Shaily Mishra

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EDUCATION

IIIT HYDERABAD
MS by Research in CSE
Ongoing | Hyderabad, Telangana
CGPA: 9 / 10

AHMEDABAD UNIVERSITY
School of Engineering and Applied Science
Btech in Information and Communication Technology
May 2017 | Ahmedabad, Gujarat
CGPA: 3.02 / 4.33

COURSEWORK

MS BY RESEARCH
Statistical Methods in AI
Distributing Trust & Blockchains
Introduction to Game Theory
Optimization Methods
Sample Complexity

BTECH
Discrete Mathematics
Linear Algebra
(Teaching Asst.)
Data Structures and Algorithms
Database Management Systems
Operating Systems
Software Engineering
Data Analytics and Visualization
Information and Coding Theory
Theory of Computation

SKILLS

TECHNICAL
Game Theory • Fairness
Machine Learning • Optimization
Deep Learning

PROGRAMMING
Languages:
Python • Java • MATLAB
Javascript • C • Solidity
Frameworks:
PyTorch • TensorFlow
ExpressJs • Angular 2.x+
Testing Frameworks:
Protractor • Karma • Jasmine

INTERESTS

Teaching • Running • Trekking
Project Euler • Gaming

RESEARCH

MACHINE LEARNING LAB, IIITH | Research Assistant
July 2019 – Ongoing | Hyderabad, Telangana

- My research advised by **Dr. Sujit Gujar** focuses on the amalgamation of Game Theory (fairness) and Machine Learning methods.
- Worked primarily on solving fair and efficient resource allocation problems via neural networks in PyTorch and improved state-of-art.
- Conducted an empirical experiment on the likelihood of fair allocations for different distributions to find the gap in existing approaches.
- Derived a connection between 2-D externalities in fairness to 1-D via utility transformation and proved impossibilities in the existing setting.
- Performed a literature survey of more than 100 papers. Delivered a 1.5 hours lecture on fairness in the CSE504 course.

EXPERIENCE

ARGUSOFT | Programmer Analyst
Jan 2017 - April 2019 | Gandhinagar, Gujarat

- Developed the front-end of a dynamic Campaign Management and Survey Tool using Angular 2.x+, with more than 90% unit test coverage using jasmine/karma.
- Led the front-end development team in Survey Tool and Single-Handley developed the first phase of Campaign Management.

PROJECTS

Supervised Learning
- Classified Face using six different features (Eigen Face, Fisher Face, KernelPCA, Kernel Fisher Face, VGG Face, ResNet) by training MLP classifier on Yale Face, Indian Movie Face, and IIIT-CFW and used t-SNE for face visualization using PyTorch.
- Implemented AISTATS-17 paper in Python on fair classifiers free from both disparate treatment and disparate impact.

Unsupervised Learning
- Implemented Manifold learning methods - MDS, LLE, and ISOMAP. Performed K-means and Spectral Clustering on the Concentric Circles and Swiss roll dataset and performed visualization using manifold in 2-D using PyTorch.

Reinforcement Learning
- Formulated modified version of BlackJack and Walk-Tram Problem as MDP, and learned to play using Value Iteration and Q-Learning in Python.

Graph Neural Networks
- Trained Graph Neural Network to perform Node Classification on CiteSeer dataset and Graph Classification on IMDB-BINARY dataset.
- Trained Graph Convolutional Network to perform Node Clustering on CiteSeer dataset using PyTorch Geometric.

Game Theory
- Built an agent in a team of three in Java to play a very simplified version of Ad Exchange(Adx) in Trading Agent Competition (TAC) in which agents need to bid for ads to fulfill their campaigns efficiently.
- Created a program in python to find strategies (mini-max, pure nash, mixed strategy) for a two-player zero-sum game (nfg file format).
- Implemented MoulinNet and RegretNet-nm of the IJCAI-18 paper on Deep Learning for Multi-Facility Location Mechanism Design using PyTorch.