Mansour Saffar M.

Machine Learning Engineer

+1 (587) 937 0770 | linkedin.com/in/msaffarm | github.com/msaffarm | msaffarmehrjardy@gmail.com

Work Experience

03/18 - Present **Machine Learning Developer** AltaML, Edmonton

• Designed and helped to develop a **data generation framework** for training **task-oriented chatbots**. This framework enabled us to (1): create **high-quality training data** (covering most of the real-world scenarios) for specific domains which no data was available and (2): develop **multi-domain chatbots**.
• Researched and trained **Natural Language Understanding (NLU)** models for task-oriented chatbots. Given the need for a robust NLU model for our chatbot pipeline, I developed NLU models with high accuracy/F1-score (+93%) for user intent classification and entity extraction.
• *Technologies: Python, Rasa, ParlAI, spaCy, NLTK, Scikit-learn, MongoDB, Pandas, AWS, Git, Docker*

05/17 - 08/17 **Data Analyst Intern** Finning Canada, Edmonton

• Created regression models for rental machinery residual value prediction using **ensemble methods (Random Forest and GBRT)** with high R^2 (+90%).
• Developed a **recommender system** using **association rule mining** method. Faced with the problem of a large number of records, I augmented the system with specific data structures for speed-up.
• *Technologies: Python, C++, Pandas, Scikit-learn, H2O, XGBoost, LightGBM, Azure ML, MySQL, Microsoft SSMS, Plotly*

Selected Projects

09/17 - 11/18 **Deep Learning Models for Task-oriented Chatbots** Graduate Research Assistant (Master's Thesis)

• Given the success of **self-attentional models** in machine translation, I researched usage of them for task-oriented chatbots. The results showed faster training with comparable accuracy. [Source Code]
• Developed an **evaluation method** for **task-oriented chatbots** using profile-conditioned user simulator. This method can model **user characteristic** and behavior in chatbot evaluation.
• *Technologies: Python, Tensorflow (tensor2tensor), Rasa, Git*

09/16 - 11/16 **Retinal Image Segmentation** Machine Learning Course

• Developed segmentation model by applying **ensemble and SVM models** on retinal images. Faced with the problem of small dataset size, we achieved good results by using bagging methods. [Report Link]
• *Technologies: Python, MATLAB*

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

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

Education

2016 - 2019 **M.Sc in Computer Science (4/4)** University of Alberta, Edmonton

• Expected graduation date: February 2019
• Relevant Coursework: **Reinforcement Learning**, **Deep Learning**, **Machine Learning**, Data Mining
• Supervisor: Prof. Osmar 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 Artificial Intelligence, 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)*
ML/DL Tools	**Machine Learning & Deep Learning Libraries:** *Scikit-learn, H2O, Tensorflow, Familiar with Pytorch*
Optimization	**Numerical Analysis & Optimization Libraries:** *NumPy, SciPy, hyperopt*
NLP	**Natural Language Processing & Conversational AI Libraries:** *spaCy, NLTK, Gensim, Rasa (Core & NLU), ParlAI*
Big Data	**Big Data Analysis Frameworks:** *Familiar with Hadoop, Apache Spark (PySpark)*
Database	**Data Management & Munging:** *MySQL, Pandas, MongoDB, Redis [Udemy Certificate]*
Cloud	**Cloud Computing Platforms:** *AWS (EC2, S3, Lambda), Microsoft Azure (ML)*
Tools	**Software Development Tools:** *Git, Docker [Udemy Certificate], AWS CLI*

Teaching Assistantships

Fall 2017 — **Reinforcement Learning in Artificial Intelligence** — University of Alberta, Edmonton
• A comprehensive course on reinforcement learning. Besides grading, I collaborated with 10 TAs in the labs to help 250 students with their programming assignments.

Fall 2016 — **Introduction to Foundations of Computation** — University of Alberta, Edmonton
• An introduction to data structures in Python. I ran weekly labs and taught data structure concepts and Python programming to the students in my lab and held office hours to help them with their assignments.

Volunteering

2014 - 2015 — **Chief Editor**
• Guided 5 student
Chief editor of Biotech journal published by University of Tehran student branch of ISBME. I managed 5 students in order to publish a monthly magazine about the latest innovations in biomedical engineering.

Winter 2014 — **Event Organizer**
• Helped in organizing the first biomedical engineering technical ideas competition (Ideas Bazaar) with cooperation of Amirkabir University of Technology.