kinesensevca.com</u>> wrote:

It would be very tough to detect - some kind of cart with faces would possible work if you had a live camera.

If you only had a recording, it wouldn't be possible to detect I think.

And of course then the question in court will always be "can you prove this is a real recording?" - and we won't be able to.

On Fri, Feb 10, 2017 at 3:23 PM, Chris Russ <<u>jcr6@reindeergraphics.com</u>> wrote: And now Mark has scared the crap out of me.

How would you detect that had occurred? Some kind of image standard in front of the camera that might precipitate detectable artifacts?

reindeer graphics

Chris Russ, Senior Developer phone: <u>919.342.0209</u>

email: jcr6@reindeergraphics.com website: www.reindeergraphics.com

On Feb 10, 2017, at 10:18 AM, Mark Sugrue <<u>mark@kinesensevca.com</u>> wrote:

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The real danger is some unscrupulous CCTV camera or DVR manufacturer will build this in to claim higher resolution or better compression.

On Fri, Feb 10, 2017 at 3:14 PM, Crain,Kimber <<u>kimber.crain@kentcountymi.gov</u>> wrote:

I saw this too... this is exactly what we've been fighting against for years now. I'm a little scared of what we'll be seeing produced by those who are only interested in quick results as opposed to scientific ones within law enforcement.

Kim Crain Scientific Support Unit Specialist Kent County Sheriff Department Grand Rapids, Mi On Feb 10, 2017 9:07 AM, Martino Jerian <<u>martino.jerian@ampedsoftware.com</u>> wrote: I think this kind of stuff is very dangerous for our field (and of course the headlines are misleading).

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I was already on the phone today with a couple of persons who were claiming that as an investigative tool this could be valuable (as an identikit), but, as explained in the post, I don't think it's a good idea.

Comments welcome!

Martino Jerian, CEO and Founder Amped Software - Forensic Video Analysis Amped SRL, AREA Science Park, Padriciano 99, 34149 Trieste, Italy Phone: <u>+39.040.3755333</u> - Fax: <u>+39.040.3755335</u> - Mobile: <u>+39.333.4455518</u> Mail: <u>martino.jerian@ampedsoftware.com</u> - Web: <u>ampedsoftware.com</u> Follow us on twitter.com/ampedsoftware

On Fri, Feb 10, 2017 at 2:58 PM, Smit, Jim <Jim.Smit@peelpolice.ca> wrote:

CONFIDENTIALITY NOTICE This e-mail transmission contains privileged and/or confidential information and the sender does not waive any related rights and obligations. The information is intended only for the use of the individual or entity named above. Any distribution, use or copying of this e-mail and any attachments or the information it contains by other than an intended recipient is unauthorized. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or the taking of any action in reliance on or regarding the contents of the e-mail information is strictly prohibited. If you have received the e-mail in error, please notify the sender (by return e-mail or otherwise) immediately and delete all copies of the email together with any attachments. Peel Regional Police

To suspend/resume email, send an email to:

fva-list-request@lists.umanitoba.ca

Put the following in the body of the message:

set authenticate password set delivery off

=...===...=

Substitute the password that gets emailed to you once a month for the word password.

Same instructions to turn back on, but substitute the word on for off.

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Dr Mark Sugrue Chief Technology Officer

Kinesense, making video evidence smarter

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Same instructions to turn back on, but substitute the word on for off.

From:	fva-list-bounces@lists.umanitoba.ca on behalf of Payne, Denell <dmpayne@riversidesheriff.org></dmpayne@riversidesheriff.org>
Sent:	Thursday, August 16, 2018 10:50 AM
То:	Forensic Video Analysis
Subject:	Re: [FVA-List] What is your Job Title?
Attachments:	Untitled attachment 00219.txt

I know right?! When the department first started using it full time a few years back, I was extremely interested in it and have had a lot of success with it. They are looking to reclassify my position to make it official. The video class and emails from the list have really helped with looking at videos for the best quality stills to use for facial recognition.

Denell Payne, MPA

Fingerprint Technician II Riverside County Sheriff / CAL-ID Unit Desk: 951-955-2751 Main Line: 951-955-2740



From: David Spreadborough [mailto:davidspreadborough@gmail.com]
Sent: Wednesday, August 15, 2018 10:45 PM
To: Forensic Video Analysis <fva-list@lists.umanitoba.ca>
Subject: Re: [FVA-List] What is your Job Title?

Now that's a bit of a flip!

On Thu, 16 Aug 2018, 07:48 Payne, Denell, <<u>dmpayne@riversidesheriff.org</u>> wrote:

My official title is Fingerprint Technician, but my assignment for the past year has been facial recognition.

Denell Payne, MPA

Fingerprint Technician II

Riverside County Sheriff / CAL-ID Unit

Desk: 951-955-2751

Main Line: 951-955-2740

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From: Gonsales, Kevin [mailto:KGo	nsales@UMPD UMD FDU
Sent: Wednesday, August 15, 2018	2.47 PM
Sente Weunesuay, August 15, 2010	2.T/ I IVI

To: 'Forensic Video Analysis' <<u>fva-list@lists.umanitoba.ca</u>> Subject: Re: [FVA-List] What is your Job Title?

We retain our original job titles as listed through the University HR because no current titles exist for the role. We just add our certification levels in our email signatures to inform people of what we do.

Kevin Gonsales

PCO

University of Maryland Police Department

From: Lewandowski, David <<u>DLewandowski@RivCoDA.org</u>> Sent: Wednesday, August 15, 2018 5:19 PM To: 'Forensic Video Analysis' <<u>fva-list@lists.umanitoba.ca</u>> Subject: Re: [FVA-List] What is your Job Title? My agency should have spent more time on this.

I'm stuck with "Sr. Audio Video Technician"

This sounds like some guy that sets up projectors and mics for a press conference.

David Lewandowski

Riverside County District Attorney's Office

From: <u>fva-list-bounces@lists.umanitoba.ca</u> <<u>fva-list-bounces@lists.umanitoba.ca</u>> **On Behalf Of** DANIEL Rhiannon D Sent: Tuesday, September 26, 2017 7:05 AM To: Forensic Video Analysis <<u>fva-list@lists.umanitoba.ca</u>> Subject: Re: [FVA-List] What is your Job Title?

In Oregon we keep it very general. At the state lab they are Forensic Scientists, in our municipal lab we are Forensic Analysts, this is regardless of specialty. Internally at our lab we used to be DME Analysists but are now the Video Imaging Technology Analysts (new ANAB standards) but the job titles with HR are all the same whether you do latent prints or video.

Rhiannon Daniel-Demings

Forensic Analyst Eugene Police Department Forensic Evidence Unit Desk 541-682-2803 rhiannon.d.daniel@ci.eugene.or.us

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From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:fva-list-bounces@lists.umanitoba.ca] On Behalf Of David Spreadborough Sent: Monday, September 25, 2017 1:43 AM To: Forensic Video Analysis <<u>fva-list@lists.umanitoba.ca</u>> Subject: [FVA-List] What is your Job Title?

In our little corner of Forensic Evidence, we don't seem to have a standard for role profile or job title.

In a discussion with an industry reporter last week, they referenced this as being a cause to some of our problems when it comes to be being taken seriously (An FVA-List thread discussing this got quite interesting recently).

Anyways,...

What is your Official Job Title?

Please reply so I can collate this information and myself and Ed Baker will be looking at this during the LEVA Conf.

Thanks Spready

David Spreadborough

Certified Forensic Video Analyst

www.forensicvideo.training www.spreadys.com

+44 7477 544045

For all Amped Software Training Enquiries

david.spreadborough@ampedsoftware.com

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fva-list-request@lists.umanitoba.ca

Put the following in the body of the message:

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Substitute the password that gets emailed to you once a month for the word password.

~

Same instructions to turn back on, but substitute the word on for off.

From:	fva-list-bounces@lists.umanitoba.ca on behalf of Appel Tim <tim.appel@rcgov.org></tim.appel@rcgov.org>
Sent:	Friday, February 15, 2019 3:51 PM
То:	Forensic Video Analysis
Subject:	Re: [FVA-List] What is your Job Title?
Attachments:	Untitled attachment 00224.txt

Thank you, Richard, I appreciate your help very much!

From: fva-list-bounces@lists.umanitoba.ca <fva-list-bounces@lists.umanitoba.ca> On Behalf Of Vorder Bruegge, Richard W. (OTD) (FBI)
Sent: Friday, February 15, 2019 1:30 PM
To: Forensic Video Analysis <fva-list@lists.umanitoba.ca>
Subject: Re: [FVA-List] What is your Job Title?

Tim,

If your agency uses an FR system or is linked to the FBI's Next Generation Identification system (through the Criminal Justice Information Services Wide Area Network - CJIS-WAN), you can get training in facial comparison and identification through our CJIS Division.

Follow this link to find out more:

https://www.fbi.gov/services/cjis/fingerprints-and-other-biometrics/biometric-and-criminal-history-recordtraining

There are private organizations offering training, too, but I am prevented from making recommendations (pro or con) based on professional ethics regulations.

Richard W. Vorder Bruegge Senior Physical Scientist FBI - OTD - TODB Building 27958A, Pod E Quantico, VA 22135 (703) 985-1192

From: fva-list-bounces@lists.umanitoba.ca <fva-list-bounces@lists.umanitoba.ca > on behalf of Appel Tim
<Tim.Appel@rcgov.org>
Sent: Friday, February 15, 2019 2:16 PM
To: Forensic Video Analysis
Subject: Re: [FVA-List] What is your Job Title?

I'm looking for someone who can inform me about the best training courses in facial recognition and software. I would be very grateful for any assistance you can provide. Thanks!

Tim Appel, LCFVT | Media Specialist LEVA Certified Forensic Video Technician Rapid City Police Department | O: 605.394.6033 Tim.Appel@rcgov.org | RapidCityPolice.org



From: <u>fva-list-bounces@lists.umanitoba.ca</u> <<u>fva-list-bounces@lists.umanitoba.ca</u>> On Behalf Of David Spreadborough
Sent: Wednesday, August 15, 2018 11:45 PM
To: Forensic Video Analysis <<u>fva-list@lists.umanitoba.ca</u>>
Subject: Re: [FVA-List] What is your Job Title?

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Now that's a bit of a flip!

On Thu, 16 Aug 2018, 07:48 Payne, Denell, <<u>dmpayne@riversidesheriff.org</u>> wrote:

My official title is Fingerprint Technician, but my assignment for the past year has been facial recognition.

Denell Payne, MPA Fingerprint Technician II

Riverside County Sheriff / CAL-ID Unit Desk: 951-955-2751 Main Line: 951-955-2740

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From: Gonsales, Kevin [mailto:KGonsales@UMPD.UMD.EDU]
Sent: Wednesday, August 15, 2018 2:47 PM
To: 'Forensic Video Analysis' <<u>fva-list@lists.umanitoba.ca</u>>
Subject: Re: [FVA-List] What is your Job Title?

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2

Kevin Gonsales PCO University of Maryland Police Department

From: Lewandowski, David <<u>DLewandowski@RivCoDA.org</u>> Sent: Wednesday, August 15, 2018 5:19 PM To: 'Forensic Video Analysis' <<u>fva-list@lists.umanitoba.ca</u>> Subject: Re: [FVA-List] What is your Job Title?

My agency should have spent more time on this.

I'm stuck with "Sr. Audio Video Technician"

This sounds like some guy that sets up projectors and mics for a press conference.

David Lewandowski Riverside County District Attorney's Office

From: fva-list-bounces@lists.umanitoba.ca <fva-list-bounces@lists.umanitoba.ca</p>
On Behalf Of DANIEL Rhiannon D
Sent: Tuesday, September 26, 2017 7:05 AM
To: Forensic Video Analysis <fva-list@lists.umanitoba.ca</p>
Subject: Re: [FVA-List] What is your Job Title?

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Rhiannon Daniel-Demings Forensic Analyst Eugene Police Department Forensic Evidence Unit Desk 541-682-2803 rhiannon.d.daniel@ci.eugene.or.us

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From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:fva-list-bounces@lists.umanitoba.ca] On Behalf Of David Spreadborough
Sent: Monday, September 25, 2017 1:43 AM
To: Forensic Video Analysis <<u>fva-list@lists.umanitoba.ca</u>
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Thanks Spready

David Spreadborough <u>Certified Forensic Video Analyst</u>

www.forensicvideo.training www.spreadys.com

+44 7477 544045

For all Amped Software Training Enquiries david.spreadborough@ampedsoftware.com

To suspend\resume email, send an email to:

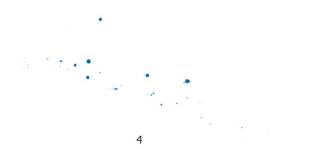
fva-list-request@lists.umanitoba.ca

Put the following in the body of the message:

set authenticate password set delivery off

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Same instructions to turn back on, but substitute the word on for off.



From:	fva-list-bounces@lists.umanitoba.ca on behalf of George Reis <reis@imagingforensics.com></reis@imagingforensics.com>
Sent:	Saturday, February 16, 2019 10:58 AM
То:	Forensic Video Analysis
Subject:	Re: [FVA-List] What is your Job Title?
Attachments:	Untitled attachment 00023.txt

If you are looking for Facial Comparison training (as opposed to Facial Recognition training), you might try Ideal Innovations <<u>https://www.idealinnovations.com</u>>. I haven't had their training yet, but keep wanting to attend. There has been some facial ID training at the last few IAI Conferences also.

G

George Reis, CFPh, CFVA Imaging Forensics <<u>http://www.imagingforensics.com</u>> Forensic photography & photographic and video analysis. Consulting, training & litigation support. 714-775-3120

On Feb 15, 2019, at 11:16 AM, Appel Tim <<u>Tim.Appel@rcgov.org</u>> wrote:

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<image001.jpg> <image002.jpg><image003.jpg><image004.jpg><image005.jpg><image006.jpg>

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Same instructions to turn back on, but substitute the word on for off.

From:	fva-list-bounces@lists.umanitoba.ca on behalf of Vishal Pawade <vishal024 @gmail.com></vishal024
Sent:	Monday, March 21, 2016 2:38 AM
То:	Forensic Video Analysis
Subject:	Re: [FVA-List] Facial Recognition software
Attachments:	Untitled attachment 00264.txt

Thanks Kate !!!

On Fri, Mar 18, 2016 at 1:15 AM, WOOLLEY, Kathryn <<u>Kathryn.WOOLLEY@vpd.ca</u>> wrote:

Hi Vishal!

I did a quick search online and came up with FACES 4.0 Criminal Investigation Software. I have no experience or knowledge of this program but you can read more about it on their website – www.facesid.com/products faces le.html

Kate Woolley Forensic Video Analyst Vancouver Police Department 3585 Graveley Street, Vancouver B.C. V5K 5J5

kathryn.woolley@vpd.ca | ph: 604-717-3093

From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:<u>fva-list-bounces@lists.umanitoba.ca</u>]
Sent: Wednesday, March 16, 2016 10:43 PM
To: Forensic Video Analysis
Subject: [FVA-List] Facial Recognition software

Hi,

Can anyone tell me which is this software?

Specs are attached herewith.

- 1. Facial Capturing form different media and Processing
- 2. Creation of photo like composites
- 3. Generation of numeric code for every composite
- 4. Tone hair colour, side to side hair flip
- 5. Data Generation of Facial markings: scars, moles, piercing, tattoos
- 6. Facility for improvement of Time progression
- 7. Detachable hats and headwear facility
- 8. Ability to export composite as JPEG file and in other image formats
- 9. Matching-Side by side show/ comparison capability
- 10.Improved zooming and positions tools
- 11. Runs on Window Based computer system
- 12. Analyze the linear images
- 13.Full or partial face identification 14.Capable to detect and register the numerous characteristic of each face
- 15.Capable to store, retrieve and compose the facial features from the database and
- display matching score

Regards,

Vishal S. Pawade,

Digital Forensic Analyst

Skype: vishal.pawade

Mobile: +919773183454

Please don't print this Email unless you really need to - this will preserve trees on planet earth.

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fva-list-request@lists.umanitoba.ca

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Having troubles accessing the FTP site? Email ftpinfo@fvaftp.com

FVA-List mailing list <u>FVA-List@lists.umanitoba.ca</u> http://lists.umanitoba.ca/mailman/listinfo/fva-list --Vishal S. Pawade, Digital Forensic Analyst Skype: vishal.pawade Mobile: +919773183454

Please don't print this Email unless you really need to - this will preserve trees on planet earth.

.

From:fva-list-bounces@lists.umanitoba.ca on behalf of Vishal Pawade <vishal024
@gmail.com>Sent:Tuesday, June 21, 2016 12:35 AMTo:Forensic Video AnalysisSubject:Re: [FVA-List] Facial Recognition SoftwareAttachments:Untitled attachment 00204.txt

Thanks Sam

On 21 Jun 2016 6:40 am, "Sam Kai Yuan" <<u>samkaiyuan@gmail.com</u>> wrote: The last benchmarking test for Face Recognition was performed in 2013 under Face Recognition Vendor Test (FRVT) 2013

See report at <u>http://biometrics.nist.gov/cs_links/face/frvt/frvt2013/NIST_8009.pdf</u>

There were several outstanding facial recognition engines as quoted on page 25 of the report "At rank 50, the NEC result is 0.023 with Toshiba at 0.049 and Morpho at 0.05"

Hope it helps.

Warm Regards, Sam Kai Yuan

To suspend/resume email, send an email to:

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Put the following in the body of the message:

set authenticate password set delivery off

Substitute the password that gets emailed to you once a month for the word password.

Same instructions to turn back on, but substitute the word on for off.

From:fva-list-bounces@lists.umanitoba.ca on behalf of Bradley.Barkhurst@com.state.oh.usSent:Friday, February 1, 2019 1:58 PMTo:Forensic Video AnalysisSubject:Re: [FVA-List] Facial Recognition SoftwareAttachments:Untitled attachment 00063.txt

Hi Ray,

I had tested some facial recognition software several years ago and had recorded a great facial view of myself with a poor-quality CCTV system. I ran the photo in the FR software and my known photo did not even come up within the top 100 candidates. I also ran an id quality photo of me with glasses and without glasses. I was told by the manufacturer that glasses would not make a difference. Well it did.

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Bradley Barkhurst Forensic Specialist Supervisor Ohio Department of Commerce Division of State Fire Marshal 8895 E. Main St. Reynoldsburg OH 43068 614-752-7147 www.com.ohio.gov

This message and any response to it may constitute a public record and thus may be publicly available to anyone who requests it.

From: fva-list-bounces@lists.umanitoba.ca <fva-list-bounces@lists.umanitoba.ca> On Behalf Of Donohoe, Stephen
Sent: Friday, February 01, 2019 1:08 PM
To: 'Forensic Video Analysis' <fva-list@lists.umanitoba.ca>
Subject: Re: [FVA-List] Facial Recognition Software

Good day Ray,

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After I was asked to produce images from a bank robbery and I asked the question "What are the requirements for use on their system?"

This was the response from Steven York (Biometrics Section Supervisor)

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I hope that helps?

Take care,

Steve

Stephen Donohoe Halton Regional Police Service Technological Crime Unit Forensic Video Analyst (905) 465-8996 Stephen.Donohoe@HaltonPolice.ca Halton Regional Police Service

Traitant Region A. Megrig A. Activizability A. Eastherin A. Favrinish. A. Lano

From: <u>fva-list-bounces@lists.umanitoba.ca</u> [<u>mailto:fva-list-bounces@lists.umanitoba.ca</u>]
Sent: 2019 February 01 11:35 AM
To: 'Forensic Video Analysis'
Subject: [FVA-List] Facial Recognition Software

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Ray Pabuaya #2847, CFVT Constable Division #42, Forensic Imaging Unit Winnipeg Police Service Winnipeg, Manitoba CANADA

Email: rpabuaya@winnipeg.ca

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*

From:	fva-list-bounces@lists.umanitoba.ca on behalf of Donohoe, Stephen <stephen.donohoe@haltonpolice.ca></stephen.donohoe@haltonpolice.ca>
Sent:	Friday, February 1, 2019 1:08 PM
То:	'Forensic Video Analysis'
Subject:	Re: [FVA-List] Facial Recognition Software
Attachments:	Stephen Donohoe.vcf; Untitled attachment 00058.txt

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Stephen Donohoe Halton Regional Police Service Technological Crime Unit Forensic Video Analyst (905) 465-8996 Stephen.Donohoe@HaltonPolice.ca



Halton Regional Police Service

From: fva-list-bounces@lists.umanitoba.ca [mailto:fva-list-bounces@lists.umanitoba.ca] On Behalf Of Pabuaya, Ray
Sent: 2019 February 01 11:35 AM
To: 'Forensic Video Analysis'
Subject: [FVA-List] Facial Recognition Software

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Ray Pabuaya #2847, CFVT Constable Division #42, Forensic Imaging Unit Winnipeg Police Service Winnipeg, Manitoba CANADA

Email: rpabuaya@winnipeg.ca

From:	fva-list-bounces@lists.umanitoba.ca on behalf of Jonathan Hak <jonathanhak@icloud.com></jonathanhak@icloud.com>
Sent:	Friday, February 1, 2019 2:05 PM
То:	Forensic Video Analysis
Subject:	Re: [FVA-List] Facial Recognition Software
Attachments:	Untitled attachment 00028.txt

Well said Brad. FR is an investigative tool. In Alberta, we have a specific policy that prohibits use of FR evidence for any other purpose.

Jonathan W. Hak, Q.C. Legal Instructor Barrister and Solicitor

Expert Witness Testimony Course | Courtroom Testimony for Investigators Course Based out of Calgary, Alberta and The Hague, The Netherlands email: jonathan@jonathanhak.com website: www.jonathanhak.com

On Feb 1, 2019, at 11:57 AM, Bradley.Barkhurst@com.state.oh.us wrote:

Hi Ray,

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Bradley Barkhurst Forensic Specialist Supervisor Ohio Department of Commerce Division of State Fire Marshal 8895 E. Main St. Reynoldsburg OH 43068 614-752-7147 www.com.ohio.gov

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I hope that helps?

Take care,

Steve

<image005.jpg>

From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:fva-list-bounces@lists.umanitoba.ca] **On Behalf** Of Pabuaya, Ray Sent: 2019 February 01 11:35 AM To: 'Forensic Video Analysis' Subject: [FVA-List] Facial Recognition Software

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<image006.jpg>

Ray Pabuaya #2847, CFVT

Constable Division #42, Forensic Imaging Unit Winnipeg Police Service Winnipeg, Manitoba CANADA

Email: rpabuaya@winnipeg.ca

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Same instructions to turn back on, but substitute the word on for off.

•

,

From:	fva-list-bounces@lists.umanitoba.ca on behalf of Chris Russ <jcr6 @reindeergraphics.com></jcr6
Sent:	Friday, February 1, 2019 3:34 PM
То:	Forensic Video Analysis
Cc:	Chris Russ
Subject:	Re: [FVA-List] Facial Recognition Software
Attachments:	Untitled attachment 00033.txt

I wrote something called X-Loupe for another company. (To my knowledge it hasn't been updated in several years - I'm not even sure if it is still for sale.)

It was used for side-by-side comparisons between two or more faces (or really any two things: prints, tool marks, etc). The workflow was to align the faces based upon eye positions and then compare the various relative distance metrics within each: eyes/frenulum, lips, etc. Then the examiner would further look for equivalent (or non-equivalent) minutia between the two. (Richard Vorder Bruegge was very involved.)

One of the things that struck me the most was some examiners' process of flipping the faces upside down when looking at minutia. This helped because you don't try to recognize faces when they're upside down and you can then concentrate on the minutia. (moles, scars, etc)

Now, the automatic DNN (Deep Neural Network) methods are really interesting, but to my mind there are a lot of problems, not the least of which is the susceptibility of a DNN to learn the wrong thing and not be able to explain why two things match or don't. Lighting, image quality, up-stream compression, color spaces, pose, size of the corpus, and amazingly BACKGROUND all seem to play a big role in a DNN's ability to match or find similar faces. I think that's why the promise from small datasets is large, but when applied to large ones they don't do so well.

All of this being said, I would push for the use of two different terms: one for side-by-side **analytical comparison** where you say why X is similar/same as Y (or isn't), and the other where the machine searches through haystacks doing needle **recognition**. (finding candidates for analytical comparison)

Didn't know about the study — Thanks Richard. Now I know what I'm reading during the Super Bowl.

-Chris

reindeer graphics

Chris Russ

phone: +1.919.342.0209 email: jcr6@reindeergraphics.com website: www.reindeergraphics.com P O Box 2281 Asheville, NC 28802

On Feb 1, 2019, at 2:18 PM, Thompson, Clinton <<u>Clinton.Thompson@raleighnc.gov</u>> wrote:

I participated in that study – didn't realize they had published it yet. Thanks Dr. Vorder Bruegge!

Detective Clint Thompson Raleigh Police Department Forensic Video Analyst Facial Recognition Examiner 919-278-6388 Fax 919-996-7198

From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:fva-list-bounces@lists.umanitoba.ca]
On Behalf
Of Vorder Bruegge, Richard W. (OTD) (FBI)
Sent: Friday, February 01, 2019 2:11 PM
To: 'Forensic Video Analysis'
Subject: Re: [FVA-List] Facial Recognition Software

I am having the day from hell, so I don't have a lot of time to go into detail, but I have to jump in here. If you are testifying to comparisons and you don't know about this study... you should. See this link: <u>https://www.pnas.org/content/115/24/6171</u>

This study showed that facial comparison examiners rock – Daubert quality study to demonstrate that one-to-one image comparison of faces is accurate.

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ANY FR testing done that used commercial algorithms from as little of two years ago is moot. The algorithms developed since 2016 forward use deep learning which was not available before that. Total game change.

(I hope this message passes my double-secret-probation status on the List and makes it out...) Richard

From: <u>fva-list-bounces@lists.umanitoba.ca</u> [mailto:fva-list-bounces@lists.umanitoba.ca]
On Behalf
Of Pabuaya, Ray
Sent: Friday, February 01, 2019 11:35 AM
To: 'Forensic Video Analysis' <<u>fva-list@lists.umanitoba.ca</u>
Subject: [FVA-List] Facial Recognition Software

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<image001.jpg>

Ray Pabuaya #2847, CFVT

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Email: rpabuaya@winnipeg.ca

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From:	fva-list-bounces@lists.umanitoba.ca on behalf of Vorder Bruegge, Richard W. (OTD) (FBI) <rwvorderbruegge@fbi.gov></rwvorderbruegge@fbi.gov>
Sent:	Friday, February 1, 2019 7:55 PM
То:	FVA
Cc:	Chris Russ
Subject:	Re: [FVA-List] Facial Recognition Software
Attachments:	Untitled attachment 00038.txt

Now that I've got a little more time...

A key aspect of the study I showed you all was that the performance of the humans versus the algorithms was somewhat disjointed. By that I mean the two "groups" (humans vs machine) did not get the same answers on average, but fusing them gave a better result than either one alone.

This indicates that the algorithms are "seeing" something different from the humans. But what?

One of the critical issues with any AI process will be identifying what they are "seeing" to make their decisions. One of the JANUS developers (JANUS being the IARPA program that developed algorithms used in the paper) incorporated a heat map approach that showed for any given face those parts that the algorithm found to be most "discriminating" i.e., what made that face stand out from the crowd.

This sort of "flag" could help human examiners identify features worth a second look, so I've encouraged the research community to keep up this line of inquiry.

One last note on Chris' suggested terminology...when I teach facial comparison I start with that dichotomy - "recognition" refers to the computer algorithm, "identification" refers to the human/manual process.

Richard W. Vorder Bruegge Senior Physical Scientist FBI-OTD Building 27958A, Pod E Quantico, VA 22135 (703) 985-1192

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From:	fva-list-bounces@lists.umanitoba.ca on behalf of Mark Davies FVA <markjosephdaviesfva@gmail.com></markjosephdaviesfva@gmail.com>		
Sent:	Friday, February 1, 2019 12:27 PM		
То:	Forensic Video Analysis		
Subject:	Re: [FVA-List] Facial Recognition Software		
Attachments:	Untitled attachment 00043.txt		

With excellent "controlled situation" source images most decent facial recognition software will give you a starter for ten.... then the human element is still paramount to it's success. Most, even very high quality, common CCTV imagery due to the nature of camera placement isn't good enough for such AI technology to work alone.

Mark Davies

On 1 Feb 2019, at 16:34, Pabuaya, Ray <<u>rpabuaya@winnipeg.ca</u>> wrote:

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From:	fva-list-bounces@lists.umanitoba.ca on behalf of Kimbrell, Melissa <melissa.kimbrell@dps.texas.gov></melissa.kimbrell@dps.texas.gov>		
Sent:	Tuesday, March 12, 2019 9:17 AM		
То:	Forensic Video Analysis		
Subject:	[FVA-List] ProHawk		
Attachments:	ProHawk Executive Summary (2018).pdf; Untitled attachment 00053.txt		

Hey all,

The top of my chain of command has asked me to look into the attached "instant visual clarity" software. Does anyone out there use ProHawk?

Any insight will be appreciated!

Thanks,

Melissa (Melnick) Kimbrell, CFVT, CCSA

Forensic Scientist Digital & Multimedia Evidence Crime Laboratory Texas Department of Public Safety 5800 Guadalupe St., Building U Austin, Texas 78752 512-424-2105 ext. 3161





Overview

The problem facing many strategic, high growth markets that leverage real time video is no optical system or camera is optimized to deliver high-quality actionable video in every environmental condition. The targeted market that Prohawk Technology Group's Instant Visual Clarity[™] technology is uniquely positioned to service grows from \$593 Billion in 2018 to \$3.7 Trillion by 2027, and includes: Security & Surveillance, Artificial Intelligence, Computer and Machine Vision, Autonomous Vehicles, Urban Traffic Monitoring, Smart Cities and Video Analytics. The quality of the video captured from all optical systems is compromised by a variety of factors. Even the most advanced wide-dynamic range, high-definition, thermal or infrared cameras are restricted by optical physics and environmental challenges. The following conditions have the most significant effects on capturing high quality, actionable video:

Adverse Lighting caused by night, low light, backlight and extreme contrast like sun glare, headlights and infrared imaging are challenging environments that distress the quality of video. These conditions significantly impact the image quality taken by all camera systems, rendering them ineffective and incapable of delivering meaningful and actionable video.

Extreme Weather conditions impact the visibility of all camera systems. The image quality from cameras operated outdoors can be severely compromised by the effects of severe rain, snow, dense fog, mist or haze removing any chance of capturing actionable data.

Airborne Particles in the environment can also negatively impact the quality of the imagery delivered by the camera. Representative challenges in this area include the impact of sandstorms, smoke, smog, dirt and dust, all of which degrade visibility and the camera's ability to capture quality video.





There is a need for ProHawk Instant Visual Clarity software solutions which can be easily integrated into systems throughout our identified markets.

Markets

The demand for high quality, actionable, real-time video is rapidly increasing throughout global markets. Real-time, actionable video requirements are expanding across all industries including: Government, Military, Law Enforcement, Healthcare, Maritime, Industrial, Transportation, Agriculture, Retail, Energy and Public Utilities. A variety of industry specific applications leveraging real time video range from Security & Surveillance, Artificial Intelligence, Computer Vision and Machine Vision to Autonomous Vehicles, Urban Traffic Monitoring, Smart Cities and Video Analytics.

Governments and industries are committing significant additional resources to Security & Surveillance. Governments across the world are investing in high quality Video Surveillance Systems as part of their border control, security and anti-terrorism infrastructure. All Security & Surveillance applications can instantly benefit from ProHawk technology and the instantaneous visual clarity it provides. This market was valued at \$30.37 Billion in 2016 and is forecasted to increase by a 15.4% Compound Annual Growth Rate (CAGR), through 2022, when it will be valued at over \$75.64 Billion.

The global autonomous vehicle market is expected to grow at a CAGR of 39.6% reaching \$126.8 Billion by 2027. Autonomous vehicles employ embedded software, sensors, and communications systems trending towards advanced Artificial Intelligence (AI) technology. True level 5 autonomous driving, full autonomy in **any and all conditions**, will not be achieved without ProHawk technology. Elon Musk, CEO of a leading autonomous vehicle company, Tesla, has said publicly, "Once you solve cameras for vision, autonomy is solved: if you don't solve vision, it's not solved...You can absolutely be superhuman with cameras."

Artificial Intelligence (AI) is intelligence demonstrated by machines: any device that perceives its environment and takes action that maximizes its chance of successfully attaining its goal. AI problems include reasoning, planning, learning, perception, and the ability to move and manipulate objects. For example, Artificial Intelligence enables autonomous planning or calculations for robotic systems to maneuver through an environment. Information about the environment is being provided by computer vision systems, acting as a vision sensor for the robot. Computer Vision addresses how computers can be utilized to derive a high-level understanding (from digital images or video) to automate tasks and enhance the performance of the organic, human visual system and analytical process.

Computer Vision is concerned with the theory behind artificial systems that extract information from images. Computer vision systems leveraging ProHawk can extract substantially better data for scene reconstruction, event detection, video tracking, object recognition, 3D pose estimation, learning, indexing and motion estimation. According to a new market survey by Markets and Markets, the Computer Vision Market is expected to be valued at USD \$11.94 Billion in 2018 and is likely to reach USD \$17.38 Billion by 2023, at a CAGR of 7.80% between 2018 and 2023. The growth of the market is mainly driven by the increasing adoption of computer vision in autonomous and semiautonomous vehicles, military, industrial and consumer drones; and the rising adoption of Industry 4.0 manufacturing automation and data exchange.



Machine Vision is the technology and methods used to provide imaging-based analysis for applications that include: automated inspection, process control, and robotic guidance, usually in industry. The global Machine Vision Market is expected to reach USD \$19.22 Billion by 2025, at a CAGR of 8.5%, according to a new report by Grand View Research, Inc. The increasing adoption of robots across industrial sectors is leading toward the application of vision-guided robotic systems. Industrial verticals, such as automotive, pharmaceutical, packaging, and food & beverage, are prominent sectors where robotic systems are used, eventually fueling the demand for machine vision systems.

Successful implementation of smart city projects heavily depends on technologies – data communications, cloud, mobility, and sensors that seamlessly tie together to form an IoT ecosystem. Typical smart city projects target traffic flow optimization, public safety violence eradication, efficient street light utilization, and parking. Smart cities are enabled by smart cameras that will make sense of what they see in real time. ProHawk provides the underlying technology that will put the Smart in cities. The smart cities market is expected to grow at a 23.1% CAGR from \$424.68 Billion in 2017 to 1.2 Trillion by 2022.

Governments, industries, commercial organizations all use advanced video analytics for security and to improve operational efficiency. High quality actionable video is essential to key, common video analytics uses including License Plate Recognition, Object Recognition and Facial Recognition. ProHawk algorithms provide a critical, foundational technology, which can enable exponential value recognition for applications in this rapidly developing market. The video analytics market is valued at \$2.61 Billion in 2016 and is expected to grow by 33.7% CAGR through 2022 to \$11.17 Billion.

Software, Embedded & Service Solutions

ProHawk provides real-time video enhancement technology that provides unparalleled Instant Visual Clarity in compromised video due to lighting, weather, particulate matter, and environmental conditions. ProHawk unlocks the highest quality enhancements with ultra-low latency, enabling users or Computer Vision enabled AI systems to analyze optimized, actionable video in real-time.

The most critical characteristic in a real-time video enhancement solution is the latency of the system. This is the time delay between a video frame entering the system, video enhancement(s) being applied to the video frame, and receiving the enhanced, clarified video frame. Since real-time video monitoring requires human observation or AI based analytics systems with computer vision, perceptible latency has a strong effect on user satisfaction and the usability of the system. This requirement demonstrates the distinct advantage that ProHawk solutions provide with a latency of less than 20 μ Secs. This level of performance enables high-speed mobile applications such as autonomous vehicles, autonomous aircraft, autonomous water craft, urban traffic monitoring, smart cities, and military use cases.

ProHawk's patented Detail Enhancement Filter (DEF) is the core enhancement algorithm that achieves high image sensitivity. DEF is the only real-time video enhancement platform that concurrently processes six distinct enhancements algorithms, improving visual clarify and reducing the need for expensive and sophisticated optical systems. The DEF enhancement algorithm is a suite of enhancement methodologies including algorithms



supporting dynamic range enhancement, contrast optimization, contextual color enhancement, edge sharpening, rapid movement minimization and visual noise reduction. The combination of these algorithms provides finer, sharper levels of detail and clarity, static visual noise reduction, improve color representation (natural to the human eye), remove objects obscuring visibility, defined and detailed edges, reduced blurriness, all without frame skipping & white clipping.

The ProHawk Instant Visual Clarity Software product line enables partners to tightly integrate into a variety of industrial market solutions with industry standard video formats and interfaces, such as SMTPE, HDMI, & VESA standard formats, and HDMI, USB-C, DisplayPort, and Ethernet TCP/IP physical interfaces. A robust offering of Video Management Systems (VMS) integration plug-ins provides server side Instant Visual Clarity enhancements with client side visual clarity controls for market leading VMS solutions, including: Milestone, Genetec, and Geutebrück.

ProHawk Instant Visual Clarity Software Developers Kit (SDK) is a set of software tools that enables ProHawk technology to be tightly integrated into a variety of applications for hardware, software, and services market solutions. An Application Programming Interface (API) enables software engineers to easily integrate ProHawk Instant Visual Clarity capabilities directly into their systems and solutions. A Web UI provides instant integration into applications.

ProHawk Instant Visual Clarity FPGA Developers Kit (FPGADK) is a set of tools that enables ProHawk Visual Clarity algorithms to be embedded into an M.2, PCIe 3.0, or cloud services based FPGA. Designed for applications that require the absolute lowest possible latency, the FPGADK empowers developers to integrate Instant Visual Clarity into their realtime mission critical systems.

ProHawk Instant Visual Clarity Software-as-a-Service (SaaS) targets the lucrative, rapidly growing and high margin SaaS market. The ProHawk Instant Visual Clarity SDK, and ProHawk Instant Visual Clarity FPGADK, will be leveraged to provide ProHawk Instant Visual Clarity Software Services. The SaaS capabilities will be delivered over time and are designed to run on all major cloud service proders. For examples: Amazon AWS EC2 F1; Microsoft Azure FPGA-based configurable cloud instance; Google Cloud CPU & GPU service. ProHawk integrates in key SaaS markets such as Video Surveillance as a Service (VSaaS), Artificial Intelligence as a Service (AIaaS), and Computer Vision as a Service (CVaaS).

ProHawk uniquely leads the market with five critical patented algorithms:

Comprehensive Low Latency Detailed Enhancement Filter Algorithm – The DEF algorithm is optimized to minimize latency introduced while processing video enhancement. The DEF algorithm takes less than 20µs to enhance a HD-SDI 1080p60 video stream. No other image enhancement technology delivers this level of performance for real-time application support.

Clear Tone Contrast Algorithm – This algorithm provides low contrast image enhancement clarity due to extremely dark or bright frames and/or areas within frames. It divides an image into blocks to leverage a tone brightness histogram to adjust brightness for every pixel.

Contextual Color Correction Algorithm – Very small/fast algorithm to identify color in over or under exposed areas delivering improved color representation more natural to the human eye.

Rapid Motion Detection Algorithm – Removes unwanted objects obscuring visibility with noise reduction that eliminates frame skipping & white clipping. A simple 2 step bright and dark pixel processing code structure that detects rapid motion for every pixel. **Adaptive Detailed Enhancement Filter Algorithm** – Patent pending in-frame processing algorithm that does not require previous video frames or histograms. Designed for rapidly moving source demands that are challenged with directional and/or target acquisition visibility difficulties. Delivers unparalleled video clarity with the lowest possible latency for autonomous vehicles, subsonic to hypersonic moving autonomous aircraft and missiles.

Value Proposition

ProHawk

ProHawk provides instantaneous visual clarity in time sensitive critical situations:

Instant Visual Clarity – ProHawk unlocks the highest quality real-time video enhancements with patented ultra-low latency enabling dramatically improved Instant Visual Clarity. Thereby enabling users, IoT devices, and computer vision systems to more accurately analyze and act on clarity in video data.

Visibility in Degraded Visual Environments – ProHawk provides visibility in adverse lighting and challenging environments that can leave little to no actionable data with traditional video systems. ProHawk provides Instant Visual Clarity in these circumstances enables Computer Vision AI systems, IoT devices, and humans to receive the full benefit of their video systems allowing them to take proper action quickly.

Clarity in Challenging Weather Conditions – ProHawk allows AI systems, IoT devices, and end users to see clearly through extreme weather conditions that impact the visibility of camera systems. Severely compromised video quality is eliminated with ProHawks Instant Visual Clarity Technology providing users and AI Computer Vision systems with the actionable data they require.

Improve Recognition – ProHawk is a foundation technology which enables Video Analytics, IoT devices, Artificial Intelligence and Computer Vision systems to dramatically improve event detection, object recognition, 3D pose estimation, and motion estimation.

Potential Life Saving – When clear visibility is the difference between life and death, ProHawk provides the instantaneous visual clarity required to make life-saving decisions.



From:	fva-list-bounces@lists.umanitoba.ca on behalf of Darryl Branker <darryl.branker@torontopolice.on.ca></darryl.branker@torontopolice.on.ca>
Sent:	Tuesday, January 8, 2019 1:05 PM
То:	Forensic Video Analysis
Subject:	Re: [FVA-List] Vintra, Veritone, Briefcam feedback - Al/facial and object recognition
Attachments:	Untitled attachment 00117.txt

Good Afternoon:

We have Briefcam here in the unit and most recently looked at Vintra as we were expanding the units capabilities. We use Briefcam to work through large amounts of video. (the investigator module)

Listed specs and performance wise during our recent preliminary comparison, Vintra came out on top overall except that it required a hefty hardware spend for either its enterprise or cloud solution. Unlike Briefcam it serviced a wide array of codecs (Briefcam required mp4 files for its investigator module). Briefcam also seems to require almost perfect image quality to be useful for confined search parameters and obviously limited for IR video.

We have not had the opportunity to do a side by side actual comparison but will be sticking to Briefcam for now.

Regards,

Darryl Branker

Detective Constable #9450 | Homicide Squad |Forensic Video Avalysis Unit| Toronto Police Service Ph: 416-808-7420 | Mobile: 416-473-8966 | Fax: 416-808-7402 Darryl.branker@torontopolice.on.ca



From: fva-list-bounces@lists.umanitoba.ca <fva-list-bounces@lists.umanitoba.ca> On Behalf Of Blake Sawyer Sent: Tuesday January 8, 2019 12:12

To: Forensic Video Analysis <fva-list@lists.umanitoba.ca>

Subject: Re: [FVA-List] Vintra, Veritone, Briefcam feedback - Al/facial and object recognition

Chris not sure what you've gotten back, but I'd love to know what you learn. We had small license of Vintra, which worked ok. The issue is, because you upload the video to a server (which we had potential evidentiary issues) and because the issues with validation of Deep Learning software, we saw it as a good lead finding tool for Detectives more than a tool for analysis at this point. Maybe it'll get there, but I felt like we could be sure it found all the persons or vehicles, and some of the people it found were the leaves on a tree blowing.

One thing we have started using more for long videos is Griffeye Analyze DI. While the carver doesn't work for CCTV drives, the video tools are pretty handy. You can have it examine a section of video and in about 2 minutes (depending on the length of the video) it will spit out a time line with heat map showing when pixels change in that location. It can

also split the videos into segments and play them simultaneously meaning you can watch 6 sections of the video at the same time (hard when there is a lot of motion, but easy if you are just looking for anything in a parking garage.)

Briefcam we looked at a couple years ago, but it was at the time more for a dedicated camera and the license was a bit steep.



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Blake Sawyer-*crva crve* Digital Media Forensic Specialist 909 14th Street Plano, Texas 75074 T 972.941.2473 blakes@plano.gov plano.gov



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From: <u>fva-list-bounces@lists.umanitoba.ca</u> [<u>mailto:fva-list-bounces@lists.umanitoba.ca</u>]
Sent: Monday, January 07, 2019 4:15 PM
To: Forensic Video Analysis (<u>fva-list@lists.umanitoba.ca</u>) <<u>fva-list@lists.umanitoba.ca</u>)
Cc: LUM, Eugene <<u>eugene.lum@vpd.ca</u>>
Subject: [FVA-List] Vintra, Veritone, Briefcam feedback - Al/facial and object recognition

Hi friends,

Can anyone speak to the AI products Vintra FulcrumAI Investigator, Veritone aiWARE, or Briefcam?

I've already spoken to someone about Briefcam, and their review was positive.

I'm trying to solve two problems:

- 1. Video review: reviewing a DVR full of video takes foreverrrrrrr, and is a waste of human resources. I need a product/machine that reviews the video for me, and displays meaningful results that I can filter. Show me all the trucks, show me all the people, show me all the faces etc.
- 2. Facial recognition: if the system finds people, I want it to compare those results with our arrest system photos. Passively, and actively as in, show me bad people even if I'm not specifically looking for them AND show me every time "bad person A" shows up. (I choose "bad person A," and want to see every time he shows up in any video that has been processed by the system.

If you are using anything else that I may find interesting, please let me know.

I've already done extensive research and development using experimental and prototype software – and I know the above is possible because I did it. What I need, though, is a commercially available and supported application that is scalable, not in the cloud, and actually does what it says it does. On-prem is preferred for performance and Privacy Act limitations. (On-prem is waaaaaaay faster overall, if your infrastructure is speedy. Uploading to a cloud and waiting for processing is very time consuming.)

Thanks in advance to those who can share some feedback with me!

Chris

Chris Stoddard CFVA

Vancouver Police Department Forensic Services Section Forensic Video Unit Forensic Video Analyst Phone: 604-717-3313

chris.stoddard@vpd.ca

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From:	fva-list-bounces@lists.umanitoba.ca on behalf of Soutullo,Joseph <jsoutullo@pcsonet.com></jsoutullo@pcsonet.com>
Sent:	Tuesday, January 8, 2019 1:35 PM
То:	Forensic Video Analysis
Subject:	Re: [FVA-List] Vintra, Veritone, Briefcam feedback - Al/facial and object recognition
Attachments:	Untitled attachment 00068.txt

We have also done an in-depth demo of Vintra's Fulcrum AI. I agree that it's more of a lead development tool, however there is a time savings there over human viewing, even with the cloud-based disadvantages. There are three wait times involved with a Vintra project: the time to upload the video, the time is takes for Vintra to analyze the video you have uploaded for object identification and eventual attribute-based searches, and the time it takes to create a basic motion summary of any uploaded video.

Regarding #2 on your list, Vintra has a "known subject" function. You upload four different photos of a known subject's face and profile, and it searches for that subject in any of your project video files. In my testing, it found every instance of the subjects in the video clips. It even worked on 352x240 video where the known subject was positioned so that his face image only had a 12 pixel inter-eye distance. Finding that face in a one hour video is impressive from a face recognition perspective.

Vintra does indeed analyze a few proprietary video formats without conversion or pre-processing. I tested Click-it SmartCam XI videos from a 7-11 store along with the .264 video files generated by the current generation of NightOwl and Samsung branded DVR's. Both worked without a hitch.

A feature I actually used quite a bit was called "Video Contributor." It allows you to send an email to a person in possession of video files you need. The email contains a link for them to upload directly to your Vintra project. I used it to obtain copies of video files from our patrol deputies on the street. Vintra kindly implemented a "download original video file" function for me. Hopefully they've continued that capability.

Other vendors that incorporate face recognition with their video analytics systems that we've looked at (just demos so far) include AnyVision and Idemia.

Jody Soutullo Pinellas County Sheriff's Office 727-582-2803

From: fva-list-bounces@lists.umanitoba.ca [mailto:fva-list-bounces@lists.umanitoba.ca] On Behalf Of Blake Sawyer
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 To: Forensic Video Analysis <fva-list@lists.umanitoba.ca>
 Subject: Re: [FVA-List] Vintra, Veritone, Briefcam feedback - AI/facial and object recognition

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From: Sent:	fva-list-bounces@lists.umanitoba.ca on behalf of Jan Garvin <training@leva.org> Monday, December 31, 2018 11:09 AM</training@leva.org>
То:	fva-list
Subject:	[FVA-List] Know Anyone?
Attachments:	Untitled attachment 00100.txt

If you know of a company or individual that provides proven and competent training in either of these areas, facial recognition and voice ID, please let me know off-line. Thanks.

Jan Garvin, LEVA Executive Director, training@leva.org

From:	fva-list-bounces@lists.umanitoba.ca on behalf of David Spreadborough <spreadys@aol.com></spreadys@aol.com>
Sent:	Friday, June 10, 2016 11:00 AM
То:	fva-list@lists.umanitoba.ca
Subject:	Re: [FVA-List] Surveillance Video: Recognition vs Identification

Let me put my head above the parapet here and say, "Ignore all the guidance"!

If you go down a CCTV Installers recommended route of:

Detection, Recognize and then Identify; you will put yourself in a corner when someone recognizes a person in a system that doesn't fit this category. Recognition quality footage of a known person is deemed as when a person fits 50% of the vertical pixels.

Recognition evidence is based on knowledge of that person. My Mother would know and recognize me on poor CCTV footage, even if it was not possible to make out facial features.

Being able to write the recognition evidence is the hardest part.

How do they know the person, for how long, latest interaction etc etc....

We all recognize people everyday, in our daily lives and on the the TV. You may see and actor in a film made 30 years ago and then certain features will enable to you to recognize that person to be the actor you saw in a recent film.

As a result of the recognition evidence, an arrest or further inquiries will be made. From that point the evidence is built up.

Identification Evidence from a person in CCTV can only be made by two people. Firstly, the person themselves, by saying, "that's me".

The second is a Judge or Jury. The weight of the evidence put before them enables them to form the opinion that beyond reasonable doubt the Person in the footage is the person stood before them.

Even when automated facial recognition systems are in use - They are not the identifiers.

To assist you further - systems where around 10% of the vertical pixels are a person should be suitable for detection of a person.

If the entire vertical pixels are taken up by 3/4 of a person (Upper legs, torso and head), then these should be suitable to identify an unknown person BUT it comes down to compression used!

The guidance I would give, rather than specifying pixel stuff, is that if an officer recognizes someone in CCTV then that viewing should be made by them self, and they should not discuss the recognition with another officer. They should document the recognition immediately and that they formed this recognition by themselves. They should then contact the requesting dept/agency.

Other guidance should be given on the presentation of images for recognition. There are a multitude of problems here and any daily google search of persons caught on camera will show you most! Poorly created, no evidential chain or link to original! No original - the only image is a mobile phone grab of a screen!! No Unique reference number. I have even seen images created from a merge of two people!!!!! - Yes..Really!!!!

Hope that helps a little Spready

David Spreadborough Certified Forensic Video Analyst

www.forensicvideo.training www.spreadys.com

+44 7477 544045

For all Amped Software Training Enquiries david.spreadborough@ampedsoftware.com

-----Original Message-----From: Smith, Mark R (Police) (Police) <markr.smith@saintjohn.ca> To: 'fva-list@lists.umanitoba.ca' <fva-list@lists.umanitoba.ca> Sent: Fri, 10 Jun 2016 13:36 Subject: [FVA-List] Surveillance Video: Recognition vs Identification

Good Morning all,

My question is a result of an officer identifying a subject from a still photo that was of poor quality. I know I have read information somewhere about the levels of quality/resolution that would be recommended for different levels of subject recognition. I would like to have some supporting information before I approach our managers in order to provide better direction to our officers.

Is there anything official from case law or from one of our associations that spells out the different levels of surveillance video ranging from overall field of view "story telling" video down to a criteria that could provide close-up "identification" quality of a suspect in a video or still photo?

I've searched through the last few months of daily topics on the list and have not been able to find anything that has already covered the topic.

Thanks,

Sgt. Mark R. Smith i/c Forensic Identification Section Saint John Police Force Email: markr.smith@saintjohn.ca W: 506-648-3233 | C: 506-650-8703

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Put the following in the body of the message:

set authenticate password set delivery off

Substitute the password that gets emailed to you once a month for the word password.

Same instructions to turn back on, but substitute the word on for off.

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- Automatically Matches Subject Face using live / captured video
- Advanced Age and Gender Analytics Reporting
- Enrollment of 30,000 "Known Faces" into "Watch Lists"
- Up to 20 Cameras on a Server w/ 10 million-face DB Capacity

Click here to learn more.



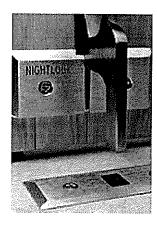
Need One Less Problem? Eliminate False Fire Alarms

STI Universal Stopper® helps prevent false fire alarms while guarding against damage, dust and grime. Interior 95/105 dB horn sounds when cover is lifted, drawing attention in a hurry and deterring a prankster before the actual alarm is activated. Indoor/outdoor tough, polycarbonate cover, also available in Spanish or French. Fits most pull stations. UL/cUL.

Click here to learn more.



Keep Your Classroom Safe | NIGHTLOCK® LOCKDOWN DOOR BARRICADE SYSTEM



The NIGHTLOCK® Lockdown uses the strength of the floor to withstand tremendous force, and works on any outwardand inward-swinging doors. The device is installed at floor level, and remains out of reach to anyone attempting to enter by breaking window glass on conventional classroom and office doors.

Simply add this safety device to any existing door.

- · Can withstand tremendous force
- Comes with a supplied wall box
- · No need to replace existing hardware
- Lockdown in seconds
- Easy to install

Baylor Legal Fees Nearly Quadruple in 1 Year

Click here to learn more.

Takex Flame Sensor FS-2000E



The Takex FS-2000E is an indoor flame sensor detecting the presence of ultraviolet rays contained within a flame. It has a nominal range of 33 feet by 120 degrees conically. The adjustable sensor head allows for flexible wall or ceiling mounting. Built-in sounder, selectable N.O./N.C. onboard output relay, variable response timer, alarm memory feature and an operating temperature of +14°F to +140°F.



BARRICADE

Click here to learn more.

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Police How-To's

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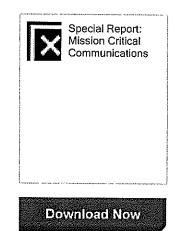
Special Report: Active Shooter Response

By Armor Express, BlueRidge Armor, Hardwire LLC, Lenco Armored Vehicles

Read POLICE Magazine's Special Report: Active Shooter Response to learn about what the FBI's latest study on active shooters really means, effectively coordinating with fire and EMS at the scene, tactical medics in active shooter response, talking to the community about active shooters, vehicle spotlights on the Lenco BearCat MedEvac G3 and The Armored Group BATT-X, and patrol response to the active shooter.

Special Report: Mission Critical Communications

By LDV USA, Nuance Communications Inc., Spillman Technologies, A Motorola Solutions Co. In POLICE Magazine's Special Report: Mission Critical Communications, learn about the new role of radios on duty, first responder networks, advancements in 911 call center technology, cyber security, getting grant funding for communications equipment, and how to work with dispatchers.



Special Report: Keeping Schools Safe

Special Report: Keeping Schools Safe

By Knightscope Inc., Omnigo Software, Hardwire LLC, Icom America Inc., Mutualink, BlueRidge Armor LLC, AmpliVox Sound Systems

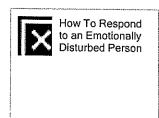
In POLICE Magazine's Special Report: Keeping Schools Safe, learn about building police-school relationships, how readers would make schools safer, why you have to go in, crowd control, tactical medical response, and staging a school shooting

How To Respond to an Emotionally Disturbed Person

response drill.

By POLICE Magazine

Arm yourself with some basic skills to employ when encountering disturbed subjects in need of mental health services.



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Cloud Storage: Why your department should make the switch

By Digital Ally

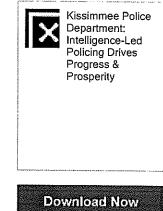
The cloud is relatively new territory for law enforcement agencies to store their video data, and it's concerning for many, but the cloud has many benefits including security, accessibility and ease of deployment compared to a local server. See why so many departments are making the switch!

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Kissimmee Police Department: Intelligence-Led Policing Drives Progress & Prosperity

By Motorola Solutions

"Why are we reacting to the dots on the map?" asked Chief Jeff O'Dell upon entering the Kissimmee Police Department. He then said, "Let's try to prevent the dots and look ahead to stop crimes before they actually happen." Since then, things have never been the same. Over the years, the department has been working toward evolving to an intelligence-led policing model, even while facing budget constraints.





Special Report: Software & Hardware

By APB360, ScheduleAnywhere, Envisage Technologies, Quetel Corp., and Spillman Technologies, a Motorola Solutions Co. In this special report from POLICE Magazine, you'll learn about how hardware and software enhance officer safety, what you need to know about the cloud, how to handle software implementation, how laptops and tablets compare, and useful law enforcement apps.

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Boosting Officer Safety Solutions with Mobile Safety

By Fujitsu America, Inc.

Through 20 years of serving first responders, Fujitsu knows you deserve the best technology to help you serve the public safely and efficiently. That's why Fujitsu tablet PCs are user friendly, designed for one-handed operation under stress, and rugged and reliable enough to stretch your agency's budget with long lifecycles.



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Special Report: Civil Unrest



Special Report: Civil Unrest

By POLICE Magazine

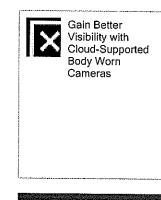
In this special report from POLICE Magazine, you'll learn about how response to civil disturbances can incorporate the use of less-lethal weapons, bicycles, body-worn cameras, and public order teams.

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Gain Better Visibility with Cloud-Supported Body Worn Cameras

By Safariland VIEVU

Written specifically for police chiefs, sheriffs, and lawenforcement decision makers, this e-guide looks at the growing challenge of deploying a body camera solution that protects the integrity of evidence, your officers, and your department. Learn how to how to maximize public trust and officer safety with stateof-the-art video evidence management.



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Special Report: Law Enforcement Software

Special Report: Law Enforcement Software

By POLICE Magazine

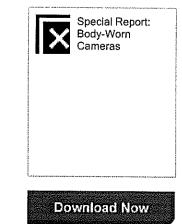
In this special report from POLICE Magazine, you'll learn about how to buy software, successful software installation, measuring your agency's return on investment, and useful law enforcement apps.

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Special Report: Body-Worn Cameras

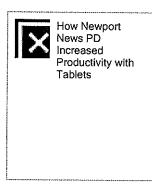
By POLICE Magazine

As many law enforcement agencies move to obtain and deploy body-worn cameras, it is important that the administrators of these agencies develop detailed policies that govern the use of these devices.



How Newport News PD Increased Productivity with Tablets

By Fujitsu America, Inc.



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How to Compare 9mm Vs .40 Caliber

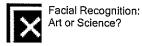
By POLICE Magazine

The FBl's decision to switch back to 9mm pistols and ammo is based on studies of wound ballistics and shooter performance.

improve productivity.



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Facial Recognition: Art or Science?

How Newport News PD Increased Productivity with Tablets

Newport News, Virginia, encompasses only 69 square miles, but

it is home to more than 180,000 people. Recently the Newport

News Police Department decided to upgrade its aging in-car devices. The agency is now using Fujitsu STYLISTIC tablets to

By Vigilant Solutions

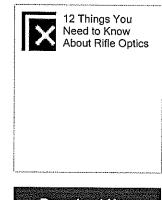
Generating a list of high-quality leads using facial recognition technology is now within reach for agencies of all sizes. Learn how facial recognition works, best practices for capturing probe images, and new breakthrough image pre-processing techniques that anyone can employ.

12 Things You Need to Know About Rifle Optics

By POLICE Magazine

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In order to help you decide what optic best suits your needs, POLICE Magazine spoke with some experts on the tactical operation of firearms optics. And the following are 12 things they said you need to know about these essential accessories.



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Making the Case for FBI-CJIS Security Policy

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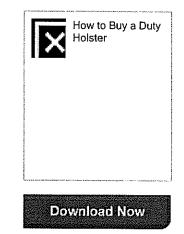
Making the Case for FBI-CJIS Security Policy

By Vigilant Solutions

Is your LPR data secure? It is your responsibility to determine whether vendors that serve you operate in compliance with the FBI-CJIS Security Policy. Get the answers you need to evaluate your providers, including Top 10 Questions to Ask by downloading the whitepaper: Making the Case for FBI-CJIS Security Policy.

How to Buy a Duty Holster

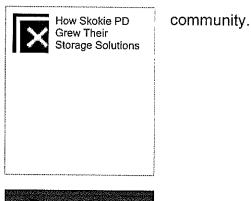
By POLICE Magazine Carefully consider safety, security, and your body type before selecting gear to carry your sidearm.



How Skokie PD Grew Their Storage Solutions

By Spacesaver How a department's storage needs kept up with its fast growing





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How to use 3D laser technology to generate significant savings for your inter-agency investigation team

By FARO

The Clackamas County, Oregon CRAFT team was challenged with limiting road-closure time and opening roadways faster. The inter-agency team with one full-time and 18 on-call reconstructionists purchased the FARO Focus3D X 330 Laser Scanner and have successfully reduced roadway closure times and saved the Clackamas County Sheriff's Office more than \$28K in overtime hours alone in just under 16 months of operation.





How to Handle Stress On Duty

How to Handle Stress On Duty

By POLICE Magazine

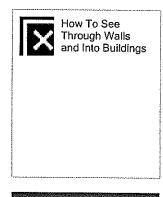
You can take steps to improve your well-being at work before you reach the breaking point.

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How To See Through Walls and Into Buildings

By L-3 CyTerra

Just as infrared (IR) and thermal scopes made seeing in the dark possible, a relatively new technology, called wall penetrating radar (WPR) makes "seeing" through walls and into buildings possible. WPR's are specifically designed and optimized for their radar signal to traverse through walls of buildings and other similar barriers, reflect off objects inside those structures, and return through the original barrier to the WPR.



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