Eagle Yuan

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EDUCATION

Northeastern University — **Expected May 2023**

Candidate for BS in Computer Engineering & Computer Science, Minor in Mathematics — *Boston, MA*
- *Awards & Activities*: University Honors College, Honor's Early Research Award Recipient, Dean's List, GPA: 3.81 IEEE-HKN Electrical and Computer Engineering Honors Society Member, Northeastern Symphony Violinist
- *Courses*: Circuits & Signals, Networks, Algorithms, <u>Design:</u> Object-Oriented, Embedded, Digital; <u>Systems:</u> Linear, Computer

PROFESSIONAL EXPERIENCES

Amazon, Shipping with Amazon — **June 2021 – September 2021**

Software Development Engineer Intern — *Nashville, TN*
- Designed an alarming service in **Java** and **AWS** that checks internal teams daily for over-spending of quarterly AWS budgets.
- Launched a new S3 bucket which triggers a new **Java** Lambda function to reformat and upload files to an endpoint S3 bucket.
- Created a **ReactJS** frontend and backend page that allows business customers to manually update, download, and upload files.

Medtronic, Hugo Robotic-Assisted Surgery — **January 2021 – June 2021**

Controls Software Engineer Co-op — *Boston, MA*
- Simulated robot arm cart motion and position by calculating both forward and inverse kinematics and plotting in **MATLAB**.
- Extracted signals from **SQLite** databases, visualized data in reports, and ran analyses to characterize robot usage and activity.
- Generated and refined **Simulink** playback models by replicating robot models to validate and verify input and output signals.

Northeastern University Computer Architecture Research Laboratory — **July 2020 – January 2021**

Research Assistant — *Boston, MA*
- Added new visualization features and command line tools to MGPUSim, a multi-AMD GPU simulator written in **Golang**.
- Upgraded the simulator to NaviSim, transitioning from AMD's previous GCN3 architecture to the newer RDNA architecture.
- Experimented with parallel algorithms and techniques through simulation development and benchmark testing and analysis.

National Aeronautics and Space Administration (NASA) — **May – July 2020**

Lucy Space Mission Concept Academy Trainee — *Virtual*
- Produced a preliminary design review targeted towards exploring an alternative site from NASA's Mars Rover site selection.
- Orchestrated and coordinated, as lead engineer, the design of an aeroshell and rover through **CAD** drawings and writeups.
- Assimilated NASA mission development skills during weekly trainings from NASA and industry scientists and engineers.

Northeastern University Sociology and Anthropology Department — **September 2019 – May 2020**

Research Assistant — *Boston, MA*
- Utilized a social network approach to study the impacts of NSF ADVANCE, a program for gender equity in STEM academia.
- Operated software programs for statistical, network analysis and visualization including toolsets in **Python** and **MATLAB**.

Oak Ridge National Laboratory, Center for Nanophase Materials Sciences — **June 2018 – May 2019**

Research Intern — *Oak Ridge, TN*
- Applied Agent-Based Modeling techniques in **Netlogo** to mimic the collective eating behaviors of Black Soldier Fly Larvae.
- Integrated a fitness genetic algorithm to calibrate and optimize parameters sets for the model, resulting with 95% accuracy.
- Tested models against experimental data and presented posters and talks with the collaboration of another intern and a mentor.

PROJECTS

Stock Trading Bot — **December 2020 – January 2021**
- Devised a bot with **Python** and Robinhood **API** to execute trades, resulting in a 75.2% stock value increase over 3 months.
- Scrapped website data from TradingView to both select the stocks to buy and sell when stocks pass a loss or rating threshold.

COVID-19 Face Covering Detector — **July – September 2020**
- Optimized and modified a convolutional neural network using **Keras** and **Python** to detect face coverings with 96% accuracy.
- Revamped for live video labeling of face or no face covering with future addition of 1800 images for nose out classification.

Embedded Projects (Embedded Design) — **Summer 2020**
- Programmed **FPGA** on the DE1-SoC ARM to control the LEDs, 7 segment displays, switches, buttons, pins, and accessories.
- Leveraged **Verilog** and **C** to output to two speakers and an input 4x4 keypad with each button representing a note like a piano.

Personal Website — **April – August 2020**
- Implemented modern web features such as a tri-picture slideshow, timeline, and animations in **JavaScript**, **CSS**, and **HTML**.
- Formed a personal blog with a **Django** Rest **API** framework deployed on **Heroku** and gathered data through **HTTP requests**.
- Built an online ping program, UI, and UX and 2048 and Minesweeper games that leveraged cookies to keep local high scores.

SKILLS & INTERESTS

Skills: Java, AWS, Python, C/C++, MATLAB, Simulink, JavaScript, FPGAs, OrCAD, PSpice, CAD, Bash, Linux, Oscilloscope

Interests: Robotics, AI, High Performance & Quantum Computing, Math, Physics, Space Exploration, Soccer, Violin