# Eagle Yuan

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## PROFESSIONAL EXPERIENCES

**Intel, Olympic and Sports Performance Technology Group, 3D Athlete Tracking (3DAT)** **January 2022 – July 2022**
*Software and Artificial Intelligence and Algorithms Engineer Co-op* *San Francisco, CA*

- Evaluated software's computer vision models by calculating the percentage of correct key points in range of motion videos.
- Investigated academia 3D singleview models by integrating **PyTorch** with team datasets and visualizing results in **MATLAB**.
- Calculated biomechanics single leg jumps metrics in **Python** using output hip key points and known scaling of input videos.
- Developed, integrated, and optimized **AWS** architecture/backend with computer vision models and biomechanics analysis.

**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.

**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.

## 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, IEEE-HKN Electrical and Computer Engineering Honors Society Member, Northeastern Symphony Violinist GPA: 3.81

## 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, F1