KARIM HABASHY

647.701.0876 • krhabashy@gmail.com • LinkedIn
Thesis-Based MASc, System Design Engineering • BASc, Honours Nanotechnology Engineering
University of Waterloo

PROJECTS & RESEARCH

Graduate Student, Computational Neuroscience Research Group (CNRG) **Fall 2023 - Spring 2025**
Supervisor: Dr. Chris Eliasmith

- Applying a navigational approach to language modelling by training a latent sentence embedding space. Traversal in such a space is done through goal oriented language production.
- Conditioning Diffusion Language Model outputs on the above generated paths.

Undergraduate Research Assistant, UW-NRC Collaboration Project **Fall 2022 - Spring 2023**
Supervisors: Dr. Dayan Ban, Dr. Pengcheng Xi

- Fine-tuning Event Detection and Speech Recognition model for self-powered Triboelectric Nanogenerator (TENG) audio sensor to be deployed in high noise environments using Transformer-based models
- Published SCA-Net: Spatial and channel attention-based network for 3D point clouds (CVIU 2023)

Fourth Year Design Project - MagneToad **Fall 2021 - Spring 2023**
Supervisor: Dr. Hamed Shahsavan

- Built solenoid system for magnetic control of µ-actuators for active drug transport and minimally invasive surgery.

PROFESSIONAL EXPERIENCE

Computer Vision Researcher - National Research Council of Canada **Ottawa, CA - 01/22 - 08/22**

- Led research paper on "Cough Classification Using Audio Spectrogram Transformer", with further unsupervised intrinsic data dimensionality reduction using dissimilarity measures. Publication IEEE Sensors Applications Symposium
- Co-authored ICLM 2022 paper on trustworthy healthcare AI for Covid-19 chest radiography screening with Swin Transformer. Publication https://doi.org/10.48550/arXiv.2207.09312
- Designed framework for self-supervised spacio-temporal EEG feature representation using hierarchical temporal and graph transformers using masked learning.

NLP Software Developer - Voxymore **Le Mans, FR - 09/20 - 04/21**

- Designed text classification software for named entity recognition (NER) in 5000+ biomedical text corpuses using pretrained SpaCy language models and regex techniques.
- Tested 10 speech-to-text models across 75+ audio files to extract relevant excerpts given any topic.

Technical Analyst - IBM **Ottawa, CA - 01/20 - 04/20**

- Successfully solved 40+ IBM Cognos Analytics troubleshooting cases providing critical assistance to 42 Fortune 1000 international companies. Used Cognos design architecture to resolve database connectivity issues.

Full Stack Developer - Univeris **Toronto, CA - 05/19 - 08/19**

- Created algorithm for investment portfolio rebalancing automation with interactive UI using Vue and Vuetify.