Mansour Saffar

Machine Learning Engineer

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Work Experience

03/18 - Present

Machine Learning Engineer

AltaML. Edmonton

- Worked on NLU modules (entity recognition and intent classification), extractive summarization, information retrieval, and news recommender systems in various NLP projects.
- Designed and developed a **data generation framework** to create high-quality and **multi-domain** dataset for training **task-oriented chatbots**.
- Technologies: Python, Tensorflow, Rasa, ParlAI, spaCy, NLTK, Gensim, Scikit-learn, MongoDB, Pandas, AWS, Git, Docker

05/17 - 08/17

Data Analyst

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

Selected Projects

03/19 - Present

Ana (Automatic Nursing Agent)

Joint Project with Amii

- Worked on architecture design and development of NLU modules for Ana, a chatbot system designed for elderly. [More info about Ana]
- · Technologies: Python, Rasa NLU, Docker, Git

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, spaCy, 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. [Paper Link]
- Technologies: Python, MATLAB

Education

2016 - 2019

M.Sc in Computer Science (GPA: 4/4)

University of Alberta, Edmonton

- Expected graduation date: July 2019
- Relevant Coursework: Reinforcement Learning, Deep Learning, Machine Learning, Data Mining
- Thesis: "Self-attentional Models Application for Task-oriented Dialogue Generation Systems"

2011 - 2016

B.Sc in Electrical Engineering (GPA: 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 Al Libraries:

spaCy, NLTK, Gensim, Rasa (Core & NLU), ParlAI

Big Data Analysis Frameworks:

Familiar with Hadoop, Apache Spark (PySpark)

Database Data Management & Munging:

MySQL, Pandas, MongoDB, Redis

Cloud Computing Platforms:

AWS (EC2, S3, Lambda), Microsoft Azure (ML)

Tools Software Development Tools:

Git, Docker, Kuernetes (kubeflow)

Publications

Februray 2019 Ghazal Sahebzamani, Mansour Saffar, Hamid Soltanian-Zadeh

Machine Learning Based Analysis of Structural MRI for Epilepsy Diagnosis (In press)

International Conference on Pattern Recognition and Image Analysis (IPRIA 2019) [Paper Link]

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

• 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.

Certificates

DevOps Software engineering and DevOps tools:

Docker [Udemy], Kubernetes [Udemy], Redis [Udemy], AWS Lambda [Udemy]