

# Eagle Yuan

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Portfolio: [github.com/eagle yuan21](https://github.com/eagle yuan21)

Personal Website: [eagle yuan.com](https://eagle yuan.com)

## EDUCATION

### Northeastern University

*BS, Major in Computer Engineering & Computer Science, Minor in Mathematics*

**Expected May 2023**

*Boston, MA*

- 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*

- Added new features to MGPUSim, a multi-GPU simulator written in the **Golang** based on AMD's GCN3 architecture.
- Updated the simulator to NaviSim, transitioning from a previous GCN3 architecture to the newer RDNA architecture.
- Experimented with parallel computing techniques through simulation development and benchmark testing and analysis.

### National Aeronautics and Space Administration

**May 2020 – July 2020**

*Lucy Space Mission Concept Academy Trainee*

*Tempe, AZ*

- 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 social network and data scrapping strategies to study systemic changes amongst NSF ADVANCE associates.
- 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

**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

**June 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 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**.
- Added 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

**December 2019**

- Collaborated with a team to build an exhibit teaching health resiliency 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 3<sup>rd</sup> to 5<sup>th</sup> 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, Windows/Mac/Linux OS, LaTeX, Soldering, Oscilloscope

**Interests:** Robotics, AI, High Performance & Quantum Computing, Mathematics, Physics, Space Exploration