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, Azure, Git/GitHub, Figma, Canva, Jira, MS Office, WordPress
Libraries: Pandas, NumPy, HuggingFace, SciKitLearn, TensorFlow, Keras, PyTorch, OpenCV, OpenAI, 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 (OpenJustice) with knowledge graphs on Azure with React

NLP Director of Design   May 2022 – Present
QMIND (Queen's University Artificial Intelligence Club)   *Kingston, ON*
- Guided 8 project managers to build NLP projects through leadership, research, and technical workshops
- Educated students on AI theory, ML libraries, GitHub, and NLP techniques (statistical models, Ensemble methods, deep learning, LSTMs, Transformers, supervised/unsupervised regression/classification, etc.)

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*
- Wrote course materials, provided office hours, and marked assignments for 200+ students weekly
- Courses include AI, Discrete Math, Software Specifications, 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*   Sep 2023 - Apr 2024
- Queen's Hyperloop Design: (Best research paper, EHW 2024) Developed algorithms for travel route optimization
- Snake: Develop and compare reinforcement learning algorithms (Q-Learning, SARSA) to play the game Snake
- Cancer Detection: Perform non-negative matrix factorization to classify tumor cells based on mass spectrometry

Tech Leadership Volunteering | *Python, HTML/CSS/JS*   May 2021 - Present
- Oversaw 7 teams of 50+ students as Vice President of the Queen's Computing Students' Association, and led UI/UX development of a new website: all were resources used by 1.5k+ undergraduate students
- Developed and finetuned AI tools using audio and text data for an international translation group, recognized by national European media, and with 1M+ overall online impressions

Discord Utility Bots | *Python (APIs: Discord, Instagram, OpenAI Whisper)*   Oct. 2023 - Present
- Janci Bot: Sends live updates of Instagram posts and stories (5k+ users)
- Nace Bot: NLP-powered trivia bot for language and script learning (100+ users)