SHANTANU DAS

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ML Research Lab, CSE Department, Indian Institute of Technology, Hyderabad

EDUCATION

International Institute of Information Technology, Hyderabad *May 2017 - Present*
B. Tech + MS (by Research) in Computer Science (Awarded Merit List)

PUBLICATIONS

Individual Fairness in Feature-Based Pricing for Monopoly Markets. **Shantanu Das**, Swapnil Dhamal, Ganesh Ghalme, Shweta Jain, Sujit Gujar. 38^{th} Conference on Uncertainty in Artificial Intelligence (UAI 2022).

RESEARCH

- **Machine Learning Lab IIIT, Hyderabad** *Dec 2020 - Dec 2023*
  Fairness in Machine Learning and its application to fair Price Discrimination Strategies in monopoly markets, and post-processing approaches to achieve fair predictive models under Prof. Sujit Gujar.
- **CSTAR IIIT, Hyderabad** *May 2019 - Dec 2020*
  Markov Chain Monte Carlo sampling for distributions over complex mathematical structures like graph colorings and monotone paths on 2D grids & planar graphs.

EXPERIENCE

- **Indian Institute of Technology, Hyderabad** (*Research Associate*) *Jan 2023 - Present*
  Knowledge discovery based on the comparison of causality networks.
- **Indian School of Business, Hyderabad** (*Research Intern*) *June 2019 - Aug 2019*
  Developed a framework to compute network externalities in social network using R and python. Set up an AWS bucket to extract and save data to cloud storage.
- **VLEAD, Hyderabad** (*Research Intern*) *Dec 2018 – Jan 2019*
  Designed teaching pedagogy on data structures and algorithms for an online undergraduate course and developed an interactive web application for the same.

PROJECTS

- **Image Classification:** Image classification on the CIFAR-10 and MNIST datasets. Techniques like PCA, ISOMAP, LLE, MDS etc were used for feature extraction.
- **Smart Bidding Agent:** Developed an agent to perform smart bidding for an ad network.
- **Xtreme TicTacToe AI Bot:** Built a strategy-based bot that plays the TicTacToe game by searching for the best moves using MinMax Algorithm.
- **Compilers:** Developed a compiler similar to C language compiler.
- **Linux Shell:** Created a Linux shell with essential features like built-in commands, system commands, and background processes.

RELEVANT COURSES

- **Mathematics:** Discrete Structures, Linear Algebra, Game Theory, Probability, Probabilistic Graphical Models
- **Computer Sciences:** Statistical Methods in AI, Optimization Methods, Topics in Applied Optimization.

TECHNICAL SKILLS

- **Programming:** Python, C/C++, R, Java, MATLAB, MySQL
- **Software & Tools:** NumPy, SciPy, Sklearn, Pytorch, Linux Shell, Flask

ACADEMIC ACTIVITIES

- **Tutorials on Optimal Transport:** Started a tutorial series on Computational aspects of Optimal Transport along with the theoretical foundations.
- **Reading Group:** Co-organized a theory reading group for Markov Chain Monte Carlo Sampling methods and convergence techniques.