Mark Peng

+1 (437)-776-0171 | markminpeng@gmail.com | linkedin.com/in/markminpeng/ | markpeng.me | Toronto, Canada

Education

University of Toronto — Toronto, Ontario, Canada

Honours B.S. in Computer Science, Minor in Mathematics & Statistics – CGPA: 3.86/4.0 — *Sep. 2024 – May 2028*

- **Relevant Coursework:** Software Design, Theory of Computation, Computer Organization, Advanced Multivariable Calculus

Technical Skills

Languages: C, C++, Python, HTML/CSS, Java, JavaScript, TypeScript, Ruby, SQL
Frameworks: React, React Native, Next.js, Node.js, Arduino, Django, Express.js, Flask
Developer Tools: Docker, Git, GitHub, GitLab, VS Code, Jira, Postman, Linux, Copilot, Cursor
Technologies & Concepts: AWS, CI/CD, Firebase, GraphQL, MongoDB, PostgreSQL, Redis, REST APIs, WebSockets, Agile, Microservices, Unit Testing, TDD, Pytest

Experience

Full-stack Developer Intern — May 2025 – Aug. 2025

Pulsenics — *Toronto, Ontario, Canada*

- Automated validation pipelines in Python and developed embedded firmware in C, improving system reliability and accelerating development workflows.
- 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
- Achieved **100%** unit test coverage on legacy C firmware by refactoring hardware-bound logic into testable modules and building a test suite with Ceedling using mocks and stubs
- 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 page load times by **10x** by optimizing data serialization and integrating lazy-loaded Plotly graphs into Jinja2-generated HTML reports

Software Developer Intern — Feb. 2025 – Apr. 2025

Abundant Science — *Toronto, Ontario, Canada*

- Used React Native and Expo Router to create a cross-platform mobile app to use phone cameras to detect and read lateral flow rapid test results to securely send to healthcare providers while following PHIPA regulations
- Engineered proof-of-concept vision model with **≈85% accuracy** leveraging Tensorflow, OpenCV and Python for on-device automated lateral flow test detection
- Achieved a **<3MB** bundle size and **<100ms** average inference latency for an on-device classification model by optimizing the TensorflowLite image pipeline and model quantization
- Streamlined mobile app deployment by integrating GitHub with Expo Application Services, automating CI/CD pipelines for seamless building, testing, and deployment across development and production environments

Projects

ProportionAI | *Next.JS, React, MongoDB, Terraform, Gemini API* — January 2025

- An AI-powered study app created within 72 hours for UofTHacks12 which analyzes and provides studying insights
- Web-app built using Next.JS, React, and MongoDB as a backend database for storing user information
- Deployed using Terraform for IaaS through an AWS EC2 deployment to host the study platform

reels-cli | *C, Python, Bash* — August 2025

- Developed a terminal-based media application with a C playback engine and Python backend
- Designed an interprocess communication system for efficient data exchange between both programs
- Implemented real-time media processing and playback within terminal using FFMmpeg and libao

Awards & Leadership

Top 32/256 projects @ Hack the North & finalist for Warp – *built an AI voice agent delivery app* — September 2025

UTMIST AI Open Source Developer – *Team focused on contributing to AI open source projects* — May 2025