**Alex Charters**

Salt Lake City, Utah | (801) 690-2375 | [alexcharters45@gmail.com](mailto:alexcharters45@gmail.com)

Availability and project ideas can be found here: <https://alexcharters.github.io/ECE_3992_website/>

**Education**

|  |  |
| --- | --- |
| Bachelor of Computer Engineering | University of Utah | Aug. 2017 – Present |

* GPA: 3.8

Relevant Coursework:

|  |  |  |
| --- | --- | --- |
| * Wave Prop. / Antennas | * Software Practice | * Computer Architecture |
| * Power Electronics | * Algorithms & Data Structures | * Social and Ethical Engineering |

**Employment**

|  |  |
| --- | --- |
| Software Engineering Intern, Northrop Grumman | May 2019 – Jan. 2020 |

* Developed the backend and frontend for a parts database for missile conformance team.
* Utilized a Neo4j graph database to significantly reduce time to deployment to three months.

|  |  |
| --- | --- |
| Security Operations Intern, Shape Security | Jan. 2019 – May 2019 |

* Analyzed web traffic for credential stuffing, scraping, and aggregators.
* Used custom filtering system to isolate unwanted traffic to obtain unique metrics for mitigation.

**Projects**

|  |  |
| --- | --- |
| Lunar Subsurface-Ice Mining Robot | Ongoing |

* Currently the electrical lead for the Utah Student Robotics Club.
* In charge of making critical decisions relating to power, signals, and ingress protection throughout our mining robot and overseeing a team of about 5 others.

|  |  |
| --- | --- |
| Convolutional Neural Net for Mining Classification | Fall 2019 |

* Developed an AI that determines what type of material is being mined by autonomous robots to improve excavation cycle yields.
* Model relies on a low-cost contact microphone to analyze audio data with 93% accurate results in real-time.

|  |  |
| --- | --- |
| Neuroevolution of Augmenting Topologies | Fall 2018 |

* Wrote a library for a genetic algorithm that simulates natural selection of neural networks.
* Utilizing techniques such as speciation, mutation, and selection to train a genetic algorithm to produce networks for various problems.

**Skills and Qualifications**

Computer Programs/Tools:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * EAGLE/KiCad/EasyEDA | * Visual Studio | * Adobe Suite | * SolidWorks | * VIM |
| * Git | * NanoVNA | * VS Code | * Blender | * Eclipse |

Programming Languages:

|  |  |  |  |
| --- | --- | --- | --- |
| * Java | * HTML/CSS/JS | * SQL | * Python |
| * MATLAB | * Cypher | * Node.js/React | * C# |

Other Skills:

|  |  |  |
| --- | --- | --- |
| * Circuit Design/Analysis | * General Building/Maker Skills | * Leadership Experience |
| * German | * Complex Problem Solving |  |