Bryan Melvison

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EDUCATION & CERTIFICATIONS

The University of Hong Kong (HKU) Sept 2021 - Jun 2025, Hong Kong
Bachelor of Engineering(Computer Science) [BEng(CompSc)] Minor: Finance

GPA: 3.44 | **Awards:** HKU Entrance Scholarship

Activities & Societies: HKU Student Ambassador; Founder of Lap Chee Running Club; Lap Chee College Ambassador

Relevant Coursework: Software Engineering, Machine Learning, Introduction to Data Science, Data Structure and Algorithm, Object Oriented Programming and Java, Operating Systems, Introduction to Database Management System

EXPERIENCE

HKU Innovation Wing | *Part-Time Research Assistant (Robotics)* Oct 2023 - Dec 2023, Hong Kong

- Developed computer vision algorithms in OpenCV to perform color detection, contour extraction, and 2D coordinate mapping of colored objects to enable robotic arm calibration for pick and place operations.
- Maintained and optimized existing code for an autonomous rover bot by refactoring and debugging to improve performance and precision.

Kodifly Limited | *AI Engineer Intern* Jun 2023 - Aug 2023, Hong Kong

- Developed a cutting-edge Web Visualizer to facilitate real-time hosting of live camera feeds, live point clouds from the LiDAR Sensor, on-demand SLAM, and alarm system detection using React js, three js, and ros.
- 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.
- Calculated and retrieved the IMU of the LiDAR within the LiDAR Simulation with perfect accuracy rate, enabled the creation of a realistic SLAM map of the simulated landslide, and moving cars.
- Successfully calibrated the live camera feeds result and overlay them on top of the point cloud feed based on the intrinsic and extrinsic parameters of the camera.

PROJECT

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.
- Front-end and backend integration using Flask and MySQL for various functions.

Stock Predictor and Visualization with LSTM Model | *Pytorch, streamlit*

- Designed and implemented an intuitive user interface using the Streamlit framework, along with yfinance library to retrieve up-to-date stock data, and visualize findings of essential aspects of stock market analysis.
- Employed LSTM modeling techniques to forecast future stock prices based on the historical stock price, on a 80-20 split. Achieving an RMSE of 0.839.

Digit Recognition using CNN Model | *Pytorch*

- Using the PyTorch framework, achieving a training accuracy of **94.3%**, and testing accuracy of **94%**
- Applied data augmentation techniques to prevent overfitting
- Model with 16 layers including convolution, pooling, activations, fully-connected, and dropout.
- Utilized max-pooling layer to effectively reduce dimension of feature map, numbers of parameters, and amount of computations performed to under 15 minutes.

Big Two | Java

- Employed a multi-threaded approach to efficiently handle networking tasks, utilizing Java sockets for seamless network multiplayer functionality.
- Implemented Object Oriented Approach to effectively manage intricate game mechanisms and rules.

SKILLS

Languages: Bahasa Indonesia (Native), English (Native), Chinese Mandarin (Working Proficiency / HSK 5)

Tech Stacks: Python(Pandas, Numpy, Scikit-learn, Matplotlib, OpenCV, PyTorch, Streamlit, Flask), R, Java, C/C++, Git, MySQL, HTML, CSS, JavaScript(Next.js, React, Express.js, Node.js, three.js), MongoDB, Linux, ROS