Projects

NLP-Enhanced Thought-to-Text with EEGs | *Python* Sep. 2024 - Mar. 2025

- Led a team of 5 to classify EEG readings to natural text using word prediction to derive coherent output
- Recorded datasets, built combined CNN/RNN models with 98% accuracy, won best pitch at Camp QMIND 2024

Research Projects | *MATLAB, Python* Sep 2023 - Apr 2024

- Queen's Hyperloop Design: (Best research paper, EHW 2024) Determine optimal travel networks between cities
- 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

Experience

AI Developer July 2024 – Sep. 2024

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, Data Analytics, Discrete Math, Software Specifications, and Intro to Computer Science I/II

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

Mercy Doan

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Education

Erasmus Mundus Master's in AI 2025

Specialization in Data Science *Various*

Areas of Study: AI (UPF, Spain), Cybersecurity (RU, the Netherlands), Data Science (UL, Slovenia)

Queen's University, Bachelor of Computing (Honors) 2020

Specialization in Computing, Mathematics, and Analytics *Kingston, ON*

Areas of Study: Data Analytics, Statistics, Reinforcement Learning, Biomedical Data Analysis, Evolutionary Computing