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

Alireza Torabian

Machine Learning Researcher

1997alireza.github.io
1997alireza
alireza-torabian

As a machine learning researcher with a strong math background, I have been involved with different projects in various areas including deep learning, computer vision, adversarial machine learning, natural language processing, and probability calibration.

Experience

York University *Jan. 2021 – Present*
Machine learning researcher *Toronto, Canada*
- Proposed a calibration model that outperformed state-of-the-art models by a small margin in terms of ECE.

Amirkabir University of Technology, NLP Lab *Jan. 2020 – Aug. 2020*
NLP researcher *(Github repo)* *Tehran, Iran*
- Developed a question answering system based on a knowledge-base in Python.
- SVM and CNN classification models used to classify questions achieved 96% accuracy and F1-score of 92.7%.

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 obscures images for increased privacy using adversarial attacks, with a 35% success rate.
- Performed facial recognition attack on FaceNet and face detection attack on SSD MobileNet V1 using PGD.
- Used image augmentations to attack black-box models increased success rate by 1.5x.

Diaalog *Jul. 2018 – Dec. 2018*
Deep learning R&D intern *(Clustering github repo)*, *(Language model github repo)* *Tehran, Iran*
- Developed a Persian chatbot using Python Tensorflow.
- Expanded dataset by clustering questions with LDA and using answers interchangeably.
- LSTM Seq2Seq model with Luong-style attention mechanism is used to generate answers.

Amirkabir University of Technology, Cognitive Robotics Lab *Oct. 2016 – Sep. 2017*
Research assistant *Tehran, Iran*
- Developed an autonomous exploration algorithm for robots that won 2nd place in RoboCup 2017.
- Object detection task is performed to detect victims using YOLO model.

Education

York University *2021-2023*
M.Sc. in Computer Science, *GPA: A+* *Toronto, Canada*

Amirkabir University of Technology (Tehran Polytechnic) *2015-2020*
B.Sc. in Computer (Software) Engineering, *GPA: 3.9/4* *Tehran, Iran*

Skills

Languages	Python, Java, C++, JavaScript
Machine learning	TensorFlow, PyTorch, OpenCV, Keras, Numpy, Pandas, Scikit-learn, NLTK, Scipy, JAX
Databases	MySQL, PostgreSQL, MongoDB
Cloud	AWS
Other Tools	Git, Unix shell, Jupyter
Math	ML Theory, Stats & Prob, Signal Proc., Stochastic Processes, Convex Optimization

Other projects

Alternative Actor and Co-Star Suggestion Using a Graph Autoencoder Model *Apr. 2021*
- Applied graph autoencoder to actor network using Keras in Python, achieving 99.46% accuracy in reconstructing 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 the autoencoder model.

Optimization Problems *Jul. 2019*
- Optimized unconstrained and constrained convex problems using line search, trust region, and log barrier. *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