(647) 679-8032
torabian@yorku.ca
torabian.alireza@gmail.com

Alireza Torabian

Graduate Student / Experienced in Machine Learning

www.eecs.yorku.ca/~torabian/
1997alireza
alireza-torabian

As a computer science graduate student at York University, I am focusing my research on the field of machine learning calibration. With a strong foundation in mathematics, I have a comprehensive understanding of the theories and principles behind machine learning. I have completed a number of projects in various areas, including deep learning, computer vision, adversarial machine learning, and natural language processing.

Education

York University *2021-2023 (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 (In the top 10%)* *Tehran, Iran*

Experience

York University *Jan. 2021 – Present*
Machine learning researcher *Toronto, Canada*
- Explored desirable properties of calibration models as well as evaluation metrics and analyzed their feasibility and correspondences.

National University of Singapore, Data Privacy and Trustworthy Machine Learning Research Lab *Jul. 2019 – Sep. 2019*
Computer vision researcher *(Github repo)* *Singapore*
- Developed a plugin that will obscure images in order to increase privacy that achieved 35% success rate.
- Performed a **black-box adversarial attack on facial recognition** using projected gradient descent with momentum in latent space of FaceNet.
- In face detection attack, the overlap between the detected areas by SSD MobileNet V1 model and the actual faces is minimized using PGD.
- **Image augmentations** are used to apply the attacks on black-box models.

Diaalog *Jul. 2018 – Dec. 2018*
Deep learning R&D intern *(Clustering github repo), (Language model github repo)* *Tehran, Iran*
- Developed a Persian **question answering system** in Python Tensorflow.
- LDA is used to cluster similar questions. To expand our dataset, we utilize the answers to questions in the same cluster interchangeably.
- **LSTM Seq2Seq** model with **Luong-style attention** mechanism is used to generate an answer to a question.

Amirkabir University of Technology, Cognitive Robotics Lab *Oct. 2016 – Sep. 2017*
Research assistant *Tehran, Iran*
- **Object detection** task is performed to detect victims using YOLO model.
- Developed an autonomous exploration algorithm and path planner for robots to help them explore a map simultaneously.

Skills

Languages	**Python**, **Java**, C++, JavaScript
Machine learning	**TensorFlow**, PyTorch, **OpenCV**, **Keras**, **Numpy**, **Pandas**, **Scikit-learn**, **NLTK**, Scipy, JAX
Databases	**MySQL**, PostgreSQL, MongoDB
Other Tools	**Git**, **Unix shell**, **Jupyter**

Other projects

Alternative Actor and Co-Star Suggestion Using a Graph Autoencoder Model *Apr. 2021*
- Applied a graph autoencoder to a network of actors using **Keras** in **Python** achieved 99.46% accuracy on reconstruction the graph. *Github repo*
- An alternative actor is found by searching the latent space using a K-d tree.
- A co-star is suggested according to the predicted weights from an autoencoder model.

Persian question answering system *Aug. 2020*
- My bachelor thesis that was building a question answering system based on a knowledge-base in Python. *Github repo*
- SVM and CNN classification models used to classify questions achieved 96% accuracy and F1-score of 92.7%.

Optimization Problems *Jul. 2019*
- Implemented unconstrained and constrained optimizations, such as line search, trust region, and log barrier for convex problems. *Github repo*

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