

# Ethan Cratchley

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## Education

### Simon Fraser University (SFU)

Sep 2022 – Apr 2027

*Bachelor of Computer Science and Business Administration (Joint Major) - Concentration in Artificial Intelligence*

- **Coursework:** Data Structures & Algorithms, Calculus, Linear Algebra, Discrete Mathematics, Statistics, Product Management, Data Communications and Networking, Software Engineering, Operating Systems, Systems Programming

### National University of Singapore (NUS)

Aug 2025 – Dec 2025

*Exchange Program*

## Experience

### Machine Learning Engineer

Dec 2024 – Present

*Autonommi*

*Hybrid*

- Developed and fine-tuned large language models (LLMs) to optimize natural language understanding and generate high-quality text outputs.
- Implemented Retrieval Augmented Generation (RAG) models, improving model response and robustness.
- Deployed AI-driven features into production using scalable APIs and cloud infrastructure, ensuring security and performance across user workloads
- Implemented system design principles (caching, parallelization, database optimization) to improve throughput and reduce inference latency.

### Project Lead

Oct 2024 – May 2025

*SFU OS Development Club*

*Vancouver, BC*

- Managed a team, overseeing the hiring and interview process, and coordinating project planning.
- Led the development of FinancialFastFeed.com using Python, JavaScript, MongoDB, Render, and more.
- Directed product development, ensuring timely delivery and maintaining high-quality software standards.

### Senior Research Analyst

Sep 2024 – May 2025

*SFU Investment Club*

*Vancouver, BC*

- Conducted in-depth equity research on diverse financial instruments to inform investment strategies.
- Developed financial models & valuation frameworks, evaluating company fundamentals and risk profiles.
- Collaborated on case studies and investment challenges to enhance portfolio management, presentation, and research skills.

### Innovations Intern

Apr 2024 – Aug 2024

*Wilson Beck Insurance*

*Vancouver, BC*

- Implemented AI-driven automation workflows, improving internal operational efficiency.
- Researched & developed internal company procedures, enhancing process standardization.
- Built projects in Python to improve internal company operations and workflows.

## Projects

### Custorix | Python, Flask, Gemma 3n, YOLOv11, Raspberry Pi, Ollama

Jun 2025 - Aug 2025

- Built a private, offline first, multimodal AI security system using Gemma 3n, YOLOv11, and Raspberry Pi to deliver real-time video/audio analysis and natural language alerts without cloud dependencies.
- Developed an AI server with Flask for distributed intelligence and a native iOS app (SwiftUI) + React dashboard.
- Optimized model deployment on resource-constrained Raspberry Pi hardware, enabling 30fps local inference.

### Financial Fast Feed | Python, JavaScript, CSS, MongoDB, Git, React, Render

Dec 2023 – Mar 2025

- Fetch financial news RSS feeds from 25+ sources with Python and summarize them with Open AI API.
- Store complete data and summarization of RSS feeds to MongoDB at a rate of up to 272 times per day automatically.
- Built full-stack web application using React, Next.js, and Render for seamless deployment.

## Skills, Honors, Certifications, and Organizations

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

**Frameworks & Libraries:** TensorFlow, PyTorch, ChromaDB, Pinecone, React, Next, Node, Express, Flask, Scikit-learn

**Tools:** Git, AWS, Google Cloud, MongoDB, Redis, Docker, Kubernetes, Figma, Tableau, PowerBI, Cohere

**Skills:** System Design, REST APIs, Data Visualization, MLOps, Testing & Debugging (Unit, Integration), CI/CD

**Competitions & Honors:** Memorial International Study Abroad Award, WinterHacks Best Pitch, CrackedDevs Best Educational Project, BMO Marathon Completion, Gruesome Twosome Half Marathon 7<sup>th</sup> Place, CFAC Portfolio Management, PicoCTF