Disesdi Susanna Cox | disesdi@pm.me | github.com/disesdi | +1 669.288.0919

Security researcher, AI/ML architect, & former political operative with extensive innovation, leadership, public policy & communications experience.

AI/ML Architect, Critical Alliance Inc, Oct 2021 - Sep 2022
Oak Ridge, TN

Created an industry-first OODA Loop-based game theoretical model of information warfare in AI/ML systems, adapting RAND Corporation Project Air Force boolean-path threat modeling & cyber resiliency metrics to the canonical MLOps development cycle.

Created industry-first secure, operationalized, platform-agnostic, information warfare detection & fully audited debiasing architecture for MLOps.

Designed industry-first blockchain-based distributed application architecture for immutable artist & media remuneration.

Artificial Intelligence Advisor, Biophysics Residence, Conjure Labs, Jan 2021 - Apr 2022
Knoxville, TN

Programmatically scraped and merged over 500 biopolymer datasets into a cohesive, clean, & research-ready AirTable database using Python, Numpy, Pandas, and Apache Spark.

Provided consultation on both clustering and supervised machine learning for sustainable biopolymer research.

Head of Machine Learning, Stealth Startup, Sep 2020 - Oct 2021
San Francisco, CA

Integrated more than 90 research papers and public policy briefs to create a patent-pending, HIPAA & GDPR-compliant & scalable educational outcomes analysis architecture.

Implemented Linear Regression, as well as Bayesian, Logistic Regression, and Support Vector classification techniques in high dimensional space to predict student outcomes with over 98% accuracy.

Created a natural language-based media acquisition system to locate & scrape over 100,000 freely-sourced media elements, saving business thousands of dollars in licensing fees. Designed natural language processing techniques applied to captions to categorize and serve tens of thousands of videos across more than 100 different categories to users at scale. Oversaw implementation by international engineering team.

Led engineering teams in US, Ukraine, & Vietnam in model operationalization, providing highly collaborative leadership across five global time zones.

Led AI/ML for joint graduate student research team at Carnegie Mellon University to develop advanced modeling, resulting in ten new product areas for production.

Senior Security Engineer, Undisclosed, Mar 2014 - May 2021
United States

Leveraged knowledge of law enforcement, social media, financial, civil, kinetic & network security systems to evade a multi-state, multi-agency manhunt for over a year, while regularly accessing a twitter account with over 9,000 followers, & leading machine learning research for an educational technology startup. Despite having identifying characteristics such as photos, vehicle make & model etc distributed across social media, was never apprehended by law enforcement.

Led mass social engineering and social media manipulation, including information wargames across multiple social media platforms. Created digital footprinting & research catalogs for actors at all levels of policy influence. Organized large-scale Red Team assessments including kinetic, physical, and network security.

Participated in & led ongoing training in martial arts, reconnaissance & counter-reconnaissance, evasion tactics & survivalism, firearms & kinetic security.

Owner/Principal Engineer, Indigenous Engineering, Feb 2019 - Sep 2020
San Francisco, CA; Cullowhee, NC

Created custom scrapers to collect & analyze Twitter data with secure OAuth authentication & rate limiting. Retrieved & performed computational linguistic analysis on more than 500,000 tweets. Implemented natural language processing libraries including NLTK & Gensim to prototype novel socio-cultural analysis methods, using Matplotlib & Seaborn libraries to visualize results. Work cited in Child Trends academic publication.

Created code to scrape more than a dozen subReddits, obtaining roughly 111,000 tokens for linguistic research, creating more than a dozen corpora with a mean unique vocabulary of 5,580 tokens exclusive of stop-words. Created automated text preprocessing to obtain top n-grams, train 18 unique Word2Vec neural networks for shallow neural vectorization, & automate scalable in-depth cosine similarity analysis, callable in one line of Python.

Direct Legislative Action Operative, Undisclosed, Feb 1996 - Jun 1999
Washington, DC; Atlanta, GA; Columbia, SC; Montgomery, AL

Staffed election & policy influence operations throughout the southern US and Washington DC. Coordinated legislative action. Led legislative/government relations, organizing and training of operatives, & media operations.

Led briefings to rapidly train more than 5,000 citizen-lobbyists, in groups of 200 at a time, in Georgia's first ever Homeschool Day at the state capital.

Attended multiple trainings at the Leadership Institute in Washington, DC for policy influence & media relations.

Education
MS-EE Electrical Engineering, Embedded Systems Focus, University of Colorado, Boulder
Security, low-level programming, system design. Anticipated 2024.

Certifications

IBM Advanced Machine Learning and Signal Processing

IBM Fundamentals of Scalable Data Science

IBM Cybersecurity Analyst Professional Certificate

Python for Cybersecurity Specialization - Infosec Institute

Palo Alto Networks Cybersecurity Foundations

Cybersecurity Policy for Aviation and Internet Infrastructures - University of Colorado

Digitalisation in Aeronautics - Technical University Munich

Select Projects & Writing

- *Securing AIML Systems in the Age of Information Warfare*
- *Detecting Cyberattacks in Industrial Control Systems: Ensemble Methods for Binary Classification of Synchrophasor & Security Logs*
- *Semantic Space & Size: a Proof-of-Concept for Exploring Cultural Bias on Very Small Corpora Using Cosine Similarity & Word2Vec*
- *Evaluating Robustness of Physical Unclonable Functions (PUFs) for Unmanned Aerial System Authentication with Random Forests & Gradient Boosting*

Honors & Awards

OpenAI Scholars Fellowship Finalist (2019)–*artificial intelligence, data structures & algorithms in Python*

Oglethorpe Oxford Scholar–*recognition for excellence in policy, research, & communications*

Honors & Awards (cont.)

American Legion Oratorical Contest National Finalist–*communication including speechwriting, extemporaneous & oratory-style speech, competitive persuasion under pressure*
Georgia Cross Examination Policy Debate Champion–*policy, research, public speaking & debate*
American Legion Auxiliary Georgia Girls State–*public policy, communications. Top 2% of high school juniors only, first homeschooled student in history to attend*
American Legion Auxiliary Girls Nation Senator–*public policy, communications. Only two Girls State citizens per year selected from each state, part of only 100 of the nation's top high school juniors each year*
National Dean's List
Who's Who

Technical Stack
Python, C, C++, Bash, Linux
Numpy, Pandas, Jupyter Notebook, Scikit-learn, Matplotlib, Seaborn
TensorFlow, Keras, Pytorch
RNNs/LSTMs
NLTK, Gensim, Word2Vec, GloVe
Apache Spark, Apache Spark ML, IBM Watson, Google Colab, AWS
Splunk, Metasploit, Snort, Nessus, Nmap, Burp Suite, Wireshark
Docker
Familiar with Javascript, HTML, CSS

Soft Skills
Creative, Collaborative, Communicative
Performance under pressure
Endlessly curious, endlessly learning
People-person, love working on a team
Systems-thinker, Problem-solver
Grit & perseverance in the face of challenges
Prefer not to be the smartest person in the room
Social media influence
More serious than I seem
More fun than I seem

More About Me
Appalachian Native, southern accent
Loves camping & everything outdoors
Loves traveling
Jeep driver
Avgeek
Owned by 3 pugs