

# Lucian Cheng

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## Education

### McMaster University

Sep 2021 - Apr 2026

*Bachelor of Engineering - Mechatronics Engineering and Biomedical Engineering Co-op*

*Hamilton, ON*

- **Awards:** Provost Honour Roll x 2 - Top 1% of Engineering Cohort - **GPA: 4.0**
- **Courses:** Data Structures & Algorithms, Software Architecture, Embedded Systems, System Design, Operating Systems

## Professional Experience

### Bluewrist Inc.

May 2024 - Present

*Software Engineer Intern*

*Markham, ON*

- Implemented 2D ML AI Anomaly Detection reinforcement learning models with a 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 from stakeholders, 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
- Created a image tiling algorithm for computer vision image defect training which reduced memory consumption **95%** by using **CUDA** and **OpenCV**, leading to optimized performance, latency, and loss
- Developed a back-end REST API for HTTP requests and server architecture using **Flask** and **Python** for deploying ML models at scale

### McMaster EcoCAR

Oct 2022 - Present

*CAVs Software Member (Connected Automated Vehicles)*

*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

### McMaster University

Sep 2023 - Dec 2023

*Computational Mechanics Teaching Assistant*

*Hamilton, ON*

- Mentored **8-9** students bi-weekly on challenging statics concepts, elevating their grades to **>90%** through lab tests
- Led office hours and employed communication skills to teach **1-2** students weekly through problems and concepts

### Bluewrist Inc.

May 2023 - Aug 2023

*Software Engineer Intern*

*Markham, ON*

- Implemented the PointNet++ CNN **Machine Learning 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**
- Optimized runtime by **86.4% (38.1s)** per **250k** points by producing a **C++** inference program with LibTorch & CMake using CUDA and CPU memory, leading to an accuracy of **>98%**
- Created a full-stack internal tool using **.NET** to facilitate in-house training and testing, handling **>600** samples

## Projects

### Jaylofidez - Startup | Website - Testing

- Created a full-stack social media/scheduling web application platform leading to **\$500** in profit by using **ReactJS**, **NodeJS**, **ExpressJS**, **TailwindCSS**, and **MongoDB**
- Developed a RESTful API to handle requests of **100 monthly users**, using Google OAuth authentication tokens, Google Calendar API, and Meta Instagram Graph API, saving user data with JWT authentication and cookies
- 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**

## Technical Skills

**Programming:** Python, C, C++, HTML, CSS, JavaScript, Visual Basic, Swift, Embedded C++, Java, Lua

**Technologies:** PyTorch, ReactJS, NodeJS, ExpressJS, MongoDB, TailwindCSS, .NET, CUDA, OpenCV, Flask

**Tools and Platforms:** Git, GitHub, SVN, Linux, JIRA, AWS (EC2, S3), GCP, RESTful API, Unix, OOP