

# Ali Hassanzadeh

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## Experience

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**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 forecasted. **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 nanoparticle 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

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**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

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- **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