

# Alex Lee

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## EDUCATION

- **University of Toronto** cGPA: 3.95/4.00  
Expected Jun. 2026  
*Bachelor of Science in Computer Science, Minor in Mathematics | Dean's List*
  - **Courses:** Software Tools & Systems Programming, Data Structures & Analysis, Computer Organization, Operating Systems, Programming on the Web, Computer Networking Systems, Foundations of Computer Security
  - **Societies:** University of Toronto Machine Intelligence Student Team

## SKILLS

- **Languages:** C, Python, Java, C#, JavaScript, TypeScript, HTML/CSS, SQL, Bash
- **Frameworks and Tools:** Unix, Git, Microsoft Azure, PostgreSQL, React, Tailwind CSS, Next.js, NumPy, Flask

## EXPERIENCE

- **Department of Mathematics, University of Toronto** Toronto, ON  
Jan. 2025 - present  
*Teaching Assistant*
  - Assist in the instruction of **Linear Algebra I** (MAT223), a course with **1000+** enrolled students
  - Conduct office hours, monitor the online discussion board, and answer student questions for a class of **100+** enrolled students
  - Facilitate weekly tutorials and grade weekly quizzes for two sections with **80+** students in total
- **Microsoft** Redmond, WA  
May 2025 - Aug. 2025  
*Software Engineer Intern*
  - Created a plugin in **C#** to automate update rollouts for a certificate-based authentication library used in **500+** repositories company-wide
  - Implemented a **GPT-4o**-powered solution for detecting and updating security vulnerabilities, utilizing **Azure AI Foundry** and regex-based pattern matching
  - Automatically identified and updated **1500+** lines of code across **80+** repositories with **90%** accuracy
  - Reduced update rollout time by **60%**, minimizing manual effort and improving consistency across codebases
- **Microsoft** Redmond, WA  
May 2024 - Aug. 2024  
*Software Engineer & Product Manager Intern*
  - Designed and developed a customer support **AI** chatbot in **Python** for a querying service keeping track of **100 billion+** certificates and secrets used across the company, leveraging **Azure OpenAI** resources
  - Integrated **retrieval-augmented generation (RAG)** with embedding models and vector search, enabling dynamic data retrieval and an optimized **<3 second** response latency
  - Optimized granularity and chunking size of search indexes, improving chatbot response accuracy by **30%**

## PROJECTS

- **Calculus Derivative Calculator** | *Python, HTML, CSS, JavaScript, Flask, MathJax* ↗ ↗
  - Capable of **differentiation with complete steps** and algebraic simplification, built **completely from scratch** without using any math-related libraries
  - Implemented in Python using binary expression trees and **self-designed recursive algorithms** for calculation, and the shunting yard algorithm for parsing mathematical expressions
  - Utilized **MathJax** for displaying visually appealing mathematical expressions in the frontend
- **KnowYourBias** | *Python* ↗ ↗
  - An **AI** web app that detects the political bias of the news article the user submits, and presents other articles on the same topic with different viewpoints
  - Used APIs from NewsCatcher and **Amazon AWS** for article search and keyword extraction