Ruochen Wang

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Education

- **Virgnia Polytechnic Institute and State University** — Virginia, USA
  Ph.D. Candidate — *Present*
  Courses: *Optimization I&II, Simulation I, Math Prob & Stat for ISEs, Random Process, Multivariate Method, Real Analysis, etc*

- **Xiamen University** — Fujian, China
  B.S. Applied Mathematics — *Aug 2016 - July 2020*
  Courses: *Functional Analysis, Mathmatical Modeling, Numerical Approximation, Mathematical Statistics, Differential Equation, etc*

Fields of Interest

- **Topics**: Queueing Theory, Healthcare, Reinfocement Learning, Optimization, Stochastic Process

Projects

- **The Optimal Use of Antibiotics with Fitness Cost under the Economic Dynamics**: Studied Quadratic Programming in Geometric Optimization; Successfully combined the epidemiological model and the economic model by SIS model based on infectious disease; Discovered the best application strategy of two or more antibiotics by dynamic programming (May 2018–Dec 2019)
- **An Experimental Investigation into the Hash Functions Used in Blockchains**: Studied Harsh Algorithms on Ethereum and accomplished relevant literature review; Managed to analyze and verify the impact on transaction rate by different Hash Functions of SHA-2 and SHA-3 in private network; Applied a more efficient hash function and tested the overall performance of a private blockchain (Dec 2017—Jul 2019)
- **Topological Programming of Wireless Backhaul**: Analyzed the mutual alignments and topological limits between stations under the condition that the positions of potential stations are set; Divided the stations into several clusters that contained proper amount of sub-stations centering around host stations by K-means clustering and achieved an excellent initial optimal solution; Applied Local Greedy Algorithm in each cluster, found the regional shortest path by Dijstra algorithm in Ergodic cluster and completed the final station plan with the optimal cost (July 2018—Aug 2018)

Honors and Awards

- Agee GTA Award of ISE department, Virginia Tech, 2022.
- Successful Participant of Mathematical Contest in Modeling (MCM/ICM), 2018.
- First Prize in China Undergraduate Mathematical Contest in Modeling (Fujian Province), 2018
- Second Prize of Excellent Thesis in Social Practice, 2017
- Excellent Volunteer of BRICS Conference, 2017

Teaching Experience

- GTA of course ISE 3034, Technical Communication for Engineers, Fall 2021
- GTA of course ISE 4264, Industrial Automation, Spring 2022
- GTA of course ISE 2024, Probability Foundations for Industrial and Systems Engineering, Summer 2022
- GTA of course ISE 5424, Simulation I, Fall 2022
- GTA of course ISE 5034, Mathematical Probability and Statistics, Fall 2022
- GTA of course ISE 2024, Probability Foundations for Industrial and Systems Engineering, Spring 2023
- GTA of course ISE 3414, Probabilistic Operations Research, Fall 2023

Conference Experience

- **Presenter**: INFORMS Annual Meeting, Phoenix, U.S.A, October 15-18, 2023
- **Presenter**: INFORMS Healthcare Conference, Toronto, Canada, July 26-28, 2023
- **Presenter**: INFORMS Manufacturing and Service Operations Management Conference, Montreal, Canada, June 24-26, 2023
- **Participant**: Data Analytics in Healthcare and Service Operations, Shenzhen, China, Aug 2019

Publications

- **Paper**: **Ruochen Wang**, Sait Tunc, Matthew Ellis & Burhaneddin Sandikci (2023). Targeted Priority Mechanisms in Organ Transplantation. Submitted to Management science. Under Review.
- **Paper**: Jingtao Zhang, Xi Chen & **Ruochen Wang** (2023). Asymptotic Normality of Joint Metamodel-based Sobol' Index Estimators. 2023 Winter Simulation Conference (WSC)
- **Paper**: Fuqin Wang, Yijiang Chen & **Ruochen Wang** (2019). An Experimental Investigation into the Hash Functions Used in Blockchains IEEE Transactions on Engineering Management 2019, 1-21, 10.1109/TEM.2019.2932202

Skills & Hobbies

- **Computer Programming**: Matlab, R, Python, C++, Flexsim, SPSS, Latex, SQL
- **Hobbies**: Basketball, Table Tennis and Chinese Chess (Ranked Top 5 in Fujian Province, China)