

Eagle Yuan

eagleyuan21@gmail.com | (865) 307-5319 | Boston, MA

LinkedIn: [linkedin.com/in/eagle-yuan](https://www.linkedin.com/in/eagle-yuan)

Portfolio: github.com/eagleyuan21

Personal Website: eagleyuan.com

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 deployed computer vision models by calculating the percentage of correct key points in range of motion videos.
- Investigated new 3D singleview models by leveraging **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 AWS budgets.
- Launched a 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 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.

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

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: 3.83
- IEEE-HKN Electrical and Computer Engineering Honors Society Member, Northeastern Career Peer Advisor

PROJECTS

MAV Operated Tunnel Inspection using Object-classifier Neural Networks (EECE Senior Project) July – December 2022
▪ Integrated a visual simultaneous localization and mapping algorithm in simulation and with Jetson Nano and Intel RealSense.
▪ Deployed hardware on a drone to test navigation with other system features in a tunnel, winning the first place EECE award.

Christmas Poem Generator using Recurrent Neural Networks (Natural Language Processing) Fall 2022
▪ Trained a recurrent neural network utilizing the GRU in **TensorFlow** on a dataset of Christmas poems for word generation.
▪ Combined generation with **Gensim GloVe embeddings** to enforce rhyming word replacement fits the context of the poem.

Minimax and Q-Learning Chess Playing Agents (Artificial Intelligence) Fall 2022
▪ Parallelized the Alpha Beta Pruning Minimax chess agent in both **Python** and **Java** to utilize more compute in hardware.
▪ Trained a Reinforcement Q-Learning agent by encoding the state and action in **TensorFlow**, while leveraging a Nvidia GPU.

COVID-19 Face Covering Detector July – September 2020
▪ Optimized and modified a convolutional neural network using **Tensorflow** 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 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**.
▪ Built a personal blog with a **Django** Rest API framework, an online ping program, and 2048 and Minesweeper minigames.

SKILLS & INTERESTS

Skills: Java, AWS, Python, C/C++, MATLAB, Simulink, JavaScript, Verilog, Bash, TensorFlow, OpenMP, OpenMPI, CUDA

Interests: AI, High Performance & Quantum Computing, Robotics, Math, Physics, Space Exploration, Soccer, Violin, F1