AKHIL SINGLA

PhD Candidate, IEMS, Northwestern University

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Research Interests: Supply Chain & Service Operations, Game Theory, Stochastic Modelling.

EDUCATION

Ph.D. Candidate in Industrial Engineering and Management Sciences (Sep 2019 - Present)
Northwestern University, Evanston, IL
Advisor: Prof. Seyed Iravani

M.Sc. Industrial Engineering and Management Sciences (IEMS) (June 2020)
Northwestern University, Evanston, IL

B.Tech. in Industrial and Production Engineering (July 2015 - May 2019)
Indian Institute of Technology, New Delhi, India

PUBLICATION

Singla A., Iravani S. (2023). "Optimal Control of Join Decision in Fork-Join Queues" (Manuscript Under Preparation).

Hopp W.J., Iravani S., Liu Z., Singla A. (2023). "Tactical and Strategic Risks from Supply Chain Disruptions" (Working Paper).

Singla A., Wilson J.H. (2023). "Non-Profit Police Operations" (Working INFORMS Transaction on Education Case).

RESEARCH EXPERIENCE

Game Theoretic Modelling for Supply Chain Disruptions
(with Prof. Seyed Iravani and Prof. Wallace J. Hopp, Ross School of Business) (Jan. 2023 - Present)

- Solving a two stage game for duopoly firms under competition for the backup supplier after a disruption.
- With estimated firm's risk measures, finding out the top risk contributing factors for the firms.

Improving Speed of Detecting Misinformation to Prevent Polarization
(Advisor: Prof. Seyed Iravani, Northwestern University) (Sept. 2020 - Dec. 2022)

- Solved for optimal speed and accuracy trade-off for detecting false news content over social media.
- MDP solution suggests a step-wise threshold dynamic join decision policy.
- Designed an intuitive & faster heuristic approximation (<1% error gap) of complex MDP solution.

Optimizer integrated Simulator for Wafer Fabrication Scheduling
(Advisor: Prof. Andrew Lim, National University of Singapore) (May 2018 - July 2018)

- Built a Object Oriented Discrete Event Simulator (O2DES) with Heuristic Search Algorithm
- Algorithm produces global scheduling plans including uncertain disruptions in the process.

TECHNICAL STRENGTHS

- Software/Languages: Python, R, MATLAB, C#, LaTeX, Gurobi, AMPL, Julia
- Related Packages: NumPy, scikit-learn, Tensorflow, Keras, Tikz, ggplot.

TEACHING EXPERIENCE

Instructor: IEMS 310 Operations Research (Fall 2023), IEMS Boot Camp Python Course (Summer 2020, 2021)

Teaching Assistant: IEMS 381 Supply Chain Modelling and Analytics (Fall 2022), IEMS 382 Operations Management (Winter 2022, Winter 2023), IEMS 383 Service Operations and Engineering (Spring 2022, 2023), STRT 469 Topics in Managerial Analytics (Winter 2021), MSIA 440 Optimization and Heuristics (Fall 2020).

LEADERSHIP SKILLS

- *Session Chair* for INFORMS Annual Meeting organized in Phoenix, AZ (Oct 14-17, 2023).
- *Session Chair* for INFORMS Annual Meeting organized in Indianapolis, IN (Oct 16-19, 2022).
- *IEMS Student Leadership Award* for exceptional leadership and service during 2021-22 Academic year
- *Co-President* INFORMS Student Chapter, Northwestern University (June 2021 - May 2022)
- *Session Chair* for INFORMS Annual Meeting organized in Anaheim, CA (Oct 24-27, 2021).
- *IEMS Student Leadership Award* for exceptional leadership and service during 2020-21 Academic year
- *Treasurer* of INFORMS Student Chapter, Northwestern University (June 2020 - May 2021).
- Coordinated the Slum Development Program, for uplifting people living in slums (2015-2019).

TALKS & PRESENTATIONS

- Presented in INFORMS 2023 Annual Meeting on "Optimal Control of Join Decisions in Fork-Join Queues".
- Presented in INFORMS 2022 Annual Meeting on "Tactical and Strategic Risks in Supply Chains".

HONORS AND AWARDS

- Awarded *Walter P. Murphy* Fellowship (2019-2020)
- Awarded the institute level *Merit-cum-Means* Scholarship for Undergraduate studies (2015-2019).