Blake A. Troksa
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Education

Bachelor of Science, Electrical Engineering **Graduate: May 2018**
Bachelor of Science, Computer Science **GPA: 3.80**
Colorado State University | Fort Collins, CO

Experience

F5 Networks | San Jose, CA **05/17 – 08/17**
System Design Organization Intern

- Created, deployed, and utilized applications running in Docker container environment.
- Researched various security exploits and incorporated them into Python to simulate malicious behavior in container applications.
- Analyzed the behavior of compromised applications running in containers to develop a deterministic method that predicts probability that a container is behaving abnormally.
- Implemented techniques to detect anomalous behavior and test the resilience of different containerized applications by employing machine learning and statistical analysis using Python.
- Developed sustainable and dependable software in a team setting using software management tools and version control software.

Electromagnetics Laboratory | Fort Collins, CO **01/18 – present**
National Science Foundation Research Experience for Undergraduates Grant Researcher

- Generated software to leverage the parallelism of graphics processing units to accelerate computational electromagnetic problems primarily in the fields of wireless communication and uncertainty quantification.
- Analyzed the current applications of uncertainty quantification to determine optimal solutions.
- Produced several programming models, including ray tracing, to reduce computation time and improve experiment results.

High Energy Physics Research | Fort Collins, CO **03/16 – 01/18**
Deep Underground Neutrino Experiment Undergraduate Researcher

- Independently engineered printed circuit boards containing silicon photomultipliers for use in cryogenic particle detectors.
- Produced code in LabVIEW to automate testing apparatuses and establish communication between multiple devices in order to collect, analyze, and store data from experiments.
- Coordinated with employees at Argonne National Lab and Fermilab to develop a standard for printed circuit boards that maximize the efficiency and reliability of experiments.

Projects

Peer-to-Peer Communication Network

- Developed a simplified version of a structured peer-to-peer network overlay based on distributed hash tables.
- Setup a communication network using TCP to send messages between nodes in the overlay while ensuring reachability and validity.

Wireless Signal Characterization

- Manipulated ray tracing software with Python, CUDA, and C++ to calculate the signal strength generated from antennas at wireless communication frequencies
- Created software that accurately computes optimal placement of wireless communication antennas within non-uniform structures including mine tunnels and cityscapes in a dynamic team environment.

Basketball Score Predictor

- Collected, filtered, and organized data obtained from multiple websites using Python to build a reliable and comprehensive data set of previous NCAA basketball team statistics and betting odds.
- Created a neural network that attempts to predict the over-under value of NCAA basketball games based on historic matchups.

Scanner Automation

- Programmed the movement of a dual axis scanner in LabVIEW based on the Cartesian coordinate system using stepper motors.
- Incorporated fault-tolerant techniques using software and mechanical switches to ensure the safety, reliability, and performance of testing equipment.

Analog Amplifier Readout Circuit

- Engineered a schematic that provides variable amplification to the output of silicon photomultipliers and converts and lengthens an analog pulse to a digital pulse.

Community and Leadership

Tau Beta Pi Engineering Honor Society | Fort Collins, CO **02/17- present**
Special Projects Coordinator

- Initiated and organized campus-wide speaker events catered to engineering disciplines through coordinated communication with cross-functional university representatives.

Boy Scouts of America Eagle Scout | Aurora, CO **08/12**

Skills

- Java, Python, C++, LabVIEW, ReactJS, CUDA C and MATLAB
- OS X, Windows, Linux