

Mansour Saffar

Machine Learning Engineer

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Work Experience

- 03/18 - Present **Machine Learning Engineer** [AltaML, Edmonton](#)
- Developed **NLU modules (entity recognition and intent classification)**, **extractive summarization**, **information retrieval**, **adwords generation**, 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](#)
- Designed the architecture and developed NLU modules for Ana, an intelligent chatbot with emotion capabilities designed to help elderly people. [Mentioned on CBC News]
 - *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 **ChatSim**, an **architecture agnostic evaluation framework** for task-oriented chatbots which can model **user characteristic** and behavior in chatbot evaluation. [Source Code]
 - *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](#)
- 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: <i>Python (4+ years), C++ & MATLAB (Proficient), Scala (Familiar)</i>
ML/DL Tools	Machine Learning & Deep Learning Libraries: <i>Scikit-learn, H2O, Tensorflow, Familiar with Pytorch</i>
Optimization	Numerical Analysis & Optimization Libraries: <i>NumPy, SciPy, hyperopt</i>
NLP	Natural Language Processing & Conversational AI Libraries: <i>spaCy, NLTK, Gensim, Rasa (Core & NLU), ParlAI</i>
Big Data	Big Data Analysis Frameworks: <i>Familiar with Hadoop, Apache Spark (PySpark)</i>
Database	Data Management & Munging: <i>MySQL, Pandas, MongoDB, Redis</i>
Cloud	Cloud Computing Platforms: <i>AWS (EC2, S3, Lambda), Microsoft Azure (ML)</i>
Tools	Software Development Tools: <i>Git, Docker, Kubernetes (kubeflow)</i>

Publications

August 2019	Mansour Saffar, Amine Trabelsi, Osmar R. Zaiane • <i>Self-Attentional Models Application in Task-Oriented Dialogue Generation Systems</i> (Accepted) Recent Advances in Natural Language Processing (RANLP 2019)
Februray 2019	Ghazal Sahebzamani, Mansour Saffar, Hamid Soltanian-Zadeh • <i>Machine Learning Based Analysis of Structural MRI for Epilepsy Diagnosis</i> (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 co-operation of Amirkabir University of Technology.

Certificates

DevOps	Software engineering and DevOps tools: Docker [Udemy], Kubernetes [Udemy], Redis [Udemy], AWS Lambda [Udemy]
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