Ali Hassanzadeh

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Experience

Artificial Intelligence Fellow *Insight Data Science, SF, CA* — Sep 19 - Present

- **Deep Reinforcement Learning for Simulation of Animal cognition**
  A competition by NeurIPS 2019 called AnimalAI-Olympics

  - *In collaboration on a consulting project for In-Q-Tel Lab 41 to use Deep Reinforcement learning to train an agent that can learn animals' skills such as food retrieval in a simulated environment(Unity).*
  - *This approach has potential be applied to train control system of a* **animal-like robot** *like recuse dog*

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

- **A Novel Hybrid Solar collector for Electricity, Hot water and Space Heating**
  funded by California Energy Commission(CEC)

  - *prototype a novel 20KW solar collector array to provide heat for water desalination system*
  - *Model optical and thermal performance of the solar collector using COMSOL Multiphysics*
  - *Design Structural and thermal Analysis using Finite Difference method(FDM) in Matlab*

- **Low-cost Dispatchable Heat and Small-scale Solar-Thermal Desalination Systems**
  funded by Department of Energy(DOE)

  - *3D design of the solar collector using SOLIDWORKS*
  - *Using heat pipe to cool down silicon solar cells in order to enhance the electrical efficiency and extracting heat to warm up household's water*

Projects

- **Purchasing time and value prediction using Time series**

  - **Purpose**: Accurate prediction of companies' financial growth based on customers transaction helps a money management incorporation to predict quarterly earnings accurately for investors and shareholders
  - **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**

- **Solar Irradiation Forecasting using machine learning**

  - **Purpose**: 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
  - **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**

Education

Ph.D., Environmental Engineering, *University of California, Merced* — expected on Dec 2019

Master of Engineering, Mechanical Engineering, *Sharif Uni of Tech, Iran* — June 2015

Bachleor of Science, Mechanical Engineering, *Mashhad University, Iran* — July 2013

Technical Skills

- **Programming and Scripting Languages** Python, MATLAB, C# , LaTeX, HTML
- **ML Tools:** TensorFlow, Keras, Scikit-Learn, Numpy, Pandas
- **Engineering tools**: AWS, Git, Streamlit