Mercy Doan

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Education

Queen's University, Bachelor of Computing (Honors) Sep. 2020 – Apr. 2025
Specialization in Computing/Mathematics, focus in Data Analytics/Statistics (3x Dean's Honor List) *Kingston, ON*
Areas of Study: Data Analysis, Artificial Intelligence, Machine Learning, Databases, Data Structures, Algorithms

Technical Skills

Languages: Python, Java, Javascript (React, Node.js), CSS, HTML, MATLAB, R, Bash, C, SQL, PHP
Frameworks/Technologies: Anaconda, Git/GitHub, Figma, Canva, Jira, MS Office, Supabase, WordPress
Libraries: Pandas, NumPy, HuggingFace, SciKitLearn, TensorFlow, Keras, PyTorch, OpenCV, Discord, Bootstrap

Experience

AI Developer July 2024 – Present
Conflict Analytics Lab *Kingston, ON*
- Integrated law documents into a vector database for retrieval augmented generation of legal information
- Built and tested LLM chat interface with knowledge graphs on Azure

Vice-President of Operations May 2021 – Present
COMPSA (Queen's Computing Students' Association) *Kingston, ON*
- Led 7 teams of 50+ students to support over 1k Computing students, and led the UI/UX development of a website

Cybersecurity Researcher May 2022 – Sep. 2022
Google ExploreCSR *Kingston, ON*
- Analyzed and applied research papers on autonomous vehicle security, software development life cycles, vulnerability detection, and machine learning techniques used in cybersecurity
- Proposed new ways to improve an autonomous vehicle software security and development method by using regression and deep learning to prioritize vulnerability metrics

Computing and Math Teaching Assistant Sep. 2021 – Present
Queen's School of Computing, Queen's Mathematics and Statistics Department *Kingston, ON*
- Developed course materials and provided office hours and feedback for 200+ students weekly
- Courses include AI, Discrete Math, Software Specifciations, and Introduction to Computer Science I/II

Projects

Security Vulnerability Detection with Transformers | *Python (HuggingFace, SciKitLearn)* Sep. 2022 - Mar. 2023
- Led a team of 4 to build a NLP model that detects security vulnerabilities in code based on CWE metrics
- Trained, finetuned, and compared Transformer, neural network, and probabilistic models on 250k samples of labeled PHP code, and was selected to present results at CUCAI (Canadian Undergraduate Conference on AI)

Research Projects | *MATLAB, Python* Jan. 2022 - May 2023
- Queen's Hyperloop Design: (Best research paper, EHW 2024) Developed algorithms for travel route optimization
- Cancer Detection: Visualize non-negative matrix factorization to separate cancerous cell data

LLM Projects | *Python (Keras, TensorFlow, PyTorch)* Jan. 2022 - May 2023
- Used
- Built computer vision models for number and clothing item classification, achieving up to 97% accuracy