

## WORK EXPERIENCE

### Research Assistant

#### ML Research Assistant

 Jan 2020 – Jun 2021

 University of Toronto, Canada

#### Project: Convolutional Neural Architecture Search

- Applied evolutionary algorithms to search for the best convolutional neural network architecture for CIFAR10 classification

#### Project: Physics Informed Neural Networks

- Conducted literature review in the field of physics informed neural networks PINNs and implemented PINNs to predict flow field around a cylinder.

### Research and Development Intern

#### R&D Electronics

 Sep 2023 – Dec 2023

 Ansys, Canada

- Conducted research on the mixture of expert (MOE) techniques and trained multiple compact thermal models (CTMs) using MOE to improve temperature prediction accuracy.

### Teaching Assistant

#### Course : Introduction to Data Science and Analytics

 Sep 2022 –Present

 University of Toronto, Canada

#### Course : Applied Fundamental of Deep Learning

 Jan 2023 –Present

 University of Toronto, Canada

- Helping students to implement different machine learning algorithms and giving tutorials on Machine learning methods

## RELEVANT COURSEWORK

### Intro to Data Science and Analytics

#### University of Toronto

Acquired skills in data cleaning, visualization, statistical analysis, and machine learning through hands-on projects utilizing Python

### Intro to Deep Learning


#### University of Toronto

I implemented a wide range of deep learning algorithms including Neural Networks, Convolution Neural Networks, Generative Adversarial Networks and more through hands-on assignments and projects.

## PUBLICATIONS

### Predicting Wind Farm Wake Losses with Deep Convolutional Hierarchical Encoder-Decoder Neural Networks


#### APL Machine Learning

 Jan 2024

## EDUCATION

### Ph.D of Mechanical Engineering

#### University of Toronto

 Sep 2021 – Dec 2025

**Thesis:** Developing an ML Model-based Surrogate Model for Wind Farm Layout Optimization.

### MASc of Mechanical Engineering

#### Amirkabir University of Technology

**Thesis:** Vehicle Gearbox Fault Detection using Machine Learning Methods

## PROJECTS

### Wake Modeling Based on Convolutional Autoencoders for Wind Farm Layout Optimization

- This is my PhD research, and so far, we have developed a machine learning model capable of predicting flow fields in wind farms. This model serves as a surrogate for wind farm layout optimization.

### Histology Image Classification and Segmentation

- We implemented the Mask-R-CNN model in PyTorch to detect and instantiate different types of nuclei within histology images. We used ResNet and AlexNet in the model's backbone to extract the features.

### Vehicle Gearbox Fault Detection using ML Models

- We collect real-time data experimentally by accelerometers which are located in different locations on the gearbox body
- Support vector machine and signal processing methods are used to extract features and classify the gearbox faults

### Knowledge distillation for Classification Tasks

- We explore the use of different techniques for distilling the knowledge from a pre-trained model and applying it to a smaller model to improve the performance of the smaller model while reducing its computational requirements.

## SKILLS

Python, PyTorch	<div><div></div><div></div><div></div><div></div><div></div></div>
C, Matlab, Simulink	<div><div></div><div></div><div></div><div></div><div></div></div>
TensorFlow, Keras	<div><div></div><div></div><div></div><div></div><div></div></div>
Teamwork, Project Management, Leadership	<div><div></div><div></div><div></div><div></div><div></div></div>

## LANGUAGES

English	<div><div></div><div></div><div></div><div></div><div></div></div>
Turkish	<div><div></div><div></div><div></div><div></div><div></div></div>
Persian	<div><div></div><div></div><div></div><div></div><div></div></div>