JINCHENG CAO

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EDUCATION

University of Texas at Austin, Austin, TX *June 2022 – Present*
Ph.D. student in Electrical and Computer Engineering

University of Texas at Austin, Austin, TX *Aug 2021 – May 2022*
Graduate study in Operations Research and Industrial Engineering
Relevant Coursework: Linear Programming, Nonlinear Optimization, Data Mining, Integer Programming, Algorithms

University of Texas at Austin, Austin, TX *May 2021*
Bachelor of Science in Mathematics with high honors
Overall GPA: 3.98/4.00
Relevant Coursework: Discrete Mathematics, Linear Algebra and Matrix Theory, Number Theory, Mathematical Statistics, Numerical Analysis, Real Analysis, Partial Differential Equations, Biostatistics, Data Structure and Software Design, Theory of Probability (Graduate course), Applied Stochastic Processes (Graduate course), Numerical Analysis: Linear Algebra (Graduate course)

PROJECTS

Department of Electrical and Computer Engineering, University of Texas at Austin, Austin, TX *Oct 2021 – Dec 2021*
Multimodal Emotion Recognition with Neural Networks (Data Mining Course Project)

- Obtained necessary background of emotion recognition and multimodality by reviewing related projects and paper
- Preprocessed the multimodal dataset, trained both unimodal and multimodal models from a paper on NeurIPS
- Implemented mixture of experts and ensemble methods and compare them with multimodal models

PUBLICTIONS

Surveillance testing for rapid detection of outbreaks in facilities
Yanyue Ding, Sudesh K Agrawal, Jincheng Cao, Lauren Meyers, John J Hasenbein. arXiv 2021.

RESEARCH EXPERIENCE

Department of Mathematics, University of Texas at Austin, Austin, TX *Aug 2020 - May 2021*
Honor Thesis in Department of Mathematics, supervised by Dr. Stephen Walker

- Obtained basic knowledge of Fourier Transform, Monte Carlo Integral and Kernel Density Estimator (KDE)
- Derived and implemented a new algorithm for density estimation to estimate normalizing constants
- Compared the method with KDE in 1D, 2D case and high-dimensional cases and derived the error bound for the new method

Graduate Program in Operations Research, University of Texas at Austin, Austin, TX *June 2020 - Dec 2020*
Undergraduate Research Assistant, supervised by Dr. John Hasenbein

- Explored the model for detecting COVID-19; wrote and modified the simulation code of the virus spreading process
- Review papers on graph theory, network analysis and ranking methods as well as some optimization methods
- Developed test order algorithms and compared them with existing algorithms by plotting and using hypothesis tests

WORKING EXPERIENCE

University of Texas at Austin, Austin, TX
Teaching Assistant for Partial Differential Equations, Mathematical Statistics and Number Theory *Aug 2019 – May 2022*

- Prepared answer keys for assignments and graded homework assignments and quizzes
- Helped students during lectures and resolved the questions via online learning system
- Held office hours and discussion sessions as needed

SKILLS

Technical /Computer Skills: Python (NumPy, Pandas, Scikit-Learn, etc.), R, Java, MATLAB, C/C++, SAS, LaTeX