Ali Hassanzadeh, Ph.D.

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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 company(GHD) 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*
  - *Applied a policy gradient model for continuous action space(Proximal Policy Optimization)*
  - *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)
  - **Project***: Forecast the Transactions time for for 375K customers*
  - **Outcome 1***: The frequency of the customers transactions for each customer evaluated separately and transaction dates are forcasted.* **The accuracy of the algorithm with xgboost is 75% using Python**
  - **Outcome 2***: The transactions' value are predicted using* **LSTM** *with* **80% accuracy**

Graduate Student Researcher *University of California, Merced, CA* Aug 15 - Apr 20

- **A Novel Cooling Structure for Low Temperature Silicon Cells**
  funded by California Energy Commission(CEC)
  - *Designed a novel cooling mechanism for silicon cells to maintain optimum temperature ($\leq 40\,^\circ C$)*
  - *Modeled Electrical, Optical and Thermal performance using Finite Element Analysis*
  - *Experimental data for silicone cell's performance are gathered and analyzed using* **Python**
- **A Novel Cooling Structure for Semiconductors operating at High temperature**
  funded by Advanced Research Projects Agency–Energy(ARPAE)
  - *Designed a novel nanopartible cycle to cool down semiconductors operate at high temperature($700\,^\circ C$)*
  - *Modeled Electrical, Optical and Thermal performance using Finite Element Analysis*
  - *Experimental data for Gallium Arsenide Cell are gathered and analyzed using* **Pandas and Numpy**

Education

Ph.D., Energy Optimization, *University of California, Merced, US* May 2020

Master of Engineering, Mechanical Eng- Fluid Dynamic *Sharif Uni of Tech, Iran* June 2015

Bachelor of Science, Mechanical Eng- Robotics *Mashhad University, Iran* July 2013

Technical Skills

- **Languages:** Python(3+ yrs), MATLAB(6+ yrs), C++/HTML/Java ($\leq$ 1 yr)
- **ML Tools:** TensorFlow 1.x/2.x, Keras, PyTorch, Scikit-Learn, Numpy, Pandas
- **Engineering Tools**: AWS, Git, Streamlit