

Bradley Eugene Sakran

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EDUCATION

University of British Columbia

Vancouver, Canada

Bachelor of Science in Computer Science (GPA 3.80)

Sep. 2023 – May. 2027

- Relevant Coursework: Software Construction, Models of Computation, Algorithm Design and Data Structure, Computer Systems, Applied Machine Learning, Relational Databases, Machine Learning and Data Mining.

WORK EXPERIENCE

Research Assistant

Sep. 2025 – Dec. 2025

University of British Columbia

Vancouver, Canada

- Building agentic workflow with **Model Context Protocol (MCP)** for adaptive retrieval in chatbots.

AI Engineer Co-op

May. 2025 – Aug. 2025

University of British Columbia

Vancouver, Canada

- Built an advanced modular Retrieval-Augmented Generation (**RAG**) pipelines deployed with **Replit**.
- Leveraged **NoSQL** databases (**MongoDB**, **ChromaDB**) with a Small2Big strategy to support context vectors.
- Utilized **transformer**-based models such as **BGE-M3** for **38%** better reranking and retrieval
- Created an asynchronous data-processing pipeline with **Redis** message queues and **Celery** workers.
- Integrated **Redis (OLTP, query-time)** with **PostgreSQL (OLAP, analytics)** to reduce lookup latency by **60%**.

Machine Learning Engineer Intern

Jun. 2024 – Aug. 2024

OLX

Jakarta, Indonesia

- Built a scalable **Retraining Pipeline** on **AWS EC2** using **Python**, **TensorFlow**, **Keras**, and **ClearML**, automating training/deployment of **Bi-LSTM** (intent detection) and **Word2Vec** models.
- Implemented a semi-supervised labeling algorithm for **28.45 MB** of unlabeled chat records with **vectorization**, **DBSCAN** clustering, and **topic modeling**, improving training efficiency.
- Optimized preprocessing of large-scale datasets from **AWS RDS (PostgreSQL)** using **pandas**, **NumPy**, **scikit-learn**, and parallelization with **pandarallel**, including text normalization (**stemming**).
- Achieved **355.6 KBps** throughput on low-tier **EC2** by streamlining preprocessing and applying concurrent hyperparameter tuning with **Optuna**, raising model accuracy by **26%**.
- Integrated **Deepchecks** for continuous data validation and model registry on **AWS S3**; followed **Scrum Agile** cycles, completing **~8 story points** per one-week sprint.

PROJECTS

b.env [nwHacks '25] – *Next.js, Go, RabbitMQ, Solidity* – Github

Jan. 2025

- Won **1Password: Best Security Hack** and competed amongst **734 hackers** and **182 projects**
- Developed a **middleware** routing requests to third-party services through the API keys stored in the **blockchain**
- Connected the user to the blockchain via the address retrieved from **MetaMask**, enabling real-time interactions between the **Solidity smart contract** and their **Ethereum wallet**
- Implemented an API **queue system** with **RabbitMQ** as the **message broker**, handling **high-concurrency** requests efficiently using **Go** and a **Fiber** and **Next.js** web server framework

Outreach Agent [UBC AI] – *Python, FastAPI, LangChain, Redis, Celery, Docker* – Github

Aug. 2024

- Developed the club's **Outreach Agent** system, incorporating autonomous **ReAct Agentic Workflow**.
- Built and deployed **Python FastAPI** endpoints with **LangGraph** and **LangChain**, enabling **LLM agents and tools** interactions, containerized with **Docker Compose** and **Heroku** for deployment.
- Implemented data preprocessing, storage, and retrieval using **Pinecone**, a **semantic chunker**, and **embedding models**, achieving **~5104 ms** query latency with optimized **query breakdown and filter**.
- Optimized **message queuing** for **asynchronous data retrieval** by integrating **Redis** and **Celery**.
- Improved retrieval precision to **88%** through **query optimization** for Retrieval-Augmented Generation (**RAG**).

TECHNICAL SKILLS

Languages: Go, Python, JavaScript, TypeScript, Java, C#, C++, C, SQL, HTML/CSS, R, Racket, NoSQL

Frameworks: Gin, Fiber, FastAPI, Django, TensorFlow, LangChain, Node.js, Express, Pinecone, React, Tailwind

Developer Tools: RabbitMQ, Redis, Kafka, ClearML, PostgreSQL, Git, VS Code, Docker, AWS, Atlassian, Cursor

UBC Science Co-op



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