Ali Hassanzadeh,

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Experience

Reinforcement Learning Scientist *Pathmind Inc, San Francisco, CA* Nov 19 - May 20

- **Optimization of Industrial Processes using Reinforcement Learning**
  - Prototyped a continuous learning engine to learn from real experience and plan with a simulation.
  - Successfully Applied the Proximal Policy Optimization(PPO) Algorithm to reduce the electricity cost of an Australian factory by 18% compared to the baseline(random action).
  - Designed the backend bridge between Anylogic(Written in Java) to RLlib(written in Python).

Artificial Intelligence Fellow *Insight Data Science, San Francisco, CA* Sep 19 - Nov 19

- **Training Environment for Autonomous Vehicle using Reinforcement Learning**
  A project in collaboration with In-Q-Tel, Lab 41 (github.com/ahassanzadeh/RoboGym)
  - *Used* **pixels and environment parameters** *as the input to the Deep Reinforcement Learning model*
  - *Environment, Observations, Actions, Reward functions are defined in (***Unity engine written in C#***).*
  - *A C#-Python bridge utilized(Unity ml-agents) to use the state-of-art model-free on-policy Deep Reinforcement Learning model for continuous action space* **(Proximal Policy Optimization(PPO))**
  - *Multi-agent end-to-end training is completed using* **AWS EC2-P2 xlarge instance [training speed = 100K episode/hour]**

Data Scientist Intern *Digit, San Francisco, CA* May 19 - Aug 19

- **Purchasing Time and Value Prediction using Time Series**
  A contracted data Science project for Digit (https://github.com/ahassanzadeh/Digit_Transactions_Prediction)
  - **Goal***: Forecast the next purchased date and monetary value of 375K customers*
  - **Dataset***: 1 million rows and 3 Columns of Customer ID, Invoice Date and Unit price.*
  - **Outcome 1***: The frequency of the customers transactions for each customer evaluated separately and transaction dates are forcasted.* **The accuracy of the xgboost model is 75%**
  - **Outcome 2***: The transactions' value are predicted using* **K-means and LSTM with 80% accuracy**

Doctoral Researcher *University of California Solar Institute, Atwater, CA* Aug 15 - May 19

Manage a research team consist of 5 researchers to gather solar sensory data and analyzed as follows:

- **Solar Irradiation Forecasting**
  - **Goal**: Accurate prediction of annual solar irradiation is one of the major component to transform from fossil fuel to to solar energy all around the world.
  - **Dataset:** National Renewable Energy Lab's dataset include **20 parameters for 10 years** .
  - **Machine learning methods**: Linear regression, Random Forrest, Naive Bayes, PCA and GradientBoostedRegressor(GBR) using Python .
  - **Outcome**: The GradientBoostedRegressor(GBR) algorithm showed the best performance which could predict the solar irradiation for **the test dataset with 80% accuracy.**

Technical Skills

- **Languages:** Python/Jupyter notebook(4+ yrs), MATLAB(7+ yrs), SQL/C++/HTML/Java (2+ yrs)
- **ML Tools:** TensorFlow 1.x/2.x, Keras, PyTorch, Scikit-Learn, Numpy, Pandas
- **Engineering Tools**: AWS, Git, Streamlit, Kafka, Hadoop

Education

Ph.D., Engineering, Applied Machine Learning , *University of California, Merced, US* May 2020

Master, Engineering - Software *Sharif Uni of Tech, Iran* June 2015

Bachelor, Engineering- Software *Mashhad University, Iran* July 2013