Ethan Kang

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EDUCATION

McMaster University **Sep 2021 - Dec 2026**
Software Automation Engineering, Co-op Hamilton, ON

EXPERIENCE

General Motors **September 2025 - Present**
Controls Systems Engineer Intern Oshawa, ON

- Improved assembly line uptime by ~12% by optimizing **PLC** ladder logic and reducing cycle time errors in robotic stations.
- Deployed vibration monitoring and device-level analytics on motors and conveyors, allowing maintenance teams to identify mechanical faults early, helping prevent unexpected failures and costly downtime.

Unrepped **May 2025 – August 2025**
Software Engineer New York, NY

- Led development of an AI-driven agent that streamlines mortgage application entry by simulating human browser behavior using **Playwright** and **Browserbase**, with deterministic flows managed through **Stagehand**.
- Spearheaded the development of an AI-powered chatbot capable of querying a **Supabase** database using **MCP**s to retrieve insights from user-submitted mortgage documents.
- Built a Reddit data pipeline targeting r/FirstTimeHomeBuyer, automating daily scraping and ingestion of real-world mortgage experiences with GitHub Actions and **cron** jobs.

RuskCast **May 2024 - Aug 2024**
Junior Engineer Intern Thorold, ON

- Boosted website load speed and usability by ~20% through front-end optimization using **HTML** and **CSS**
- Improved casting model manufacturability by 15% by redesigning 3D parts in **Fusion360**, reducing material waste and machining complexity
- Streamlined reverse engineering processes using **Geomagic Design X**, improving digital reconstruction accuracy and cutting rework time by 25%

PROJECTS

Simulated Factory Automation System

- Developed a **Node.js** + **Express** backend with configurable rule engine mimicking input/output control
- Built a Node.js backend with a configurable rule engine and **REST API** to simulate sensor/motor behavior
- Designed a live dashboard using **React** (Next.js) and **Tailwind CSS** with polling-based device state updates
- Enabled rule execution based on input conditions, timed delays, and virtual sensor toggling
- Structured the project with modular frontend/backend folders for maintainability and future feature expansion

Study Planner & Deadline Tracker

- Developed a full-stack task management web app to help students track assignments, quizzes, and exams
- Implemented inline editing, dynamic filtering, and overdue task detection for improved user experience
- Utilized **Mustache.js** templating to render task lists dynamically based on user input and filters
- Built RESTful routes with **Express.js** and persisted data using **SQLite** for efficient backend management
- Designed a mobile-responsive UI using Bootstrap to ensure cross-device usability and accessibility

SKILLS

Languages: C++, HTML, CSS, JavaScript, Python, Typescript, SQLite, MATLABS
Frameworks & Libraries: React, React Native, Next.js, Node.js, Express.js, jQuery, Mustache.js, AJAX, LangChain
CAD: SolidWorks, Fusion360, AutoCAD, Revit, Geomagic Design X, CATIA
Tools & Platforms: Playwright, Browserbase, Stagehand, Supabase, GitHub Actions, Vercel, AWS S3, Cisco IOS, Excel