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AI Inventory

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Bureau Name

Summary

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| A | Federal Procurement Data System (FPDS) Auto-Populate Bot | A/LM collaborated with A/OPE to develop a bot to automate the data entry in the Federal Procurement Data System (FPDS), reducing the burden on post's procurement staff and driving improved compliance on DATA Act reporting. This bot is now used to update ~300 FPDS awards per week. A/LM also partnered with WHA to develop a bot to automate closeout reminders for federal assistance grants nearing the end of the period of performance and begin developing bots to automate receiving report validation and customer service inbox monitoring. |
| A | Product Service Code Automation ML Model | A/LM developed a machine learning model to scan unstructured, user entered procurement data such as Requisition Title and Line Descriptions to automatically detect the commodity and services types being purchased for enhanced procurement categorization. |
| A | Tailored Integration Logistics Management System (ILMS) User Analytics | A/LM plans to use available ILMS transactional data and planned transactions to develop tailored user experiences and analytics to meet the specifics needs of the user at that moment. By mining real system actions and clicks we can extract more meaningful information about our users to simplify their interactions with the system and reduce time to complete their daily actions. |
| A | Supply Chain Fraud and Risk Models | A/LM plans to expand current risk analytics through development of AI/ML models for detecting anomalous activity within the Integrated Logistics Management System (ILMS) that could be potential fraud or malfeasance. The models will expand upon existing risk models and focus on key supply chain functions such as: Asset Management, Procure-to-Pay, and Fleet Management. |
| A | Tailored Integration Logistics Management System (ILMS) Automated User Support Bot | ILMS developed and deployed an automated support desk assistant using ServiceNow Virtual Agent to simplify support desk interactions for ILMS customers and to deflect easily resolved issues from higher cost support desk agents. |
| CGFS | Within Grade Increase Automation | A Natural Language Processing (NLP) model is used in coordination with Intelligent Character Recognition (ICR) to identify and extract values from the JF-62 form for within grade increase payroll actions. Robotic Process Automation (RPA) is then used to validate the data against existing reports, then create a formatted file for approval and processing. |
| CSO | Conflict Forecasting | CSO is developing a suite of conflict and instability forecasting models that use open-source political, social, and economic datasets to predict conflict outcomes including interstate war, mass mobilization, and mass killings. The use of AI is confined to statistical models including machine learning techniques including tree-based methods, neural networks, and clustering approaches. |

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| FSI | Automatic Detection of Authentic Material | The Foreign Service Institute School of Language Studies is developing a tool for automated discovery of authentic native language texts classified for both topic and Interagency Language Roundtable (ILR) proficiency level to support foreign language curriculum and language testing kit development. |
| CSO | Automated Burning Detection | The Village Monitoring System program uses AI and machine learning to conduct daily scans of moderate resolution commercial satellite imagery to identify anomalies using the near-infrared band. |
| CSO | Automated Damage Assessments | The Conflict Observatory program uses AI and machine learning on moderate and high-resolution commercial satellite imagery to document a variety of war crimes and other abuses in Ukraine, including automated damage assessments of a variety of buildings, including critical infrastructure, hospitals, schools, crop storage facilities. |
| IRM | ServiceNow AI-Powered Virtual Agent (Chatbot) | IRM's BMP Systems is planning to incorporate ServiceNow's Virtual Agent into our existing applications to connect users with support and data requests. The Artificial Intelligence (AI) is provided by ServiceNow as part of their Platform as a Service (PaaS). |
| IRM | Apptio | Working Capital Fund (IRM/WCF) uses Apptio to bill bureaus for consolidated services run from the WCF. Cost models are built in Apptio so bureaus can budget for the service costs in future FYs. Apptio has the capability to extrapolate future values using several available formulas. |
| F | NLP for Foreign Assistance Appropriations Analysis | Natural language processing application for F/RA to streamline the extraction of earmarks and directives from the annual appropriations bill. Before NLP this was an entirely manual process. |
| IRM | eRecords M/L Metadata Enrichment | The Department's central eRecords archive leverages machine learning models to add additional metadata to assist with record discovery and review. This includes models for entity extraction, sentiment analysis, classification and identifying document types. |
| GPA | GPATools and GPAIX | Developed R package and Python package that saves users many hours of work per analysis. Allows for swift and effective data wrangling, visualization, and analysis. |
| IRM | AI Capabilities Embedded in SMART | Models have been embedded in the backend of the SMART system on OpenNet to perform entity extraction of objects within cables, sentiment analysis of cables, keyword extraction of topics identified within cables, and historical data analysis to recommend addressees and passlines to users when composing cables. |
| M/SS | Crisis Campaign Cable Analytics | Use optical character recognition and natural language processing on Department cables in order to evaluate gaps and trends in crisis training and bolster post preparedness for crisis events. |

Fast Text is an AI approach to identifying similar terms and phrases based

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| R | Fast Text Word Builder | off a root word. This support A&R's capability to build robust search queries for data collection. |
| PM | NLP to Pull Key Information from Unstructured Text | Use NLP to extract information such as country names and agreement dates from dozens of pages of unstructured pdf document. |
| PM | K-Means Clustering into Tiers | Cluster countries into tiers based off data collected from open source and bureau data using k-means clustering. |
| R | Optical Character Recognition – Text Extraction | Extract text from images using standard python libraries; inputs have been websites to collect data. |
| R | Topic Modeling | Cluster text into themes based on frequency of used words in documents; has been applied to digital media articles as well as social media posts; performed using available Python libraries. |
| R | Deepfake Detector | Deep learning model that takes in an image containing a person's face and classifies the image as either being real (contains a real person's face) or fake (synthetically generated face, a deepfake often created using Generative Adversarial Networks). |
| R | SentiBERTIQ | GEC A&R uses deep contextual AI of text to identify and extract subjective information within the source material. This sentiment model was trained by fine-tuning a multilingual, BERT model leveraging word embeddings across 2.2 million labeled tweets spanning English, Spanish, Arabic, and traditional and simplified Chinese. The tool will assign a sentiment to each text document and output a CSV containing the sentiment and confidence interval for user review. |
| R | TOPIQ | GEC A&R's TOPIQ tool automatically classifies text into topics for analyst review and interpretation. The tool uses Latent Dirichlet Allocation (LDA), a natural language processing technique that uncovers a specified number of topics from a collection of documents, and then assigns the probability that each document belongs to a topic. |
| R | Text Similarity | GEC A&R's Text Similarity capability identified different texts that are identical or nearly identical by calculating cosine similarity between each text. Texts are then grouped if they share high cosine similarity and then available for analysts to review further. |
| R | Image Clustering | Uses a pretrained deep learning model to generate image embeddings, then uses hierarchical clustering to identify similar images. |
| R | Louvain Community Detection | Takes in a social network and clusters nodes together into "communities" (i.e., similar nodes are grouped together). |

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