

# Bryan Melvison

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## EDUCATION

The University of Hong Kong

Sept 2021 - Jun 2025, Hong Kong

*Bachelor of Engineering, Computer Science Major and Finance Minor (GPA: 3.35 / 4.30)*

McGill University

Jan 2024 - Apr 2024, Montréal

*2024 Winter Semester Exchange*

## PROFESSIONAL AND VOLUNTEER EXPERIENCE

Migrasia | *LLM Engineer Intern*

Feb 2025 - Present, Hong Kong

MILA | *Part-Time Research Volunteer (Software Engineer)*

Jun 2024 - Oct 2024, Remote

- Working under the supervision of Mr. Xing Han Lu on WebChat, a multi-layered communication framework for dialogue and LLM web agents.
- Spearheaded the low-level implementation of the core layer in Python, utilizing a custom-built publisher-subscriber system without external dependencies.

Intact Financial Limited | *Data Science Intern*

Jun 2024 - Aug 2024, Hong Kong

- Enhanced model performance through targeted error analysis and refined preprocessing techniques, resulting in a 2.8% increase in True Matches and a 7.8% improvement in recall.
- Developed and implemented DVC-tracked inference and evaluation pipelines for diverse in-house deep learning models, optimizing model deployment processes and performance assessment workflows.
- Developed comprehensive unit tests and modified langchain's FakeListLLM class to accommodate generalizable LLM unit test modules and implement event callbacks, enhancing system flexibility and testability.

HKU Innovation Wing | *Part-Time Research Assistant (Robotics)*

Oct 2023 - Dec 2023, Hong Kong

- Developed computer vision algorithms in OpenCV that achieved 95% accuracy in color detection and contour extraction, improving robotic arm calibration precision by 30% for pick and place operations.
- Optimized existing code for autonomous rover bot by refactoring to improve performance and precision.

Kodifly Limited | *AI Engineer Intern*

Jun 2023 - Aug 2023, Hong Kong

- Developed a web framework to facilitate real-time hosting of camera feeds, live point clouds from the LiDAR Sensor, on-demand SLAM, and alarm system detection using React.js, three.js, and ros, with only 1-2ms latency.
- Built a robust backend infrastructure utilizing the ROS communication protocol, ros.js, and seamlessly integrated Livox SDK API for its detection capabilities on the Web Visualizer.

## CERTIFICATION

[AWS Certified Cloud Practitioner](#)

## PROJECT & ACHIEVEMENT

Cathay Hackathon 2024 - Top 10 Finalist, Best Premium Travel Solution Award, Outstanding Designer Award

McHacks11 - Top 5 Finalist

Pocket Vocab by Purple Cow | *React Native, Flask, Firebase*

- Integrated Google Cloud Vision API for object recognition and annotation, and Google Cloud Translate API for translating object names to the user's selected target language, Gemini API for generating quizzes questions
- Implemented Firebase services, including Firestore for database management, Functions for implementing serverless backend functionality and Storage for storing pictures taken by the user

ODQA - RAG | *Pytorch, Huggingface, MongoDB*

- Implemented a full Retrieval-Augmented Generation (RAG) pipeline for open-domain question answering, according to the Dense Passage Retrieval (DPR) paper.
- Fine-tuned ELECTRA model for passage retrieval in the RAG pipeline, optimizing performance with 95% recall and 81% Mean Reciprocal Rank (MRR).

Intelligent Course Management System | *OpenCV, Flask, MySQL, React.js*

- Developed facial recognition system to enable biometric authentication for course management platform.
- Built a machine learning pipeline including data collection, training, and integrated the model with the backend.

## SKILLS

Languages: English, Chinese Mandarin, Bahasa Indonesia

Programming: Python, R, Java, JavaScript, C/C++

Web & Database: React.js, Next.js, Node.js, Flask, FastAPI, MySQL, MongoDB, TailwindCSS

ML & Data Science: PyTorch, Pandas, NumPy, Scikit-learn, Matplotlib, OpenCV, Hugging Face, LangChain, Tableau

DevOps, MLOps, Cloud, Tools: Git, AWS, Firebase, DVC, MLflow