James Pham

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Education

University of British Columbia *Vancouver, BC*
Bachelor of Science (Computer Science) — 3.95 / 4.33 GPA *Expected Graduation: 2027*

Awards: Trek Excellence Scholarship (Top 5% GPA in undergraduate year), Dean's Scholar

Technical Skills

Programming Languages: C/C++, Java, Python, JavaScript, HTML, CSS, SQL, Bash, Assembly, R
Full-Stack Development: React, Node.js, Express.js, Next.js, REST API
Technologies: Git, PostgreSQL, AWS, TensorFlow, Matplotlib, Pandas, Scikit-Learn, Railway, JUnit

Projects

Thyme Saver Full-Stack Web Application — *React, Node.js, AWS* *March 2025*

- Designed and developed a **full-stack** AI assistant using **React** and **Node.js**, integrating the **Google Gemini Vision API** to deliver an intuitive and dynamic user experience
- Designed and implemented a **RESTful API** using **Node.js** and **Express** to handle user authentication and secure image uploads via **Multer**, enabling seamless integration between the frontend and backend
- Enhanced security by implementing user login-credential **encryption** via **Bcrypt** and securely stored authentication data in a **PostgreSQL** database hosted on **AWS RDS**
- Deployed the frontend to **AWS S3** and the backend using **AWS Lambda** behind **API Gateway**, with **CI/CD** pipelines via **GitHub Actions** to automate testing, packaging, and deployment - reducing deployment time by 80% and ensuring automated delivery within 2 minutes of each push

Maze Generation and Solving Visualization Tool — *C++, Raylib* *April 2025*

- Developed an interactive maze generation and solving **visualization tool** using **C++** and the **Raylib graphics library**, supporting real-time animation and performance metrics at 60 FPS
- Implemented various generation and solving **algorithms** including A* search and Kruskal's algorithm, allowing for efficient route calculation through procedurally generated mazes of variable size and complexity

Tumor Classification via CNN — *Python, TensorFlow, Matplotlib* *May 2025*

- Engineered a **convolutional neural network (CNN)** pipeline on over 7,900+ images to classify histopathology images into benign and malignant classes, utilizing **Conv2D**, **MaxPooling2D**, and dense layers with **ReLU** and **sigmoid activations**
- Integrated **ImageDataGenerator** for real-time image augmentation and implemented **EarlyStopping** with validation monitoring to prevent **overfitting** and restore optimal model weights, achieving 87% training accuracy and 82% validation accuracy

Sleep Tracker Application — *Java, Java Swing, JUnit* *April 2024*

- Designed and implemented an intuitive desktop interface using **Java Swing**, emphasizing responsive **UI/UX** design to enable users to input, visualize, and analyze detailed sleep statistics through interactive tables
- Developed a custom **JSON-based** data persistence layer to serialize and deserialize sleep records, allowing seamless **save/load functionality** across user sessions
- Ensured application stability and correctness by writing extensive **JUnit** test suites for all core components, achieving 100% code coverage and reducing the likelihood of runtime errors

Leadership and Awards

Mentor *Edmonton, AB*
You Can Ride 2 *March 2023 - April 2023*

- Volunteered as a **mentor** in a six-week program, assisting children with mental challenges and disabilities in building the skills and confidence to ride a bike independently

Telus Friendly Future Social Impact Award *April 2023*

- Awarded $5,000 for displaying social impact initiative