Mark Peng

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Education

University of Toronto — Toronto, Ontario, Canada
Honours B.S. in Computer Science (co-op), Minor in Math & Statistics – GPA: 3.9/4.0 — *Sep. 2024 – May 2028*
- **Relevant Coursework:** Software Design, Systems Programming, Data Structures and Algorithms

Technical Skills

Languages: C, C++, Python, Java, JavaScript, TypeScript, Ruby, SQL, Lua
Frameworks: React, Node.js, Next.js, React Native, Arduino, Django, Express.js, Flask
Developer Tools: Docker, Git, GitHub, GitLab, VS Code, Jira, Postman, Linux, Copilot, Cursor
Technologies & Concepts: AWS, GraphQL, MongoDB, PostgreSQL, Redis, REST APIs, Agile, Microservices

Experience

Pulsenics — May 2025 – Aug. 2025
Full-stack Developer Intern — *Toronto, Ontario, Canada*
- Refactored **2K+** LOC of hardware-coupled **C firmware** into logic-based modular functions and interfaces, enabling the creation of additional **Ceedling** unit tests with mocks and stubs, raising repository test coverage by **300%**
- Implemented **10+** key features for custom **Python Modbus** client package, used by **7+** clients/internal projects
- Reduced manual verification time by **≈90%** and cut release cycle time by 30% by building a full-stack **Python** QA pipeline for post-production firmware, automating **Modbus** tests, real-time logging, and data validation
- Improved QA report load times by **10x** with custom lazy-loaded Plotly graphs in **Jinja2** built over **JavaScript**
- Minimized communication errors from **10% to 0.001%** by implementing a custom ACK protocol in **C** over Ethernet, and optimizing performance through DMA tuning and clock synchronization

Abundant Science — Feb. 2025 – Apr. 2025
Software Developer Intern — *Toronto, Ontario, Canada*
- Built **React Native** mobile app with camera API for PHIPA-compliant lateral flow test capture and analysis
- Engineered **≈85%** classification accuracy proof-of-concept **TensorFlow/OpenCV** model in **Python** for rapid tests
- Achieved **<3MB** bundle size and **<100ms** inference latency for on-device classification model by optimizing **TensorFlow Lite** pipeline and applying model quantization
- Integrated **GitHub Actions + Expo** for **CI/CD**, automating builds and deployments across dev and production
- Leveraged React Native Worklets with **JSI** to convert GPU pixel buffers to CPU arrays in **C++/JavaScript** for fast frame pipeline processing and rendering performance

Toronto Model United Nations — Jun. 2022 – Jul. 2024
Front-end Developer — *Toronto, Ontario, Canada*
- Engineered static site generation of **30+** pages using Jekyll, HTML, and SASS for modular content management

Projects

reels-cli | *C, Python, Bash* — August 2025
- Engineered a complete terminal-based media player with a custom **C** video streaming engine and **Python** backend
- Leveraged unix domain sockets with multithreading for efficient data exchange between both **C**and **Python** processes

ProportionAI | *Next.JS, React, MongoDB, Terraform, Gemini* — January 2025
- Developed web-app using **Next.JS, React, and MongoDB** for an AI-powered time insight study app
- Deployed using **Terraform** through an **AWS EC2** deployment to host the study platform in a declarative manner

Awards & Leadership

Top 32 of 1000+ participants @ Hack the North, finalist for Warp – *built an AI voice agent delivery app* — Sep. 2025
UTMIST AI Open Source Developer – *team focused on contributing to AI open source projects* — May 2025
University of Toronto Scholar Award (worth $10000), Dean's List Scholar – *for positive academic standing* — 2024-2025