Zhi Yang Chen

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Education

University of Toronto Sep 2021 – Apr 2026

Bachelor of Applied Science in Computer Engineering (BASc) *Toronto, ON*

- Relevant Coursework: Algorithms and Data Structures, Operating Systems, Applied Fundamentals of Deep Learning, Software Design and Communication, Computer Organization, Digital Systems, Computer Fundamentals

Projects

YelpCamp | *Full Stack Developer* Demo

- Launched a full-stack campground review web application, utilizing technologies such as **Node.js**, **Express.js**, and **MongoDB** to build a dynamic and intuitive platform
- Designed a user-friendly front-end using **HTML**, **CSS**, and **Bootstrap**, elevating user experience through responsive design principles and **UX/UI** refinements
- Optimized user experiences by establishing a secure and uninterrupted interface, utilizing Render for deployment on **AWS infrastructure**

OTFMap | *C++, GTK, Glade, EZGL, OpenStreetMap API, Git* Demo

- Built a GIS akin to Google Maps, utilizing **C++ (STL)** and **OSM API**, along with a customized database
- Implemented **Dijkstra's** and **A* algorithms** for fully optimized pathfinding in 20 different cities, surpassing all TA algorithms in travel time and ranking within the **top 10%** of the class
- Designed a user-friendly front-end utilizing **Glade** and **GTK**, allowing for responsive and efficient user interaction

Thread & Process Manager | *C, Linux*

- Integrated advanced synchronization mechanisms in **C** for **hash table** operations, employing pthread mutexes to achieve thread-safe data access and modification in a multi-threaded context
- Engineered a user-space threads library in **C**, featuring essential **thread management** functions including terminating a thread, yielding a thread back to the waiting queue, and joining another thread's termination
- Developed a **C process library** with the capability to create and monitor processes and serve as a **subreaper**

Enhanced Processor | *Verilog HDL, ARMv7 Assembly, ModelSim*

- Constructed a sophisticated **16-bit processor** with 8 registers and a robust **Arithmetic Logic Unit (ALU)** using **Verilog HDL**, incorporating a **Finite State Machine (FSM)** for precise control
- Integrated various I/O devices, including LEDs, switches, and HEX displays, to create a captivating animation on a **DE1-SoC board**, leveraging **ARMv7 Assembly** programming

Experience

Junior Tolling Field Technician May 2023 – Sep 2023

407 ETR Concession Company Limited *Woodbridge, ON*

- Maintained tolling equipment through detailed inspections, diagnostics, and adjustments, securing a **98% peak performance rate** and guaranteeing a **99.5% uninterrupted** tolling operation
- Conducted exhaustive testing of tolling equipment in a controlled laboratory environment, proactively resolving technical issues to maintain a **98% data transmission** reliability rate
- Assisted in the East Detolling project, decommissioning 22 legacy sites and establishing 6 new sites, resulting in a **10% improvement** in tolling efficiency

Electrical Systems Engineer Sep 2022 – Sep 2023

Blue Sky Solar Racing *Toronto, ON*

- Proficiently soldered and tested circuit boards, ensuring a high degree of performance and reliability for various electronic applications, improving the team's electrical systems
- Utilized Altium Designer to design PCB layouts, create component libraries, and develop schematics for various solar car electrical systems, contributing to system functionality and advancements

Skills

Languages: C, C++, Python, SQL, HTML, CSS, JavaScript, Typescript
Frameworks: React.js, Node.js, Express.js, Bootstrap, MongoDB, Mongoose, NumPy, PyTorch
Developer Tools: Git, Github, Git Bash, Linux, GTK, Glade, Altium Designer, ModelSim, Multisim