Ethan Lam

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Education

University of Toronto – Bachelors of Applied Science + PEY Co-op   **Sep. 2023 - Present**

- Ranked **1ˢᵗ** place in First Year Computer Engineering and received Edward S. Rogers Sr. Department of Electrical & Computer Engineering Top Student Award
- First year of Computer Engineering (GPA: 3.97, Average: 93.7%)
- University of Toronto Entrance Scholarship (95%+ admission average)

St. Robert Catholic High School – International Baccalaureate   **Sep. 2019 - May 2023**

- IB diploma achieved (Score: 41/45)
- Awarded top marks in grade 12 math and grade 11 computers, math, chemistry, and physics

Design Projects

FPGA-Based Piano Tiles Game – Developer

- Designed and implemented a fully hardware-based game interfacing to a VGA display and PS/2 keyboard on an FPGA using Verilog
- Developed game logic for real-time tile animation, scoring, and increasing difficulty, integrating inputs to ensure precise player actions and responsive gameplay

Real-Time Stock Data Visualization Web Application – Developer

- Designed and developed a dynamic local webpage using Python Django framework to fetch and display real-time stock data using API calls
- Implemented interactive data visualization tools for financial analysis, enabling users to customize displayed metrics such as price trends, volumes, and analyst sentiments
- Integrated advanced filtering and sorting features to allow users to analyze data across customizable timeframes (e.g., intraday, monthly)

Play Store Game (*Outpost Defender*) – Developer

- Developed and published a multiplayer tower defense game using Kotlin and Jetpack Compose on Android Studio, managing the entire lifecycle from concept to deployment, including UI/UX design, game logic, animations, and testing across various Android devices
- Integrated AdMob for monetization, ensuring smooth performance and user engagement through regular updates and feedback-driven improvements

IoT Display Device – Developer

- Developed an IoT display device using the ESP32 microcontroller to fetch and display real-time weather data and stock quotes on multiple TFT LCD screens using SPI interface
- Designed and implemented a simple web-based configuration page, enabling dynamic control and customization of the displayed information

Deep Learning for Polyphonic Music Instrument Recognition – Coding Lead

- Led the development of a deep neural network in PyTorch for accurate recognition of 8 different musical instruments within polyphonic audio recordings
- Enhanced model performance by developing and benchmarking baseline models with classical machine learning algorithms

Automated Web Content Analysis – Developer

- Developed an automated pipeline to extract web page content, process the data, and utilize Hugging Face Transformers for sentiment analysis and summarization

Unity-3D Open-world Game – Programmer

- Integrated 3D graphics with code to develop an adventure game using Unity
- Brought creative ideas to life, ensuring an immersive and entertaining game environment
- Successfully created a functioning game

Leadership Experience

Youth Outreach Council – Director of Logistics

- Orchestrated event logistics by brainstorming and planning with other Logistic Coordinators
- Successfully executed a major initiative: YOC's Make or Break 2022-2023

St. Robert's Coding Club – Curriculum Coordinator Executive

- Prepared and presented programming lesson plans and slideshows, emphasizing Python, Java, and C++ to peers and other students
- Contributed to creating an engaging learning environment encouraging individuals to expand their coding knowledge and prepare for coding competitions held throughout the year

Work Experience

Mon Sheong Chinese Summer School Program Assistant   **June 2023 - Aug. 2023**

- Provided support to daily Summer Camp program operations
- Assisted in organizing and implementing various camp activities, including Mon Sheong's 2023 public performance
- Ensured a smooth and enriching experience for students, contributing to the program's success

Freelance Software Developer   **June 2022 - Aug. 2022**

- Developed a sophisticated framework for automated web content analysis
- Utilized Python code to combine web scraping logic (Scrapy) with natural language processing techniques (Hugging Face Transformer)
- Successfully created a foundation for extracting, processing, and summarizing web content

SEAS Center Volunteer   **Nov. 2021 - June 2022**

- Collaborated with a team to generate English lesson plans incorporating multimedia resources
- Delivered weekly virtual English lessons to seniors to improve their communication skills

Skills

- Proficient in several coding languages including Python, C, C++, MATLAB, Kotlin, HTML, CSS, Javascript, and Verilog
- Comfortable with applying machine learning libraries including NumPy, PyTorch, Scikit-Learn and Matplotlib
- Knowledgeable in Google Colab, Visual Studio, Android Studio, Jetpack Compose, AWS, OOP, and GitHub
- Experience in analog and digital circuit design using software such as LTSpice, Quartus Prime, and ModelSim
- Embedded Systems development & debugging experience using microcontrollers (ESP32)
- Perseverance, teamwork, communication, initiative, leadership