NADINE EL-MUFTI

Canadian Citizen, residing in Montreal, QC

(514) 802-3932 | | | |

WORK EXPERIENCE

Mila - Quebec AI Institute — Montreal, Quebec
Collaborating Researcher — Oct 2024 – Present

- Conducting novel research in deep learning for conversational AI to improve diagnostic accuracy in healthcare and enhance patient outcomes.

Climate Change AI Summer Program — Montreal, Quebec
Participant — Jun 2024 – Sep 2024

- Participated in an AI for Climate Change program leveraging Machine Learning as a key driver of innovation alongside policy to strengthen environmental strategies and combat climate change across different sectors.

UX/UI Designer and Web Developer — Remote
Freelance — Jan 2024 – Present

- Enhanced user engagement by creating visually stunning and highly functional user interfaces that balance beauty and usability.
- Translated business objectives into intuitive, user-centered design solutions through close collaboration with over 10 stakeholders.

Concordia University — Montreal, Quebec
Teaching Assistant — Sep 2022 – Dec 2022

- Achieved consistent and fair grading for Concordia's User Interface Design course "SOEN 357" through meticulous project and exam reviews, ensuring a transparent evaluation process for 54 students.
- Enhanced student critical thinking and problem-solving by providing constructive feedback, while encouraging creative ideation through supportive guidance and effective project management.

Applied Perception Lab — Montreal, Quebec
NSERC USRA Research Assistant — May 2022 – Aug 2022

- Co-authored a conference paper for Medical Image Computing and Computer Assisted Intervention (MICCAI) 2022's Ethical and Philosophical Issues in Medical Imaging (EPIMI) workshop, presenting a comprehensive User-Centered Design approach to identify and address Ventriculostomy surgeons' workflow challenges, to improve surgical efficiency.

Zero Waste Concordia — Montreal, Quebec
Zero Waste Concordia Assistant — Jan 2022 – Apr 2022

- Played a pivotal role in advancing Concordia's Zero Waste plan by supporting the implementation of waste reduction initiatives across campuses, including new recycling procedures and educational programs, with the goal of achieving 90% landfill diversion and 50% total waste reduction by 2040.

Concordia University — Montreal, Quebec
Surplus Reuse Coordinator — Jan 2019 – Jul 2019

- Co-led the execution of the "Surplus Furniture Reuse" initiative within Concordia's Webster Library Transformation Project, utilizing an asset management system to facilitate efficient furniture tracking and redistribution to external parties.
- Contributed to the project's success, resulting in a 113% increase in study seats and a 27% increase in study space, addressing the growing student population's needs.

PROJECTS

Improvements to the EEGNet Model (Colab Notebook)

- Contributed to open-source BCI advancements by pioneering novel techniques (e.g., Transformer-inspired Temporal Positional Encoding) within the EEGNet architecture. This involved building a custom ETL data pipeline for comprehensive EEG data processing and cleaning using pandas for efficient data manipulation. By extracting raw data, transforming it through feature extraction techniques, and loading it into a usable format, this pipeline facilitated the integration of these novel techniques, ultimately enhancing model performance.
- Leveraged a Python environment and libraries like SpeechBrain-MOABB alongside NumPy, and Matplotlib with Seaborn for informative data visualization to establish an efficient data pipeline and visualization tools. This robust pipeline facilitated streamlined processing, cleaning, and visualization of EEG data throughout The ETL (Extract, Transform, Load) process. The environment, running on a Google Cloud Engine virtual machine (GCE VM), allowed for rapid model development and analysis.
  - Employed data augmentation techniques alongside rigorous hyperparameter tuning to optimize EEGNet models. This data-driven approach, emphasizing the transformation stage within the ETL pipeline, significantly improved model accuracy. Two models surpassed the benchmark, while others matched it, highlighting the potential of informed architectural modifications and augmentation for future BCI advancements.

Mozna POS (Preview Video)

- Co-led the collaborative development effort of Mozna POS over the course of 8 months, adhering to Agile methodology to incrementally enhance the product's features and functionality, ultimately securing second place in the Capstone People's Choice Awards.
- Utilized a MERN (MongoDB, Express.js, React, Node.js) stack and adhered to MVC (Model-View-Controller) architecture to ensure organized and efficient development.
- Implemented comprehensive testing strategies using React Testing Library and Jest, ensuring the reliability and robustness of the entire application.
- Integrated API authentication using JWT (JSON Web Tokens) to enhance security measures and authenticate users effectively.
- Deployed the system on AWS utilizing Docker containers for each MVC view and leveraging S3 for static asset storage. This ensured scalability, maintainability, and efficient resource utilization.
- Produced meticulous documentation for Mozna POS, collectively contributing to the project's success and facilitating seamless understanding and usability for stakeholders, developers, and end-users.

RENT-A-TRUCK (Data Model Document)

- Designed and implemented a centralized data architecture for RENT-A-TRUCK, integrating reservations, missions, drivers, trucks, licenses, invoices, payments, and taxes. This unified structure streamlined data management and facilitated efficient data insertion, retrieval, and manipulation.
- Created a comprehensive data model including a high-level conceptual diagram and a detailed logical model. This transparent model ensured clear understanding of the data structure.
- Developed and normalized a database schema using BCNF (Boyce-Codd Normal Form) with well-defined relations (tables).

SKILLS

HTML · CSS · JavaScript · React.js · SQL · Python (scikit-learn, TensorFlow, Keras, PyTorch) · Machine Learning (Supervised & Unsupervised Learning) · Statistical Analysis & Data Visualization (Matplotlib, Seaborn) · Exploratory Data Analysis (EDA) · Data Preprocessing & Feature Engineering · Model Development & Evaluation · Flask · Streamlit · Microsoft Power BI · Tableau · Docker · Microsoft Office Suite · UX/UI Interaction Design · Graphic Design · Adobe Creative Suite · Tech Stewardship

LEADERSHIP & COMMUNITY ENGAGEMENT

Ambassador — Montreal, Quebec
School of Graduate Studies | Concordia University — Sep 2024 – Present

Mentee — Montreal, Quebec
GEMinAI Program | Concordia University — Oct 2024 – Present

EDUCATION

Bachelor of Engineering | Software Engineering — Montreal, Quebec
GPA (3.67) | With Distinction — Jan 2019 – May 2024
Concordia University

LICENSES & CERTIFICATIONS

Tech Stewardship Certification — Jul 2024
Issued by Tech Stewardship Network

PUBLICATIONS

User-Centered Design for Surgical Innovations: A Ventriculostomy Case Study
Lecture Notes in Computer Science — Volume 13755 · Dec 20, 2022

HONORS & AWARDS

NSERC CGS M Award — Apr 2024
Issued by Natural Sciences and Engineering Research Council of Canada

NSERC Undergraduate Student Research Award (USRA) — May 2022
Issued by Natural Sciences and Engineering Research Council of Canada

Bourses d'Excellence for Engineering Scholarship — Jun 2022
Issued by Quebec Ministry of Education