Lucian Cheng

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Education

McMaster University **Sep 2021 - Apr 2026**

*Bachelor of Mechatronics and Biomedical Engineering Co-op - **CGPA: 4.0*** *Hamilton, ON*

Relevant Courses: Data Structures & Algorithms, Software Architecture, Embedded Systems, Circuits, Operating Systems

Awards: Provost Honour Roll x 2 - Top 1% of Engineering Cohort

Experience

Bluewrist Inc. **May 2024 - Present**

Software Engineering Intern *Markham, ON*

- Implemented 2D ML Anomaly Detection with a accuracy of accuracy of **98%** using **PyTorch**
- Led the development of a full-stack ML application in a team of 5 by designing software architecture UML diagrams, testing, and large-scale deployment using **Visual Basic**, **Python**, and Agile principle
- Built a **Python** and .NET CLR server interface for communication between 3 main software family products to a scalable machine learning backend using TCP/IP communication protocol

McMaster EcoCAR EV Challenge **Oct 2022 - Present**

Connected Automated Vehicles Team *Hamilton, ON*

- Integrated vehicle self-driving **SAE level 2 autonomy** in a team of **35** members using sensors, computer vision, and trajectory planning into a production 2024 Cadillac LYRIQ
- Generated algorithms for lead vehicle identification in **Python** for the CACC feature of ADAS, testing >**100** concurrent generated vehicles along with visualization of simulation and verification of code using Pytest
- Coordinated Software-in-the-Loop (SIL) testing for the custom simulation driving environment and simulated embedded software computation of the AUTERA

Bluewrist Inc. **May 2023 - Aug 2023**

Software Engineering Intern *Markham, ON*

- Implemented the PointNet++ **Deep Learning ML Artificial Intelligence model** in PyTorch for part segmentation of computer vision from 3D point cloud data, resulting in a **4-week** time reduction across **10 people**
- Prepared robots for scanned data collection, conducted & supervised ML process, achieving a testing accuracy of >**98%**
- Optimized runtime by **86.4% (38.1s)** per **250k** points by producing a **C++** inference program with LibTorch & CMake using CUDA/GPU and CPU memory
- Created a WinForms front-end in **VB.NET** to streamline machine learning for other engineers, emphasizing user experience, with a **Python** and **C++** PyTorch back-end to display relevant input/output data of >**600** samples

Projects

Jaylolfadez.com - Startup | *In Development / Testing*

- Created a full-stack social media/scheduling web application platform leading to **$300** in profit by using **ReactJS**, **NodeJS**, **ExpressJS**, **TailwindCSS**, and **MongoDB**
- Developed a RESTful API to handle requests of **30 monthly users**, using Google OAuth2 authentication tokens, Google Calendar API, and Meta Instagram Graph API
- Followed the software development lifecycle, including testing/validation, maintenance, requirements/design, and architecture of the application and deployment using with **AWS EC2**, **AWS S3**, and **NGINX**

Pacemaker Project | *Demo/Code*

- Directed a group of **5** and saw end-to-end creation of a full-stack pacemaker safety-critical system design made with **Simulink** and a **Python** UI following the software development life cycle via the agile software development
- Conceptualized technical documentation for requirements and design specifications, QA verification and validation of requirements through test cases, and safety, risk/hazard analysis using the mitigating **12** hazards

Skills

Languages: Python, C, C++, HTML, CSS, JavaScript, TypeScript, Java, Visual Basic, SQL, MATLAB

Technologies: PyTorch, ReactJS, NodeJS, ExpressJS, Spring Boot, MongoDB, AWS (EC2, S3), TailwindCSS, .NET

Tools and Platforms: Git, GitHub, Linux, Windows, macOS/OSX, JIRA, Embedded Systems, RESTful API