Sarah R. Mundy

Active Dept. of Defense Secret Clearance (Inactive TS/SCI)

Fellowships

NSF CSGrad4US Fellowship Awardee, *Aug 2022*
3 years funding: annual stipend of $34,000 and annual cost-of-education allowance of $12,000

Education

B.S. in Electrical Engineering | University of Nevada, Reno (UNR), 2013
Senior Project: *DVOE-115 (Dynamic Volume Optimization Enclosure)* - Designed and developed a prototype speaker with a moving false wall to match the resonant frequency of the audio signal played

Specialized Technical Training
Media Forensics Workshop (Computer Vision Pattern Recognition Conference), *2019*
Machine Learning Course (Andrew Ng), *2018*
Packet Analysis (DEFCON), *2017*
Machine Learning (Hughes), *2017*
Algorithms (University of Maryland, College Park), *2016*
Embedded Systems (University of Maryland, College Park), *2015*
Electronic Warfare (DoD), *2014*

Certifications and Licenses

Engineer in Training, NCEES, 2013

Experience

LMI, AI Technical Advisor **08/31/2020–Present**

NASA, WFMOD Project, 08/2022–Present

- Served as operations research analyst on a workforce agent based modeling project for NASA's Office of the Chief Human Capital Officer
- Created agent based model of workforce structure to analyze potential skill loss due to attrition

SAF A9 Division, TREx Project, 03/2022–10/2022

- Served as data modeling engineer to finish the last 4-6 months on a classified statistical modeling project for the Secretary of the Air Force

SAIC, Exploratory Supply Chain Project, 11/2021–02/2022

- Served as primary engineer developing prototype supply chain risk model for improved decision making
- Analyzed current business practices and policies impacting all aspects of supply chain operations
- Developed framework to assess risk for 130 Never Out items based on previous data and current market problems such as silicone impacted by COVID slowing down the production of lubricants available
- Generated inventory level tradeoffs incorporating supply chain and applicable risk data
- Trained simple SVM model to identify potential unusual risks

Pentagon OSD OUSD R&E, AI Modernization, 08/2020–10/2021

- Served as SETA to support the Principle Director of AI at the Pentagon in the Office of the Undersecretary of Defense Research and Engineering in support of DoD-wide AI modernization
- Provided expertise in thorough assessments of proposals to determine the technical merit of objectives, methodologies, regulatory limitations, political considerations, and technological feasibility
- Assisted the PD with developing, reviewing, and briefing DoD-wide AI Modernization Roadmap
- Chaired the Adversarial AI Working Group, aligned group goals with AI modernization priorities
- Authored issue papers and quad charts outlining technical proposals in support of improved transitioning of DoD AI research and development and calculated costs of technology implementation
- Formulated technical recommendations and guidance for responding to complex AI issues such as the best practices and impact of responsible AI on warfighters and engineers
- Drafted reports reflecting in-depth analysis and interpretation of policy matters involving relevant AI and data science issues and concerns
- Coordinated technology and research programs (basic & applied), in areas such as perception & reasoning, computer vision, machine & deep learning, explainable & adversarial AI, human-machine teaming, autonomy & semi-autonomous systems, natural language processing, and bringing these to scale

Next Century-CACI, Senior Software Engineer **04/30/2018–08/26/2020**

DARPA, MediFor, 04/2018–08/2020

- Research Team Lead on DARPA Media Forensics (MediFor) Program
- Created image and video manipulation detection fusion analytics improving accuracy to 98.8% ROC AUC
- Designed additive studies to pinpoint the best performance to cost ratio for customer needs
- Developed baseline image fusion models for API and metric testing
- Analyzed and cleaned up large datasets for machine learning model training
- Scripted data ingest pipeline for large datasets using pandas and numpy in python
- Optimized metrics to be 10x faster during training and testing runs than metrics provided by NIST

NGA, Low Shot Detection, 02/2020–08/2020

- Primary Investigator for National Geospatial-Intelligence Agency's (NGA) Low Shot Detection project
- Managed small team to design automatic data annotation retraining CNN model and GUI

Hughes Network Systems, Satellite Software Engineer **12/03/2014–04/27/2018**

JHU APL, Highpoint project 10/2016–04/2018

- Lead developer for project to update and debug legacy system code

Commercial, AERO project 11/2015–10/2016

- Developed test interface for hardware team to use on AERO system development tests
- Created a new kernel module to be integrated into the firmware/software start up test suite

BLoS helicopter project, 12/2014–11/2015

- Prototyped new network management system in less than a month for customer demo

NAVAIR, Electrical Engineer **06/16/2013–11/24/2014**

Electronic Warfare, 05/2014–11/2014

- Programmed and tested RF signal profiles for radar warning receivers raising efficiency by 20%

Tomahawk Missiles Testing, 10/2013–05/2014

- Served as a flight test engineer, real time & post-test data analyst for operational and developmental testing for the highest priority mission on the east coast that year

Interconnected HUD, 06/2013–10/2013

- Created installer/uninstaller in NSIS for a newly developed program and FalconView plugin

UNR, Lab for Conservation Biogeography, Spatial Climate Programmer **01/04/2011–05/12/2013**

- Scripted weather data analysis, comparing Western China and the Great Basin using standard euclidean distance to select optimal sample sites based on 100 years worth of climatic data
- Produced maps for publication use in ArcGIS and use in international conference
- Researched and prepared climate data gathering technology (iButtons) for use in the Great Basin

UNR, College of Engineering, Teaching Assistant **01/05/2012–05/10/2013**

Engineering Communications, Teaching Assistant, 01/2013-05/2013

- Graded technical papers, technical presentation rehearsals, and impromptu speeches
- Supervised peer edit sessions
- Team teaching on lab sessions

Dept. of Electrical Engineering, Grader 01/2012-05/2013

- Graded quizzes, homework, and exams for EE 120, EE 320, EE362
- Helped students with understanding electrical engineering concepts

Barrick Cortez Gold Corp, Electrical Engineering Intern **05/20/2012–09/12/2012**

- Maintained Cisco networks and repaired routers & switches, aided after lightning strike decimated network
- Trained in CCNA coursework, certified fiber optic technician (splicing, terminating, troubleshooting)
- Built 48% of the routers & switches for the new process control network with time to spare

Nevada Humane Society, Foster Care Coordinator **06/12/2010-12/1/2010**

- Coordinated the intake of animals in need of foster, found homes, evaluated animals, assisted in arranging vet appointments, maintained database, and managed relations between WCRAS intake and NHS intake

NAU, Sociology and Social Work Dept, Administrative Assistant **1/03/2010-05/25/2010**

- Created informational databases to aid professors with their grading, and choosing scholarship applicants

Northern Arizona Kidney Care & Hypertension Center, Administrative Assistant **05/1/2009-08/15/2009**

- Scheduled patient appointments, verified insurances covered visits, requested lab results for the doctor

West Christensen PC, Administrative Assistant **10/3/2008-04/30/2009**

- Maintained collections, made deposits for the firms, handled clients, maintained the filing room, assisted accountants preparing tax returns

WWU, University Library, Stacks Maintenance **10/15/2007-05/28/2008**

- Assisted patrons finding books and using on-line computer catalog; sorted, cataloged, and shelved books

Relevant Publications and Presentations

TP, Albright, **S. Mundy*** (presenter), 2011, "Climate comparisons between Xinjiang Province, PR China and the Great Basin, USA", Second US-China Joint Workshop on Invasive Species, 3-10 Sep., Reno, NV

Service

- NASA's Women of Nasa, *Oct 2022-Present*
- Pentagon's Adversarial AI Working Group, Chair, *Oct 2020-Sep 2021*
- Pentagon's Responsible AI Working Group, *Sep 2020-Sep 2021*
- IEEE, Chair, *Aug 2012-May 2013*
- Tau Beta Pi, Secretary, *Aug 2012-May 2013*
- UNR College of Engineering Differential Tuition Fee Committee, Vice Chair, *Aug 2012-May 2013*

Relevant Organizational Memberships

- Member:
  - Institute of Electrical and Electronics Engineers (IEEE) Computer Society
  - Tau Beta Pi Engineering Honor Society (TBP)
  - Association for the Advancement of Artificial Intelligence (AAAI)
  - Society of Women Engineers (SWE)
- Student Member:
  - Women Into Computer Science and Engineering (WICSE), *2011-2013*
  - IEEE, *2011-2013*

Awards

- Echostar Spot Award for outstanding performance on Highpoint Project, *Feb 2017*
- Flight Test Excellence Award, *Apr 2014*
- Outstanding Student Service Award: College of Engineering & Dept. of Electrical Engineering, *May 2013*
- IEEE Region 6 Competition: Paper (1st place) & Design (2nd place), *Apr 2013*
- IEEE Recognition of Service, **Chair**, *Apr2013*
- Tau Beta Pi: National Engineering Honors Society, Invited Lifetime Member, *2012*
- NAU Dean's List, *Spring 2009 & Fall 2010*
- WWU President's List, *Spring 2008*

Skills, Tools, and Frameworks

Python (pandas, numpy, scikit-learn, tensorflow, keras, jupyter notebooks), C++ (opencv, boost), NetLogo, Perl, MatLab