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*
- *Recognitions*: University Honors College, Honor's Early Research Award Recipient, Dean's List GPA: 3.93
- *Coursework*: Embedded Design, Circuits & Signals, Networks, Algorithms & Data, Logic & Computation, Linear Algebra, Calculus 3, Differential Equations, Probability & Statistics, Discrete Math
- *Activities*: Code4Community Mentee, Northeastern Symphony Violinist

PROFESSIONAL EXPERIENCES

Northeastern University Computer Architecture Research Laboratory **July 2020 – Present**
Research Assistant *Boston, MA*
- Add new visualization and command line features to MGPUSim, a multi-AMD GPU simulator written in **Golang**.
- Update the simulator to NaviSim, transitioning from a previous GCN3 architecture to the newer RDNA architecture.
- Experiment with parallel computing 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 and presentation on a virtually distributed team project for a new payload mission targeted towards exploring an alternative landing site from NASA's Perseverance Mars Rover site selection.
- Oversaw and coordinated, as lead engineer, the design of an aeroshell and rover through **CAD** drawings and writeups.
- Gathered NASA mission development skills during weekly training from NASA scientists and engineers.

Northeastern University Sociology and Anthropology Department **September 2019 – May 2020**
Research Assistant *Boston, MA*
- Utilized a network strategy to study the impacts of NSF ADVANCE, a program for gender equity in STEM academia.
- Collected data through access of websites, journals, conference materials and organized in Cloud-stored spreadsheets.
- Operated software programs such as **Python** and **MATLAB** for statistical, network analysis and visualization.

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 collective behaviors of Black Soldier Fly Larvae.
- Implemented a genetic algorithm to calibrate and optimize parameters sets for the model, resulting with 95% accuracy.
- Tested models with experiments and presented posters and talks with the collaboration of another intern and a mentor.

PROJECTS

COVID-19 Face Covering Detector **July – September 2020**
- Optimized and edited a convolutional neural network using **Keras** and **Python** to detect face coverings with 95.13% accuracy on a dataset of 3600 compiled and edited images with eventual addition of 1800 more images.
- Enhanced for live video labeling of face or no face covering with future extension to wrong (nose out) face covering.

Embedded Projects (Embedded Design) **Summer 2020**
- Programmed **FPGA** within the DE1-SoC ARM to control the LEDs, 7 segment displays, switches, buttons, and pins.

1. Keypad Piano: Created **Verilog** code to control two speakers and a 4x4 keypad with each button representing a note.
2. Snake & Ladders Game: Developed **C** code to build a user interface for the game using terminal inputs and outputs.

Personal Website **April – August 2020**
- Implemented web features such as a tri-picture slideshow, timeline, and animations in **JavaScript**, **CSS**, and **HTML**.
- Created a blog with a **Django** Rest **API** framework deployed on **Heroku** and gathered data through **HTTP requests**.
- Built 2048 and Minesweeper games on a canvas element and leveraged browser cookies to record local high scores.
- Enabled an online server ping program combining the **jQuery** terminal plugin with the ping.js application.

Museum Exhibit (Cornerstone of Engineering) **Fall 2019**
- Collaborated with a team to build an exhibit teaching infection treatment and presented at Boston's Museum of Science.
- Integrated **Arduino** hardware, wired with ultrasonic sensors, motors, and buttons, with **MATLAB** visualization tools.
- Designed UI & UX for 3rd to 5th graders with Minecraft soccer themes, easy user inputs, and a motorized progressor.

SKILLS & INTERESTS

Skills: Java, Python, C, C++, MATLAB, HTML, CSS, JavaScript, Go, Lisp, FPGAs, Arduino, Verilog, OrCAD, PSpice, GIT, SolidWorks, AutoCAD, Netlogo, Bash, Windows/Mac/Linux OS, LaTeX, Soldering, Oscilloscope
Interests: Robotics, AI, High Performance & Quantum Computing, Math, Physics, Space Exploration, Soccer, Violin