

Applied Operations Research Lab

Department of Industrial and Systems Engineering

308A Bell Hall

University at Buffalo

Updated: 9/9/24

Lab Coordinator:



Rajan Batta, SUNY Distinguished Professor

Applications of Operations Research, especially those in humanitarian relief operations and in military mission planning

Doctoral Students:



Krystal Coleman

Degree Program: Doctor of Philosophy, Industrial and Systems Engineering

Dissertation Title: TBD

Current Research: Graph Machine Learning in Combinatorial Optimization

Web information: [LinkedIn](#) | [Krystal Coleman](#)



Esther Jose

Degree Program: Doctor of Philosophy, Industrial and Systems Engineering

Dissertation Title: Optimization of Information Collection using Spatio-temporal methods

Area of Study: Applied Operations Research in Military and Disaster Relief

Book Chapter:

Becker, J., **Jose, E.**, Oladzad, N., & Batta, R. (2023). Search and Rescue over Uncertain Terrain in Humanitarian and Military Contexts: Capturing Emerging Targets and Performing Reconnaissance. In *Tutorials in Operations Research: Advancing the Frontiers of OR/MS: From Methodologies to Applications* (pp. 285-313). INFORMS.

Journal Publications:

1. Agarwal, P., Hunt, K., **Jose, E.**, & Zhuang, J. (2024). Shutdown and compliance decisions in the face of a viral pandemic: A game between governments and citizens. *Decision Support Systems*, 178, 114128.
2. **Jose, E.**, Agarwal, P., & Zhuang, J. (2023). A data-driven analysis and optimization of the impact of prescribed fire programs on wildfire risk in different regions of the USA. *Natural Hazards*, 1-27.
3. **Jose, E.**, Agarwal, P., Zhuang, J., & Swaminathan, J. (2022). A multi-criteria Decision Making Approach to Evaluating the Performance of Indian Railway Zones. *Annals of Operations Research*, 1-36.
4. Song, C., Yu, Q., **Jose, E.**, Zhuang, J., & Geng, H. (2021). A Hybrid Recommendation Approach for Viral Food Based on Online Reviews. *Foods*, 10(8), 1801.

Grants:

1. **Jose, E.**, Lammers, W., Gerdes, R. (October 2023). Natural Hazards Center Weather Ready Research Award Program supported by the National Science Foundation. Motivated reasoning and burn ban decisions by county commissioners. Amount: \$7,500.
2. **Jose, E.** (July 2023). National Science Foundation travel grant for the INFORMS Transportation Science and Logistics Society conference. Amount: \$1,000.

3. **Jose, E.** (July 2021 – April 2022). The Center for Geohazards Studies Research Award. Public-Private Partnership for Private Prescribed Fires. Amount: \$1,037.

Web Information: [LinkedIn](#) | [Esther Jose](#)



Mina Samiei Nasab

Degree Program: Doctor of Philosophy, Industrial and Systems Engineering

Dissertation Title: TBD

Area of Study: Applications of Operations Research, Machine Learning, and Deep Learning

Journal Publications:

1. Samieinasab, M., Hamid, M., Rabbani, M. (2022). An integrated resilience engineering-lean management approach for performance assessment and improvement of the clinical departments, *Socio-Economic Planning Sciences*.
2. Torabzadeh, S.A., Tavakkoli-Moghaddam, R., Samieinasab, M., Hamid, M. (2022). An intelligent algorithm to evaluate and improve the performance of a home healthcare center considering trust indicators, *Computers in Biology and Medicine*.
3. Samieinasab, M., Torabzadeh, S.A, Hamid, M., & Sheikalishahi, M. (2022). Intensive care unit and ward beds capacity planning in a heart surgical theater using a combination of simulation, Best-Worst method, and VIKOR, *International Journal of System Assurance Engineering and Management*, under review.
4. Alipour-Vaezi, M., Tavakkoli-Moghaddam, R., Samieinasab, M. (2022). Scheduling the COVID-19 vaccine distribution based on data-driven decision-making methods, *Journal of Industrial Engineering and Management Studies*.

5. Samieinasab, M., Torabzadeh, S. A., Behnam, A., Aghsami, A., & Jolai, F. (2021). Meta-Health Stack: A new approach for breast cancer prediction, *Healthcare Analytics*.

Web Information: [LinkedIn](#) | [Mina Samiei nasab](#)



Nastaran Oladzad

Degree Program: Doctor of Philosophy, Industrial and Systems Engineering

Dissertation Title: TBD

Area of Study: Applications of Operations Research and Machine Learning/ Deep Learning tools in Search Theory and Information Collection

Book Chapter:

Becker, J., Jose, E., **Oladzad, N.**, & Batta, R. (2023). Search and Rescue over Uncertain Terrain in Humanitarian and Military Contexts: Capturing Emerging Targets and Performing Reconnaissance. In *Tutorials in Operations Research: Advancing the Frontiers of OR/MS: From Methodologies to Applications* (pp. 285-313). INFORMS.

Journal Publications:

1. **Oladzad, N.**, Tavakkoli-Moghaddam, R., Mohammadi, M., & Vahedi-Nouri, B. (2023). A bi-objective home care routing and scheduling problem considering patient preference and soft temporal dependency constraints. *Engineering Applications of Artificial Intelligence*, 119, 105829.
2. **Oladzad, N.**, & Tavakkoli-Moghaddam, R. (2022). Dynamic routing-scheduling problem for home health care considering caregiver-patient compatibility. *Computers & Operations Research*, 106000.
3. Rabbani, M., **Oladzad, N.**, Akbarian-Saravi, N. (2021). Ambulance routing in disaster response considering variable patient condition: NSGA-II and MOPSO algorithms. *Journal of Industrial & Management Optimization*, 13(5), 0.

4. Sazvar, Z., Tafakkori, K., **Oladzad, N.**, & Nayeri, S. (2021). A capacity planning approach for sustainable-resilient supply chain network design under uncertainty: A case study of vaccine supply chain. *Computers & Industrial Engineering*, 159, 107406.

Conference Publications:

1. Sayyari, M. R., Tavakkoli-Moghaddam, R., Abraham, A., & **Oladzad, N.** (2020, December). A school bus routing and scheduling problem with time windows and possibility of outsourcing with the provided service quality. In *International Conference on Intelligent Systems Design and Applications* (pp. 829-839). Cham: Springer International Publishing.

2. Tavakkoli-Moghaddam, R., Pourreza, P., Bozorgi-Amiri, A., & **Oladzad, N.** (2018, December). A Bi-objective Credibility-based Fuzzy Mathematical Programming Model for a Healthcare Facility Location-network Design Problem. In *2018 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)* (pp. 1181-1185). IEEE.

Web Information: [LinkedIn](#) | [Nastaran Oladzad](#)



Rahul Bharadwaj Ravishankar

Degree Program: Doctor of Philosophy, Industrial and Systems Engineering

Dissertation title: TBD

Current research: Vehicle routing with dynamic risk considerations

Professional Interests: Applications of operations research, Supply chain and Logistics systems.

Web information: [LinkedIn](#) | [Rahul Bharadwaj Ravishankar](#)

Master's Students: _____



Sumanth Meela

Degree Program: Master of Science, Industrial and Systems Engineering

Thesis title: TBD

Professional interest: Applications of Data analytics

Web Information: [LinkedIn | Sumanth Meela](#)

For information on former students of the lab, publications, etc., please go to
www.acsu.buffalo.edu/~batta