Mansour Saffar M.

Machine Learning Engineer

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Areas of Expertise
Machine Learning
NLP, Conversational AI
Reinforcement Learning

Volunteering
Chief Editor of Biotech Journal Published by University of Tehran Student Branch of ISBME

Held the First Biomedical Engineering Technical Ideas Competition with Cooperation of AUT

Work Experience

03/18 - Now **Machine Learning Developer (Part-time)** AltaML, Edmonton
- Focused on NLP problems, I was part of the **Conversational AI** team working on task-oriented chatbots.
- Designed and developed a task-oriented dialogue synthetic **data generation framework**. This framework is used as DaaS for training chatbots.
- Researched and trained **NLU** models to be used in pipelined task-oriented chatbots.
- *Technologies: Python, Rasa, ParlAI, spaCy, NLTK, Scikit-learn, MongoDB, Pandas, AWS, Git, Docker*

05/17 - 08/17 **Data Analyst Intern** Finning Canada, Edmonton
- Applied machine learning techniques on auction and rental data to get insights about customers and machinery.
- Created regression models for residual value prediction using **ensemble methods**.
- Developed a recommender system using **association rule mining** techniques.
- *Technologies: Python, C++, Pandas, Scikit-learn, H2O, XGBoost, LightGBM, Azure ML, MySQL, Microsoft SSMS, Plotly*

09/17 - 09/18 **Graduate Research Assistant** University of Alberta, Edmonton
- Researched usage of **self-attentional models** (Transformer and Universal Transformer) for end-to-end task-oriented chatbots. [Source Code]
- Developed an **evaluation method** for **task-oriented chatbots** based on profile-conditioned user simulator.
- *Technologies: Python, Tensorflow (tensor2tensor), Rasa, spaCy Git*

Education

2016 - 2019 **M.Sc in Computer Science (4/4)** University of Alberta, Edmonton
- Expected graduation date: February 2019
- *Supervisor: Prof. Osmar R. Zaiane*
- *Thesis: "Self-attentional Models Application for Task-oriented Dialogue Generation Systems"*

2011 - 2016 **B.Sc in Electrical Engineering (3.67/4)** University of Tehran, Tehran
- Relevant Coursework: **Data Structures and Algorithms**, **Advanced Programming**, Pattern Recognition, Introduction to AI, Linear Algebra
- *Thesis: "Classification and Detection of Epileptic Patients Using Brain MRI Images"*

Technical Skills

Languages **Programming Languages:**
Python (4+ years), C++ & MATLAB (Proficient), Java (Intermediate)

Certifications

Docker Mastery (Udemy)
AWS Lambda (Udemy)
Redis (Udemy)

Personal Skills

Teamwork
Problem Solving
Time Management
Self-motivation, Curiosity

Hobbies

Music, Movies
Video Games
Swimming, Volleyball

ML/DL Tools	**Machine Learning Libraries:** *Scikit-learn, H2O, XGBoost, LightGBM*
	Deep Learning Libraries: *Tensorflow, Pytorch*
Optimization	**Numerical Analysis & Optimization Libraries:** *NumPy, SciPy, hyperopt*
NLP	**Natural Language Processing Libraries:** *spaCy, NLTK, Gensim, Rasa (Core & NLU)*
Big Data	**Big Data Analysis Frameworks:** *Hadoop, Apache Spark (PySpark)*
Visualization	**Data Visualization Libraries:** *Plotly, Matplotlib, Tensorboard*
Database	**Data Management & Munging:** *MySQL, Pandas, MongoDB, Redis*
Cloud	**Cloud Computing Platforms:** *AWS (EC2, S3, Lambda), Microsoft Azure (ML)*
Tools	**Software Development Tools:** *Git, Docker & Docker Compose, AWS CLI*

Selected Projects

2016 & 2017 **Retinal Image Segmentation** — Machine Learning & Deep Learning Courses

- Developed segmentation model by applying **ensemble and SVM models** on retinal images with Choroideremia disorder. [Report Link]
- Developed Deep-Retina, a deep learning model for pixel-wise segmentation of retinal images based on **U-Net** architecture.
- *Technologies: Python, MATLAB, Tensorflow, Git*

04/15 - 04/16 **Classification of Epileptic Patients** — Bachelor's Thesis

- Applied **SVM model** on statistical and textual information extracted from brain MRIs to detect epileptic patients.
- *Technologies: Python, MATLAB*

04/15 - 07/15 **Human Fall Detection System** — Rehabilitation Systems Course

- Applied **SVM model** and **image processing techniques** on human pose features extracted from videos to detect fall. [Report Link]
- *Technologies: MATLAB, LIBSVM*

Teaching Assistantships

Fall 2017 **Reinforcement Learning** — University of Alberta, Edmonton

- A comprehensive course on reinforcement learning. Besides grading, I attended labs and helped students with their assignments.

Fall 2016 **Introduction to Foundations of Computation** — University of Alberta, Edmonton

- An introduction to data structures in Python. Besides grading, I attended labs and collaborated with other TAs and instructors to help 200 students.