

Michael Andrew Tham

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Overview

Computer Engineering alum from the University of Waterloo building scalable software and AI solutions. A jack of all trades who loves diving into difficult problems, picking up whatever tools are needed, and turning complex challenges into high-impact products.

Technical Skills

Languages

Python, Java, Linux, C++, C, C#, TypeScript, JavaScript, SQL, Verilog, ARM Assembly, CSS, HTML5

Frameworks & Development Tools

TensorFlow, PyTorch, React, Node.js, Next.js, Springboot, FastAPI, Angular, Firebase, PostgreSQL, MySQL, Redis, GraphQL, GCP, Cucumber, Kubernetes, Tekton, SonarQube, AWS (Lambda, S3, DynamoDB, EC2)

Experience

Maitai

Independent Contractor - AI / Full Stack

San Francisco, California

Jan 2025 – Present

- Designed and implemented system prompt substitution, granting users greater control over generated responses and enabling **dynamic prompt engineering** for improved customization and adaptability
- Developed **request augmentation** techniques to synthesize high-quality data, expanding semantic coverage and boosting the accuracy and generalization of fine-tuned models
- Improved evaluation methods through **multi-stage analysis and correction**, detecting faults in model output with **94%** accuracy, enhancing datasets and driving measurable improvements in downstream model performance

Vecflow

Software Engineering Intern - Applied AI / Full Stack

New York, New York

Jan 2025 – Jan 2026

- Led the development of a multi-agent system optimizing legal workflows via **Retrieval-Augmented Generation (RAG)** and AI-driven judicial reasoning, directly contributing to a Seed raise valued in the **95th Percentile**
- Refactored backend architecture by introducing **PostgreSQL views**, reducing latency by **70%** and improving Largest Contentful Paint (LCP) by **65%** on average
- Designed and implemented a solution to overcome a key obstacle in LLMs, bypassing context window limitations, ensuring accurate legal citations, and enabling scalable analysis of arbitrarily large documents

PlaySmart

Software Developer - Backend

Remote

Dec 2024 – Present

- Designed and built the backend for a sports analytics platform, powering AI-driven recommendations to identify optimal drills and enhance athlete performance
- Integrated **SSO** using **Firebase Authentication**, streamlining access management for improved user experience
- Achieved a top five finish among 72 start-ups at the Michigan Ross Business + Tech Innovation Jam

Ford Motor Company

Software Engineering Intern - Backend

Dearborn, Michigan

Jan 2024 – April 2024

- Spearheaded efforts to fix performance bottlenecks in a large-scale **Java monolith (100,000+ files)** by decoupling critical endpoints during a microservices migration, reducing latency by **60%** and improving uptime
- Enhanced API security by resolving **42Crunch** compliance faults and adding **rate limiting** to mitigate IAM risks
- Accelerated deployment by **75%** through parallelized acceptance tests and **CRON**-scheduled automation

NOVX Systems

Richmond Hill, Ontario

Software Development Intern - Full Stack

May 2023 – Aug 2023

- Enhanced healthcare software by implementing medical image uploading to **Amazon S3** with **C#** and optimizing key features to meet **OMD certification** requirements, reducing user login time to under **30 seconds**
- Improved data accessibility by creating **SAP Crystal Reports** for patient monitoring and introducing advanced filters for medicines, users, and notes, cutting information retrieval time by **52%** on average

Ford Motor Company

Dearborn, Michigan

Software Engineering Intern - Full Stack

Sept 2022 – Dec 2022

- Developed a full-stack web application with **React** and **Node.js** to automate vehicle service scheduling, eliminating customer wait times and removing the need for manual employee intervention
- Guaranteed application robustness through **Test-Driven Development (TDD)** with **Jest**, while maintaining CI/CD pipelines using **Tekton** and **SonarQube** for continuous delivery and monitoring
- Optimized data storage and synchronization by leveraging **GCP**, **Firestore**, and **Redis**, reducing read latency by **41%** on average and improving system reliability

Qvella

Richmond Hill, Ontario

Software Development Intern - Full Stack

Jan 2022 – May 2022

- Individually developed a full-stack web application using **Angular**, **TypeScript**, **C#**, and **SQL Server** to manage Qvella devices and customers, deployed on **AWS** for high availability
- Reduced on-site maintenance costs by **33%** through digitized Sepsis machine monitoring and automation
- Designed and secured **RESTful APIs** with **OAuth 2.0** to enable seamless, secure device management

Software Development Intern - Full Stack

July 2020 – July 2021

- Oversaw the design and development of Python software to accelerate Sepsis testing workflows, reducing lab pollution by **80%** with paperless production lines and increasing Positive Blood Culture sample output by **70%** through process automation

Projects

GenEd - Smart Worksheets for Smarter Learning

Jan 2025 - Present

- Developing an AI-powered educational tool to help teachers manage students and generate personalized worksheets that target individual weaknesses for gradual improvement
- Enables teachers to assign worksheets, track student performance across subjects, and generate adaptive exercises based on past results to enhance learning outcomes
- Built with **React**, **Python**, and **PostgreSQL**, integrating Maitai's SDK for LLM-powered worksheet generation

Speech2TeX - Equations to LaTeX made easy

Oct 2024 - Present

- A tool to convert spoken math equations into LaTeX representations, improving accessibility and saving time
- Implementing **Python** with OpenAI's Whisper for speech recognition, a fine-tuned **Hugging Face** model for natural language processing, and **JavaScript** for frontend and web integration

Education

University of Waterloo

Waterloo, Ontario

BASc in Computer Engineering

Sept 2021 - April 2026

- **Coursework:** Compilers, Database Systems, Computer Networks, Real-Time OS, Algorithms and Data Structures
- **Programming Languages:** Java, Linux, C, C++, Verilog, VHDL, Python, ARM Assembly
- **Awards:** President's Scholarship of Distinction