
Objective	To obtain a full-time Software Engineering or Data Science position at Sandia National Laboratories with an emphasis in Machine Learning and Security	
Education	University of Missouri - Columbia Ph.D. Computer Science	July 2021 GPA: 3.92/4.0
	Missouri University of Science and Technology M.S. Computer Science	May 2019 GPA: 3.92/4.0
	Missouri University of Science and Technology B.S. Computer Science Minor: Computer Engineering & Mathematics	May 2016 GPA: 3.83/4.0
Research Experience	University of Missouri - Columbia Graduate Researcher <ul style="list-style-type: none">Utilized PyTorch in evaluating deepfake detectors against a data poisoning attackDeveloped a deep neural network in Keras and tensorflow to defend against a novel data poisoning attack on facial recognitionUsed sklearn and matplotlib to perform statistical analysis on image datasetsTrained neural networks using amazon web services (AWS)Lead a team of three graduate students	Columbia, MO Fall 2019 - Present
	Missouri University of Science and Technology Graduate Researcher <ul style="list-style-type: none">Used ANTLR, a parser generator tool, to compare JavaScript grammar rule utilization between benign JavaScript and malwareBuilt a web crawler in Python using Scrapy to gather benign Javascript samplesCreated an evolutionary algorithm to generate simple context-free grammars given samples from a language	Rolla, MO 2017 - 2019
Work Experience	University of Missouri - Columbia Graduate Teaching Assistant <ul style="list-style-type: none">Graded assignments and exams for a junior-level database courseProvided academic support and instruction to students	Columbia, MO 2020
	Missouri University of Science and Technology Graduate Teaching Assistant <ul style="list-style-type: none">Instructed students on objected-oriented programming (C++)Prepared lesson plans that are both informative and engaging to studentsEnforced the high integrity standards outlined by the university	Rolla, MO Fall 2019
	Sandia National Laboratories Cybersecurity Intern <ul style="list-style-type: none">Applied machine learning to find correlations between source code and binaryWrote emulotics software using C for the 1553 data bus protocolCreated a Laika BOSS module to filter out metadataDesigned and implemented a graph labeling attack algorithmDeveloped Python libraries in C++ for more efficient softwareAnalyzed network data using Bro and machine learning	Albuquerque, NM May 2017 - Dec 2019
	Cybersecurity Training <ul style="list-style-type: none">Employed Metasploit to break into Windows MachinesUsed IDA Pro to reverse engineer malwareMapped out network topography using nmap and Netmeld	January 2016/17/18/19

Cerner

Kansas City, MO

Software Engineering Intern

Summer 2016

- Created a Ruby On Rails web application with added security features
- Lead a team of interns in weekly live demos to management
- Won crowd favorite at intern hackathon for an application that matched people based on medical data

Additional
Experience

Personal Website

July 2020 - Present

- Implemented a personal website using Django
- Managed a PostgreSQL database
- Extensively used Django templates to promote concise and rapid development
- Created a mobile-first responsive website design using bootstrap
- Containerized website deployment via Docker
- Used TravisCI and Github Actions to automate unit testing and deployment
- Incorporated Google Search for quick and efficient website queries

Programming Competitions

Fall 2015 - 2019

- Won MS&T's Programming Cup - Individual's Bracket
- Top 100 on open.kattis in the US, a programming competition site used by ICPC
- ACM ICPC Regional's first place on-site

Compiler

Spring 2019

- Wrote a compiler for a pascal like language in C++
- Used flex for lexical analysis and bison for tokenization
- Implemented intermediate language generation and instruction optimization

Raspberry Pi Cluster

Spring 2019

- Built a raspberry pi cluster consisting of 4 raspberry pis
- Used the slurm workload manager to manage distributed tasks

Restaurant Recommender Website

Spring 2017

- Created a restaurant recommendation system using collaborative based learning
- Built a website using ruby on rails to recommend restaurants to users

AI

Spring 2016

- Programmed a chess AI using time-limited iterative deepening depth-first search minimax with alpha-beta pruning and quiescence search
- Achieved top 10 in connect four on riddles.io, an AI competition website

Computer
Skills

Advanced:	C++	Python						
Proficient:	Java	Ruby	L ^A T _E X	SQL	MATLAB	Javascript	HTML	
	Django	Linux	Tensorflow	Keras	Sklearn	Numpy	GANs	

Publications • **D Cole**, S Newman, M Cutkosky, D Lin. *In preparation*. Defending against targeted label flipping data poisoning attacks on deepfake detectors.

- **D Cole**, S Newman, D Lin. *Submitted*. "A New Facial Authentication Pitfall and Remedy in Web Services"

Honors &
Activities

Scholarship For Service (SFS) Recipient
Association for Computer Machinery - **President, Secretary**
ACM Programming Competition - **Chair**
Cyber Defense Team - Member
Computer Science Department Leadership Award
Downtown Hall Association - **Vice President**
Institute of Electrical and Electronics Engineers - Member
Associated Students of the University of Missouri - **Programming Coordinator**
History Club - **Vice President**
Collegiate Eagle Scout Association - **Vice President**
President's Volunteer Service Award