

# MATTHEW KIM

☎ 226-973-6084 ✉ [m398kim@uwaterloo.ca](mailto:m398kim@uwaterloo.ca) [in linkedin.com/in/matthew-min-kim](https://www.linkedin.com/in/matthew-min-kim) [github.com/MatthewKim07](https://github.com/MatthewKim07)

## Education

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### University of Waterloo

*Candidate for Bachelor of Applied Science in Mechatronics Engineering*

Waterloo, ON

*Expected Apr 2030*

## Experience

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### Web Developer

Jan 2026 – Present

*University of Waterloo Libraries*

*Waterloo, ON*

- Re-architect a legacy Drupal 8 Assignment Planner into a standalone TypeScript/Node.js application supporting 3,000+ daily active users (Google Analytics), removing CMS-coupled breakage and improving long-term maintainability.
- Ship features, fixes, and UX improvements across UW Libraries sites while maintaining WCAG/AODA-compliant accessibility through semantic HTML, ARIA patterns, and consistent student-facing design.
- Increase deployment reliability by implementing Docker-based environments and GitHub Actions CI/CD workflows for Assignment Planner and ORCID, while automating sitemap and redirect mapping with Python.

### Firmware Developer

Sep 2025 – Dec 2025

*University of Waterloo Formula Electric*

*Waterloo, ON*

- Developed embedded C/C++ firmware for ECUs managing vehicle communication across CAN/LIN networks and multiple sensor interfaces.
- Collaborated with electrical and controls sub-teams to debug hardware issues and improve real-time signaling.
- Implemented HIL testing, signal simulation, and fault diagnostics, reducing per-board validation time by 35%.

### Engineering Research Assistant

Feb 2024 – Jun 2024

*Western University FAST Research Group*

*London, ON*

- Designed 15+ CAD components in Fusion 360 and produced 10+ FDM prints using Cura to support prototyping for an open-source multi-material 3D food printer.
- Performed mechanical testing, calibration, and iterative refinements, increasing print consistency by 25%.
- Conducted experimental data collection and analysis, evaluating crop growth and photovoltaic performance under varying environmental conditions.

## Projects

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### WaterlooWorks+ | *JavaScript, Chrome Extension, Chrome APIs, Node.js, PDF.js*

Feb 2026 – Present

- Build a Chrome extension that re-ranks WaterlooWorks job postings by parsing resumes, extracting job requirements, and scoring candidate-job fit to help students prioritize stronger matches.
- Improve match quality by supporting resume parsing for PDF, DOCX, TXT, and pasted text using PDF.js, regex, normalization, and heuristic scoring to compare applicant skills against posting requirements.
- Enhance job search decision-making by analyzing employer ratings and hiring history alongside user preferences to generate faster, more relevant posting rankings.

### Clarus | *TypeScript, Next.js, React, Fastify, Prisma, PostgreSQL, Playwright, Docker*

Feb 2026

- Built a full-stack academic dashboard that connects to D2L/Brightspace, synchronizes enrolled course data, and centralizes course information in a single student-facing interface.
- Developed authentication and sync services using Fastify, Playwright, Prisma, and PostgreSQL to support secure session capture, course retrieval, and schools with SSO or 2FA login flows.
- Increased security and development reliability by storing encrypted session state instead of passwords and using Docker to standardize multi-service local development.

### Pantry Pal | *TypeScript, React, Vite, Supabase, Edamam API*

Nov 2025

- Won the Fide x Lovable Hackathon by building an AI-powered kitchen assistant that analyzes pantry photos, identifies ingredients, and recommends recipes using the Edamam API.
- Developed a TypeScript-based recipe matching system in React that ranks meals based on ingredient coverage.
- Built a drag-and-drop meal planner and shopping list using React DnD with Supabase-backed persistence to streamline weekly planning and grocery management for users.

## Technical Skills

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**Languages:** Python, TypeScript, JavaScript, SQL, C/C++, HTML/CSS, Bash

**Frameworks & Libraries:** React, Next.js, Node.js, Hono, Fastify, Flask, FastAPI, Prisma, Tailwind CSS

**Tools:** Git/GitHub, Docker, GitHub Actions, PostgreSQL, Supabase, Playwright, Vite, REST APIs