

Capt Jade F. Preston
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Active-Duty Air Force - August 2015 to Present
Career Field (AFSC): 15A - Operations Research Analyst

PUBLISHED RESEARCH

Preston, Jade F., et al. "Developing a resilient, robust and efficient supply network in Africa." *Journal of Defense Analytics and Logistics* 5.2 (2021): 224-241.

CURRENT INITIATIVES

- ❖ **Predicting Food Security in Africa:** Food insecurity in Africa is one of the major global-scale humanitarian disasters. The United Nations (UN) World Health Organization estimates that 37 million people in the horn of Africa are in acute hunger and describes the current situation as one of the worst hunger crises in the last 70 years. In this study we propose machine learning prediction using neural networks, tree models, and Bayesian model averaging to predict the change in food insecurity for each country in Africa along with proposed locations for new transshipment nodes based on the current food supply chain.
 - ❖ **Modeling Uncertainty in Hyperspectral image Classification:** Identifying materials present in a pixel is a core step in many hyperspectral image processes. This is often done using linear mixture regression models or Gaussian class distributions and maximizing likelihoods. In this study we provide a method for identification using a neural network that not only provides the high-accuracy predictions on complex data that neural networks are known for but quantifies uncertainty regarding model predictions using Monte Carlo dropout.
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WORK EXPERIENCE

16 Air Force Air Forces Cyber/J9 Studies and Analyses Division - March 2019 to August 2022:

- ❖ Spearheaded the development and fielding of Air Forces Cyber's first big data analytic utilizing Machine Learning techniques to execute persistent network security
- ❖ Led the creation of a neural network that was pivotal in identifying needles in a haystack for cyber defenders, achieving 99.8 % malware detection accuracy

707 Communications Squadron, Ft. Meade, NSA - August 2015 to August 2017

- ❖ Served as a section lead and supervised 25 personnel
- ❖ Guided a network migration between multiple agencies, saving 1,000 man-hours and \$400K per year in operations and maintenance costs
- ❖ Orchestrated unit's \$140K computer system upgrade, supervised configuration, and deployment of over 800 computers, strengthening the cybersecurity posture of the Department of Defense's \$40B network and its 3 million personnel

Commissioning Source: Virginia Military Institute (VMI) – May 2015

EDUCATION

- ❖ **Master of Science:** Air Force Institute of Technology (AFIT)
Major: Operations Research; **Dates Attended:** Aug 2017 – Mar 2019
 - ❖ **Bachelor of Science:** Mary Baldwin University/ Virginia Women's Institute for Leadership (VWIL)
Major: Mathematics/ Leadership Minor; **Dates Attended:** Aug 2011 – May 2015
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SPECIALIZED TRAINING

- ❖ **Tech School:** Operations Research Systems Analyst Military Applications Course (ORSA MAC); Fort Lee, VA

SKILLS

Python, R, Spark, Lingo, VBA, MATLAB, Tableau, Microsoft SQL, Distributed Computing in AWS

AWARDS

- ❖ Air Force selection and sponsorship of PhD degree – 2022
- ❖ Coined my Secretary of the Air Force – 2022
- ❖ Coined by Director of National Security Agency (NSA) – 2022
- ❖ Coined by Commander of United States Cyber Command – 2022
- ❖ Rank #10 of 94 captains by Lieutenant General of 16th AF – 2022
- ❖ Quarterly Award Winner for Studies and Analysis Division (3x) - (2019, 2020, 2021)
- ❖ Air Force selection and sponsorship of Master's degree – 2017
- ❖ Quarterly Award Winner for 707 Communications Squadron - (2016)
- ❖ Quarterly Award Winner for Operations Flight (3x) - (2015-2017)
- ❖ Air Force selection and sponsorship of bachelor's degree - 2013