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Alireza Torabian

Graduate Student / Experienced in Machine Learning

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

Education

York University *2021-2022 (Expected)*
M.Sc. in Computer Science, Advised by Ruth Urner, *GPA: A+* *Toronto, Canada*

Amirkabir University of Technology (Tehran Polytechnic) *2015-2020*
B.Sc. in Computer (Software) Engineering, Advised by Saeedeh Momtazi, *GPA: 3.9/4 (18.25/20) (In the top 10%)* *Tehran, Iran*
Thesis: Design and Implementation of a Persian Automatic Question Answering System

Experience

York University *Jan. 2021 – Present*
Research Assistant, Machine Learning *Toronto, Canada*
- Exploring the usefulness of various methods to calibrate classification models.

National University of Singapore, Data Privacy and Trustworthy Machine Learning Research Lab *Jul. 2019 – Sep. 2019*
Research Intern, Adversarial Machine Learning *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 face.

Diaalog *Jul. 2018 – Dec. 2018*
Research and Development Intern, NLP *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	**Python**, **Java**, **C++**, Go
Frameworks and Tools	**TensorFlow** (Python & JS), **Keras**, **Numpy**, **Pandas**, **Scikit-learn**
Databases	**MySQL**, SPARQL, MongoDB
Web Design	**JavaScript**, HTML, CSS, Express.js, PHP
Other Tools	**Git**, **Unix shell**, **Jupyter**

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