

☎ (647) 679-8032

✉ torabian@yorku.ca

torabian.alireza@gmail.com

# Alireza Torabian

🌐 www.eecs.yorku.ca/~torabian/

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in alireza-torabian

Graduate Student / Experienced in Machine Learning

Computer science graduate student at York University researching in the field of conformal prediction with a strong background in mathematics. Experienced in developing machine learning models and the theory behind them. Have done several projects in various machine learning areas, especially deep learning, mostly in Python using Tensorflow and Keras.

## EDUCATION

### York University

M.Sc. in COMPUTER SCIENCE, Advised by Ruth Urner, GPA: A+

2021-2022 (Expected)

Toronto, Canada

### Amirkabir University of Technology (Tehran Polytechnic)

B.Sc. in COMPUTER (SOFTWARE) ENGINEERING, Advised by Saeedeh Momtazi, GPA: 3.9/4 (18.25/20) (In the top 10%)

2015-2020

Tehran, Iran

*Thesis: Design and Implementation of a Persian Automatic Question Answering System*

## EXPERIENCE

### York University

Research Assistant

Jan. 2021 – Present

Toronto, Canada

- Exploring the usefulness of various conformity measures in obtaining more informative prediction sets in **Conformal Prediction**.

### National University of Singapore, Data Privacy and Trustworthy Machine Learning Research Lab

Jul. 2019 – Sep. 2019

Research Intern

Singapore

- Creating a black-box adversarial attack to fool face recognition models for enhancing face privacy on social media achieved 35% success rate.
- To fool face detection models, the attack model tries to minimize the intersection of the detected face and the original face.
- The face recognition attack model tries to maximize the similarity of the recognized face's latent feature and a target person.

### Diaalog

Research and Development Intern

Jul. 2018 – Dec. 2018

Tehran, Iran

- Developing a Persian question answering system to generate answers according to the entrance questions in **Python Tensorflow**.
- Using a sequence-to-sequence model and clustering methods.

### Amirkabir University of Technology, Cognitive Robotics Lab

Oct. 2016 – Sep. 2017

Research Assistant

Tehran, Iran

- Designing an autonomous exploration algorithm for robots to help them explore a map simultaneously and from different starting points in **C++**.
- A master node merges the scanned maps from all robots and commands them to explore specific points on the map.

## SKILLS

Languages

**C++, Java, Python, Go**

Frameworks and Tools

**Tensorflow** (Python & JS), **Keras, Numpy**

Databases

**MySQL, SPARQL, MongoDB**

Web Programming

**HTML, CSS, JavaScript, Express.js, PHP**

## PROJECTS

### Alternative Actor and Co-Star Suggestion Using a Graph Autoencoder Model

Apr. 2021

- Applying a graph autoencoder to a network of actors using **Keras** in **Python** achieved 99.46% accuracy on reconstruction the graph.
- An alternative actor is found by searching the latent space using a K-d tree.
- A co-star is suggested based on the predicted weights in the autoencoder model's target network.

### Persian Question Answering System

Aug. 2020

- Generating answers for a question in Persian language based on a knowledge-base in **Python**.
- SVM and CNN classification models used to classify the question type achieved 96% accuracy and F1-score of 92.7%.

### Optimization Coursework

Jul. 2019

- Implementing algorithms to optimize a convex problem.
- Some unconstrained optimizations such as line search and trust region methods, and some constrained optimizations such as log barrier.

### Neural Dialogue System

Dec. 2018

- Implementation of a Seq2Seq model with attention mechanism, using **Tensorflow** in **Python**.

## HONORS AND AWARDS

**York University Fellowship**, C\$62,500 for my master's studies

2021-2022

**Second Place** in the rescue simulation virtual robot league at RoboCup in Nagoya, Japan

2017

**Ranked top 0.5%** in nationwide Iranian university entrance exam among 180,000 participants

2015

**Member of National Organization for Development of Exceptional Talents (NODET)**

2011-2015