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Experience

Reinforcement Learning Scientist *Pathmind(Skymind),San Francisco, CA*   Nov 19 - May 20

- **Optimization of Industrial Processes using Reinforcement Learning**
  - Successfully Applied the Proximal Policy Optimization(PPO) Algorithm to reduce Electric cost an Australian factory by 18% compare to the baseline(random action)
  - Industrial Process is simulated in a Modeling Software called AnyLogic and is exported as a Jar File
  - Improved 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**
  Collaborated project with In-Q-Tel, Lab 41 (github.com/ahassanzadeh/RoboGym)
  - *Used* **pixel and environment parameters** *as the input to the Deep Reinforcement Learning model*
  - *Environment, Observations, Actions, Reward functions are defined in Unity (***written in C#***).*
  - *A C#-Python bridge defined to use the state-of-art model-free on-policy Deep Reinforcement Learning model for continuous action space(***Proximal Policy Optimization(PPO)***)*
  - *Multi-agent training is completed using* **AWS EC2-P2 xlarge instance [training speed = 100K episode/hour]**

Data Scientist *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 CustomerID, InvoiceDate and Unitprice.*
  - **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* **unsupervised learning(K-means) and LSTM with 80% accuracy**

Graduate Student Researcher *University of California, Merced, CA*   Aug 15 - May 19

- **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 Gradient-BoostedRegressor(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(4+ yrs), MATLAB(7+ yrs), SQL/C++/HTML/Java ($\leq$ 2 yr)
- **ML Tools:** TensorFlow 1.x/2.x, Keras, PyTorch, Scikit-Learn, Numpy, Pandas
- **Engineering Tools**: AWS, Git, Streamlit

Education

Ph.D., Engineering, Optimization , *University of California, Merced, US*	May 2020
Master, Engineering - Computational Modeling *Sharif Uni of Tech, Iran*	June 2015
Bachelor, Engineering- Robotics *Mashhad University, Iran*	July 2013