Jiufan Wang

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EDUCATION

PhD in Operation Research
The Ohio State University, Columbus, Ohio, USA Aug 2024 – Present

M.S. Computer Science, Computational Operations Research
William & Mary, Williamsburg, Virginia, USA Aug 2022 – Jun 2024
Honors & Awards: Tuition Fellowship
- Teaching Assistant Fellowship

Bachelor of Engineering, Industrial Engineering
The Civil Aviation University of China, Tianjin, China Sep 2017 – Jun 2021

RESEARCH INTEREST

- Optimization Algorithms (Heuristic Algorithms)
- Queuing Theory with Markov Chain Applications
- Convex Optimization
- Supply Chain Optimization

INDUSTRY RESEARCH EXPERIENCE

- Conducted advanced mathematical programming, including mixed-integer and constraint programming
- Utilized optimization solvers like CPLEX and Gurobi
- Developed proficiency in Python for data analysis and handling large-scale optimization problems
- Implemented robust and stochastic optimization techniques, focusing on real-world applications such as the Vehicle Routing Problem (VRP) with time windows and large-scale scheduling problems using Integer Linear Programming (ILP)

RESEARCH EXPERIENCE

Enabling Robust Path Planning for Autonomous Vehicles Using Improved Ant Colony Algorithm
Prof. Sidi Lu, William & Mary Oct 2023 – Present
https://sidilu.org/
- Developed an enhanced pheromone update strategy for the Ant Colony Optimization (ACO) algorithm
- Introduced top-K pheromone update strategies to reinforce the best solutions and maintain a balance between exploration and exploitation, leading to a non-linear accumulation of pheromones on superior paths, increasing the likelihood of these paths being chosen in subsequent iterations
- Avoided premature convergence on sub-optimal solutions by limiting significant updates to the top-performing paths
- Applied the algorithm to complex optimization problems like the Traveling Salesman Problem (TSP), improving both efficiency and performance

Application of Hypercube Queuing Model to Healthcare Management Research *Prof. Daniela Hurtado Lange, Northwestern* Sep 2023 – Present
https://sites.google.com/view/daniela-hurtado-lange
- Adapted the Hypercube Queuing Model for healthcare resource allocation, originally developed for urban emergency services
- Developed advanced algorithms for optimizing healthcare system operations, focusing on vehicle location and response district design
- Enhanced decision-making processes in healthcare management to ensure efficient distribution of medical resources