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Anthony Luo

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Skills & Qualifications

- Python, Java, C++, VHDL, System Verilog, Bash
- Linux, particularly RHEL, Fedora, and Ubuntu
- Control Systems (PIDs, motion algorithms, control systems etc)
- Strong independent decision making and problem solving abilities
- VSC, CLion, Jenkins, Jira, Confluence
- Circuit design tools (SPICE, oscilloscopes, Generators, etc.)
- Machine learning and Tensorflow, Keras, pyTorch
- Adaptable and consistently eager to learn and experiment

Work Experience

Digital ASIC/FPGA Verification Intern, *Ciena Canada* January 2021 – April 2021

Worked with the optical Asic team to provide design and verification tools.

- Wrote design tools in SV; created wrappers, design checks, and automation scripts using Python, Bash, and Makefiles.
- Worked within Jenkins to create automated design check runs.
- Worked with design and verification team members to implement tools and checks.
- Began supervised FPGA prototype design, continuing with this design in the fall.

Software Engineer Intern, *Nokia* May 2020 – August 2020

Developed and implemented features for the Nokia Convergent Charging platform.

- Wrote, debugged, and submitted features using Java, Python, Bash, in RedHat Enterprise Linux.
- Used software tools such as Gradle, Confluence, Jira, Vnc, Http, and SSH.
- Learned to navigate the code repository and work independently to solve problems.
- Developed strong working relationship with team members through daily and weekly meetings.

Specialists Sports Instructor, *City of Ottawa* January 2016 – Present

Since January 2016, I have been leading sports programs at the City of Ottawa. Throughout my time, I have developed and worked with clients to deliver courses in Table Tennis, Badminton, Rock Climbing, and Swimming.

Team Mentor, *2381 Robotics* May 2019 – December 2020

Post-graduation, I was asked to return to 2381 Robotics as a part-time mentor/supervisor. After having established the team 5 years ago, my role has transitioned from being a team captain to that of a mentor, teaching newer students and helping new students come up with a competitive robot.

Projects

University of Waterloo Aerial Robotics Group | *Firmware (ZeroPilot) Team* February 2021–Present

- Wrote custom gimbal software with 2-axis stabilization and tracking.
- Developed an EEPROM logging system, currently expanding capabilities to log to an SD card.
- Working on CAN and UART communication between ZeroPilot and Nvidia Jetson boards.

AI Music Generator | *Python, Tensorflow, Music 21* January 2020-March 2021

- Developed a bot using Python and Tensorflow to generate music files from a given sample.
- Implemented linear and non-linear models to extrapolate and create new samples.
- Built and developed within an Ubuntu Virtual Machine.

RNM-75E | *KiCad, SolidWorks* May 2021

- Designed a custom 75% keyboard PCB using KiCad.
- Designed a case/plate assembly for the PCB using SolidWorks.

Deep Learning Object Detector | *Python, Keras, Tensorflow, OpenCV* September 2019-December 2020

- Originally part of a university team to create a self-driving car and autonomous snow plow.
- Implemented multiple object detection architectures in Python/C++ using Qt, OpenCV, and TensorFlow (YOLO, Siam-Mask, R-CNN).
- Worked with upper-year students to set weekly, monthly, and long-term deadlines with consistent project scheduling management.

Facial Recognition and Classification System | *Raspberry Pi, Servos, Python, Keras, Tensorflow, Pillow* September 2019-December 2019

- Worked with 3 other students to plan, code, test, and deliver a Python and Hardware based design project.
- Configured and run on network-linked raspberry Pi 4's. Interfaced with external i/o devices such as displays, speakers, led's, and cameras.
- Developed a fully custom machine learning model for facial recognition and classification against known databases.
- Utilized tuned PID algorithms to acquire targets and maintain visual lock.
- Implemented a simple relational database to look-up data quickly and efficiently.

Education

University of Waterloo: Computer Engineering | *Class of 2025* **Sep. 2020 – May 2025**

Completed 1b term (first year second semester) as of Summer 2021. Average GPA of 87%. *Waterloo, Ontario*