MAYANK SHRIVASTAVA

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EDUCATION

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN   Urbana, Illinois
Master of Science, Computer Science (MSCS)   August 2022 - May 2024
  Cumulative GPA: 4.0/4.0
  Relevant Coursework: Statistical Reinforcement Learning, Deep Generative models,
  Databases, ML for data systems (ongoing)

INDIAN INSTITUTE OF TECHNOLOGY KANPUR   Kanpur, India
Bachelor of Technology, Electrical Engineering   August 2016 - July 2020
  Major in Electrical Engineering and minor in Machine Learning
  Cumulative GPA: 9.8/10; Department Rank : 2/135

PROFESSIONAL EXPERIENCE

Graduate Research Assistant, UIUC   Jan 2023 - Present
- Working with Dr. Arindam Banerjee on improving the performance of Deep Learning models in Out Of Domain and Federated Learning settings.

National University of Singapore   Singapore
Research Assistant under Dr. Jonathan Scarlett   April 2022 - June 2022
- Extended the max-min grouped multi-arm bandits problem to possibly infinite arms.
- Developed a two-phase algorithm and derived upper bound on required samples for the algorithm to guarantee a max-quantile optimal.
- Paper accepted in ALT'23 [[Paper](#)]

AI R&D Lab, Samsung Electronics, South Korea   Suwon, South Korea
Machine Learning Engineer, Automatic Speech Recognition team   October 2020 – March 2022
- Worked on training and inference engine of Conformer Speech Model for Bixby's(virtual assistant) End-to-End ASR.
- Implemented neural model for External Language Model selection(shallow fusion) - improving the accuracy of E2E engine by 3%.
- Implemented new features, including on-the-fly RIR (Impulse Response) Augmentation using audiomentation library for far-field ASR and training of ASR models using NeMo (NVIDIA's ASR toolkit)

AI R&D Lab, Samsung Electronics, South Korea   Suwon, South Korea
Summer Internship, Automatic Speech Recognition(ASR) Team   May 2019 - July 2019
- Augmented female speech dataset by implementing Voice Conversion(VC) generative models on male speech dataset.
- Implemented generative models, including Conditional VAE, and Star-GAN VC in Pytorch- improving WER(Word Error Rate) of ASR engine by 2% for female speakers through the proposed augmentation pipeline.

- Received Pre-Placement Offer from Samsung as a result of exceptional performance and sincere effort

Indian Institute of Science, Bangalore   Bangalore, India
Project Assistant with Dr. Himanshu Tyagi   May 2020 - Sep. 2020
- Developed an agent-based simulator for modeling COVID-19 spread in Karnataka, India.
- Used Image Processing to extract housing data from Maps and implemented graph algorithms to model movement in neighborhoods.
- Developed sampling-based testing strategies on the simulator to reduce total tests and identify outbreak clusters.
- Developed a web application to optimally allocate collected samples across testing centers based on payload and geographical constraints.

COURSE PROJECTS

Analysis of Langevin Algorithms   UIUC
Course Project for CS598, Deep Generative and dynamical models   Jan 2023 - May 2023
- Implemented Langevin Algorithms with Prior Diffusion (ULA-PD) and performed comparison with MALA to assess convergence performance.
- Proposed and evaluated a metropolis version of ULA-PD for faster convergence of neural network optimization.

Excess Food Distribution Application   UIUC
Course Project for CS411, Database Systems   August 2022 - December 2022
- Developed a web application using Flask and React to connect users and restaurants for food donation and provide food wastage-related analytics.
- Implemented triggers, stored procedures and indexing to speedup performance in MySQL.

Generative models for Sampling in Lattice Field Theory   IIT Kanpur
Undergraduate Course Project, Dr. Vipul Arora, IIT Kanpur   Aug. 2019 - Nov. 2019
- Implemented the paper on H/G VAE for generating quantum lattices and detecting critical temperature using latent variables.

PUBLICATIONS
- **Max-Quantile Grouped Infinite-Arm Bandits**   Paper
  Ivan Lau, Yan Hao Ling, <u>Mayank Shrivastava</u>, Jonathan Scarlett
  International Conference on Algorithmic Learning Theory, 2023

TOOLS
Programming Languages: Python, C++/C, Bash, MATLAB
Libraries and Tools : MongoDB, SQL, Pytorch, TensorFlow, Docker, GCP, Pandas, Flask, NumPy