

# KAYSE LEE MAASS

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## EDUCATION

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- Ph.D., Industrial and Operations Engineering**, University of Michigan 2012 - 2017  
Dissertation: “Mitigating Hard Capacity Constraints in Facility Location Modeling”  
Advisor: Mark S. Daskin
- B.A. Mathematics**, Bethel University 2008 -2012
- B.A. Physics**, Bethel University 2008 -2012

## PROFESSIONAL EXPERIENCE

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- Northeastern University**, Boston, MA  
Assistant Professor, Department of Mechanical & Industrial Engineering Aug. 2018 – Present
- Mayo Clinic**, Rochester, MN  
Research Collaborator, Dept. of Health Sciences Research Aug. 2018 - Present  
Postdoctoral Research Associate, Dept. of Health Sciences Research May 2017 – Aug. 2018  
Research Trainee, Dept. of Health Sciences Research Oct. 2016 – Apr. 2017
- LLamasoft Inc.**, Ann Arbor, MI May 2014 – Oct. 2014  
Applied Research Intern

## HONORS/AWARDS

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*\*Indicates student advised*

- Industrial Engineering Professor of the Year, Northeastern University 2020
- Northeastern University’s Nominee for Johnson & Johnson WiSTEM2D – Math 2019
- Global Conference on Human Trafficking and Trauma, Best Research Abstract 2019
- Recognized as a ‘Rising Star’ among INFORMS’ Powerful, Pragmatic Pioneers 2019
- INFORMS New Faculty Colloquium Participant, Departmental Nomination 2018

## GRADUATE HONORS/AWARDS

- INFORMS Section on Location Analysis Student Paper Competition, Finalist 2019
- INFORMS Section on Location Analysis Dissertation Award, Runner-up 2018
- INFORMS Judith Liebman Award 2015
- Richard and Eleanor Towner Prize for Distinguished Academic Achievement 2015  
(IOE Outstanding Graduate Student)

- Richard and Eleanor Towner Prize for Outstanding Ph.D. Research 2015
- Joel and Lorraine Brown Graduate Student Instructor of the Year 2015
- World Medical Relief Student Partnership Award 2015
- INFORMS Doctoral Student Colloquium Participant, Departmental Nomination 2014
- Rackham Merit Fellowship 2012

### STUDENT ADVISEE AWARDS

- College of Engineering Outstanding Teaching Award 2021  
- *Yaren Bilge Kaya for her Teaching Assistant and Graduate Course Assistant for IE 4520: Stochastic Modelling*
- Research Innovation Scholarship Entrepreneurship COE Solutions Award 2021  
- *“Detecting Labor Violation Among Employers of Migrant Workers: Analyses of H2A Applications” Presented by Arezoo Jafari\*; Other Student Co-Authors: Elaine Klatt\* and Margaret Clark\**
- INFORMS Undergraduate Operations Research Prize – Finalist 2020  
- *“Estimating Effectiveness of Identifying Human Trafficking Victims: An Application of Data Envelopment Analysis on the Nepal / India Border.” Presented by Malak El Khalkhali\* and Alex Bender\**
- Research Innovation Scholarship Entrepreneurship COE Solutions Award 2020  
- *“Queue Theory-Based Inpatient Arrival Rate Approximation” Presented by Nathan Adeyemi\**
- INFORMS Minority Issues Forum Student Poster Competition -Honorable Mention 2018  
- *Presented by Liz Halter\**

### PUBLICATIONS (\*Indicates student co-author)

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#### PEER REVIEWED JOURNAL ARTICLES

1. Maass, K.L., Trapp, A., and Konrad, R. (2020) [Optimizing placement of residential shelters for human trafficking survivors](#). *Socio-Economic Planning Sciences*. Vol. 70. pp.1 – 20. DOI: 10.1016/j.seps.2019.100730
2. Caulkins, J.P., Kammer-Kerwick, M., Konrad, R., Maass, K.L., Martin, L., and Sharkey, T. (2019) [A Call to the Engineering Community to Address Human Trafficking](#). *The Bridge*. Vol. 49. No. 3. pp. 67 - 73
3. Tucker, E. L.\*, Smith, A. R., Daskin, M. S., Schapiro, H.\*, Cottrell, S.M.\*, Gendron, E.\*, Hill-Callahan, P., Gill, S.J., Leichtman, A. B., Merion, R. M. and Maass, K. L., (2019) [Life and Expectations Post-Kidney Transplant: A Qualitative Analysis of Patient Response](#). *BMC Nephrology*. Vol. 20, No. 175. pp. 1 – 10. DOI: 10.1186/s12882-019-1368-0

4. [Maass, K.L.](#), Smith, A.R., Tucker, E.L.\*, Schapiro, H.\*, Cottrell, S.M.\*, Gendron, E.\*, Hill-Callahan, P., Gill, S.J., Daskin, M.S., Merion, R.M., Leichtman, A.B. (2019) [Comparison of patient and provider goals, expectations, and experiences following kidney transplantation](#). *Patient Education and Counseling*. Vol. 102, No. 5, pp. 990-997. DOI: 10.1016/j.pec.2018.12.010
5. Flowers, L.M., [Maass, K.T.](#), Melin, G.J., Campbell, R.L., Lohse, C.M., Novotny, P.J., Westphal, J.J., Nestler, D.M., Pasupathy, K.S. (2018) [Consequences of the 48-hour rule: A lens into the psychiatric patient flow through an emergency department](#). *American Journal of Emergency Medicine*. Vol. 36, No. 11, pp. 2029-2034. DOI: 10.1016/j.ajem.2018.03.016
6. [Maass, K. L.](#) and Daskin, M. S. (2017) [A cyclic allocation model for the inventory-modulated capacitated location problem](#). *Information Systems and Operational Research*, Vol. 55, No. 4, pp. 312 - 338. DOI: 10.1080/03155986.2017.1290425
7. [Maass, K. L.](#), Daskin, M.S., and Shen, S. (2016). [Mitigating hard capacity constraints with inventory in facility location modeling](#). *IIE Transactions*, Vol. 48, No. 2, pp. 120-133. DOI: 10.1080/0740817X.2015.1078015
8. [Maass, K.L.](#), Liu, B.\*, Daskin, M.S., Duck, M., Wang, Z.\*, Mwenesi, R.\*, and Schapiro, H\*. (2015). [Incorporating nurse absenteeism into staffing with demand uncertainty](#). *Health Care Management Science*, Vol. 20, No. 1, pp. 141-155. DOI: 10.1007/s10729-015-9345-z
9. [Maass, K.L.](#), Weiss, A.\*, Lo, V.M.H.\*, and Daskin, M.S. (2015). [Maximizing diversity in the Engineering Global Leadership Cultural Families](#). *Interfaces*, Vol. 45, No. 4, pp. 293-304. DOI: 10.1287/inte.2015.0796

#### PEER REVIEWED CONFERENCE PROCEEDINGS

1. Romero-Brufau, S., Kostandy, P. M., [Maass, K. L.](#), Wutthisirisart, P., Sir, M., and Pasupathy, K., (2018) [Development of data integration and visualization tools for the Department of Radiology to display operational and strategic metrics](#). *American Medical Informatics Association, Proceedings of the 2018 American Medical Informatics Association Annual Symposium*. pp. 942-951.

#### CHAPTERS IN EDITED BOOKS

1. Daskin, M.S., and [Maass, K.L.](#) (2019). "[Location Analysis and Network Design](#)." Chapter 17, *Operations, Logistics and Supply Chain Management*, (H. Zijm, M. Klumpp, A. Regattieri, and S. Heragu editors), Springer. pp. 379-398. DOI: 10.1007/978-3-319-92447-2\_17
2. Daskin, M.S., and [Maass, K.L.](#) (2015). "[The p-Median Problem](#)." Chapter 2, *Location Science*, (G. Laporte, S. Nickel, and F. Saldanha-da-Gama editors), Springer. pp. 21-45. DOI: 10.1007/978-3-319-13111-5\_2

**REFEREED JOURNAL ARTICLES SUBMITTED (UNDER REVIEW)**

1. Kosmas, D.\*, Sharkey, T., Mitchell, J.E., Maass, K.L., and Martin, L. [Interdicting Reconfiguring Networks with Applications in Human Trafficking](#). Submitted to *European Journal of Operational Research* arXiv:2011.07093 [math.OC]
2. Maass, K.L., Halter, E.\*, Huschka, T, Sir, M.Y., and Pasupathy, K.S. A Discrete Event Simulation to Evaluate Impact of Radiology Process Changes on Emergency Department Computed Tomography Access. 1<sup>st</sup> Revisions for *Journal of Evaluation in Clinical Practice*.
3. Bender, A.\*, El Khalkhali, M.\*, Dimas, G.\*, Konrad, R., Trapp, A., and Maass, K.L. [Estimating Effectiveness of Identifying Human Trafficking via Data Envelopment Analysis](#). Submitted to *INFORMS Journal on Applied Analytics* arXiv:2012.07746 [cs.CY]
  - **Finalist in the 2020 INFORMS Undergraduate Operations Research Prize Competition**
4. Konrad, R, Maass, K.L., Trapp, A. [Perspectives on How to Conduct Responsible Anti-Human Trafficking Research in Operations and Analytics](#). Submitted to *European Journal of Operational Research* arXiv:2006.16445 [cs.CY]
5. Tezcan, B.\*, and Maass, K.L. [Human Trafficking Interdiction with Decision Dependent Success](#). Submitted to *IISE Transactions* DOI: 10.31224/osf.io/dt8fs

**OTHER**

1. Delta 8.7 Markets Working Group [including Maass, K.L.] (2021) [Delta 8.7 Markets Policy Guide](#). United Nations University
2. Maass, K.L. [Written Testimony for the Congressional Hearing on The Role of Technology in Countering Trafficking in Persons](#). The United States House of Representatives Committee on Science, Space, and Technology Subcommittee on Investigations & Oversight and Subcommittee on Research & Technology. 11 August 2020.
3. Konrad, R., Trapp, A., and Maass, K.L. (2017) [Human Trafficking Analysis](#). *ORMS Today*. Vol. 4, No. 2
4. Rotman, E.F, Stoklosa, H., Baldwin, S.B., Chisolm-Straker, M., Price, R.K., and Atkinson, H.G. on behalf of HEAL Trafficking [including Maass, K.L.] (2017) [Public Health Research Priorities to Address US Human Trafficking](#). *American Journal of Public Health*, Vol 17, No. 7, pp. 1045-1047. DOI: 10.2105/AJPH.2017.303858
5. Maass, K. (2017) [Mitigating Hard Capacity Constraints in Facility Location Modeling](#) (Doctoral Dissertation, University of Michigan). Available from ProQuest Dissertations & Theses Global database (Accession Order No. AAT 10612145)

6. Collar, N., Edwards, A., Jeke, J., Johnson, S., Lee, K., and Soergel, C. "[The Traveling Salesman at a Home Near You: Investigating the Traveling Salesman Problem with Varying Home Points.](#)" *The Journal of the Summer Undergraduate Mathematical Science Research Institute*, 12 p. 38-63.

## INVITED SEMINAR PRESENTATIONS

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1. *"Informing Anti-Human Trafficking Efforts with Operations Research Models"* Rice University, Computational and Applied Mathematics Dept., Virtual. Apr. 2021
2. *"Modeling Operations of Human Trafficking Networks for Effective Interdiction"* University of Michigan, Industrial and Operations Engineering Dept., Virtual. Apr. 2021
3. *"Informing Anti-Human Trafficking Efforts with Operations Research Models"* U.S. Naval Academy, Mathematics Dept., Virtual. Mar. 2021
4. *"Informing Anti-Human Trafficking Efforts with Operations Research Models"* Gordon College, Mathematics Dept., Virtual. Feb. 2021
5. *"From Insights to Action: How Industrial Engineering Can Aid Anti-Human Trafficking Efforts"* New York Capitol Region Anti-Trafficking Taskforce, Albany, NY. Mar. 2020
6. *"An Industrial and Systems Engineering Approach to Disrupting Human Trafficking"* University of Minnesota, St. Paul, MN. Feb. 2020
7. *"From Insights to Action: How Industrial Engineering Can Aid Anti-Human Trafficking Efforts"* New York Capitol Region Anti-Trafficking Taskforce, Albany, NY. Dec. 2019
8. *"Modeling Operations of Human Trafficking Networks for Effective Interdiction"* Lehigh University, Industrial and Systems Engineering, Bethlehem, PA. Nov. 2019
9. *"From Insights to Action: How Industrial Engineering Can Aid Anti-Human Trafficking Efforts"* Lehigh University, Women, Gender, and Sexuality Studies, Bethlehem, PA. Nov. 2019
10. *"Opportunities for Industrial Engineering to Aid in Anti-Human Trafficking Efforts"* National Engineers Week Distinguished Seminar, Northeastern University, Boston, MA. Feb. 2019
11. *"Informing Decision Making with Operations Research: Locally, Regionally, and Nationally"* Health Sciences Research Grand Rounds, Mayo Clinic, Rochester, MN. Mar. 2018

**CONFERENCE PRESENTATIONS**

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1. *“A Transdisciplinary Approach to Disrupting Sex Trafficking Networks”* Human Trafficking and Social Justice Conference. Virtual. Sept. 2021
2. *“Optimizing Placement of Residential Shelters for Human Trafficking Survivors”* International Symposium on Locational Decisions, Hamburg, Germany \*Conference cancelled due to COVID-19. Jun. 2020
3. *“Modeling Operations of Human Trafficking Networks for Effective Interdiction”* Production and Operations Management Society Annual Conference, Minneapolis, MN \*Conference cancelled due to COVID-19. Apr. 2020
4. *“Modeling Operations of Human Trafficking Networks for Effective Interdiction”* Society for Risk Analysis, Arlington, VA. Dec. 2019
5. *“Modeling Operations of Human Trafficking Networks for Effective Interdiction”* INFORMS Annual Meeting, Seattle, WA. Oct. 2019
6. *“A Cyclic Allocation Model for the Inventory-Modulated Capacitated Location Problem”* INFORMS Annual Meeting, Seattle, WA. Oct. 2019
7. *“Benefits and Challenges in Using Data Analytics and Mathematical Models to Aid Anti-Human Trafficking Efforts”* Human Trafficking and Social Justice Conference, University of Toledo, Toledo, OH. Sept. 2019
8. *“Human Trafficking Disruption: From Data Insights to Decision Making”* International Association of Crime Analysts Training Conference, Oxon Hill, MD. Aug. 2019
9. *“Optimal Placement of Shelters for Human Trafficking Survivors: An Illustrative Example of Mathematical Models Serving as Decision Support Tools”* Global Conference on Human Trafficking and Trauma, Mississauga, ON, Canada. Jun. 2019
10. *“A Broader Perspective: Integrating Societal Factors into Human Trafficking Shelter Location Models”* Production and Operations Management Society Annual Conference, Washington, D.C. May 2019
11. *“Industrial Engineering Models to Aid Anti-Human Trafficking Efforts”* Human Trafficking Response Strategies, Northeastern University, Boston, MA. Apr. 2019
12. *“A Broader Perspective: Integrating Societal Factors into Human Trafficking Shelter Location Models”* INFORMS Annual Meeting, Phoenix, AZ. Nov. 2018

13. *“Can Data Analytics and Mathematical Models Aid Anti-Human Trafficking and Social Justice Efforts?”* Human Trafficking and Social Justice Conference, University of Toledo, Toledo, OH. Sept. 2018
14. *“Selecting Locations of Rehabilitative Shelters for Human Trafficking Survivors among States in the U.S.: A Decision Analytic Approach”* INFORMS Annual Meeting, Houston, TX. Oct. 2017
15. *“Using Simulation to Improve Radiology Appointment Schedules and Patient Service Levels”* INFORMS Annual Meeting, Houston, TX. Oct. 2017
16. *“Using Chance Constraints to Allow for Short Term Processing Capacity Flexibility”* International Symposium on Locational Decisions, Rotman School of Management, Toronto, ON/Huntsville, ON. Jul. 2017
17. *“Comparison of Various Chance Constraints on the Inventory Modulated Capacitated Location Problem”* INFORMS Annual Meeting, Nashville, TN. Nov. 2016
18. *“Incorporating chance constraints into the inventory modulated capacitated facility location model w/ stochastic demand”* LAND TRANSLOG III Workshop, Santa Cruz, Chile. Mar. 2016
19. *“Stochastic inventory modulated capacitated facility location models”* INFORMS Annual Meeting, Philadelphia, PA. Nov. 2015
20. *“A joint chance-constrained inventory modulated capacitated facility location model”* Workshop on Logistics and Supply Chain Management, Berkeley, CA. Oct. 2015
21. *“Incorporating nurse absenteeism into long term staffing with demand uncertainty”* INFORMS Healthcare Conference, Nashville, TN. Jul. 2015
22. *“A joint chance-constrained inventory modulated capacitated facility location model”* Industrial and Systems Engineering Research Conference, Nashville, TN. Jun. 2015
23. *“Optimal long term nurse staffing considering absenteeism and demand uncertainty”* Industrial and Systems Engineering Research Conference, Nashville, TN. Jun. 2015
24. *“Optimal long term nurse staffing considering absenteeism and demand uncertainty”* Euro Mini Conference on Improving Healthcare: New challenges, New Approaches, Coimbra, Portugal. Apr. 2015

25. *“Temporal allocation policies for an inventory modulated capacitated facility location problem”* INFORMS Annual Meeting, San Francisco, CA. Nov. 2014
26. *“MCubed: study of variability in kidney transplant and provider goals”* MCubed Symposium, Univ. of Michigan, Ann Arbor, MI. Oct. 2014
27. *“A new stochastic capacitated facility location modeling approach”* Industrial and Systems Engineering Research Conference, Montreal, Canada. Jun. 2014
28. *“Long term nurse staffing under demand uncertainty”* Industrial and Systems Engineering Research Conference, Montreal, Canada. Jun. 2014
29. *“Mitigating hard capacity constraints in stochastic facility location modeling”* International Symposium on Locational Decisions, Naples/Capri, Italy. Jun. 2014
30. *“A new stochastic capacitated facility location modeling approach”* INFORMS Transportation Science and Logistics Society Workshop, Chicago, IL. Jun. 2014
31. *“A new approach to integrating inventory into capacitated facility location modeling”* North American Regional Science Council, Atlanta, GA. Nov. 2013
32. *“Maximizing diversity in the Engineering Global Leadership Honors Program cultural families”* INFORMS Annual Meeting, Minneapolis, MN. Oct. 2013
33. *“A new approach for integrating inventory into capacitated facility location modeling”* INFORMS Annual Meeting, Minneapolis, MN. Oct. 2013
34. *“New approach to capacity modeling in location models”* Industrial and Systems Engineering Research Conference, San Juan, Puerto Rico. May 2013
35. *“Development of p-median facility location models”* Summer Institute Research Symposium, Univ. of Michigan, Ann Arbor, MI. Jul. 2012
36. *“Data quality management of black box monitored driving behaviors in a sleep apnea study”* Summer Undergraduate Research Conference, Univ. of Iowa, Iowa City, IA. Jul. 2011
37. *“The traveling salesman at a home near you: investigating the traveling salesman problem with varying home points”* Summer Undergraduate Mathematics and Statistics Research Institute Conference, Miami Univ., Oxford, OH. Jul. 2010



## **ROUNDTABLES AND PANEL PRESENTATIONS**

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1. *“Future of ML and AI: From Academia to Industry.”* Deloitte. Virtual. Mar. 2021.
2. *“Human Trafficking and COVID-19”* Production and Operations Management Society Annual Conference. Virtual. Apr. 2021
3. *“Roundtable: Combating Human Trafficking.”* Society for Risk Analysis, Arlington, VA. Dec. 2019
4. *“Human Trafficking & ORMS: A Panel Discussion.”* INFORMS Annual Meeting, Seattle, WA. Oct. 2019
5. *“Plenary Panel: A Dialogue on Human Trafficking.”* Global Conference on Human Trafficking and Trauma, Mississauga, ON, Canada. Jun. 2019

## **POSTER PRESENTATIONS**

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1. *“A Broader Perspective: Integrating Societal Factors into Human Trafficking Shelter Location Models”* NSF Workshop: Future Directions in Service, Manufacturing, and Operations Research, SMU, Dallas, TX. Mar. 2019
2. *“Mitigating hard capacity constraints in facility location modeling”* Engineering Graduate Symposium, Univ. of Michigan, Ann Arbor, MI. Oct. 2015
3. *“Using optimization techniques to improve the shift scheduling of operation room staff”* Healthcare Engineering and Patient Safety Symposium, Univ. of Michigan, Ann Arbor, MI. Sept. 2015
4. *“Optimizing nurse staffing with absenteeism”* Healthcare Engineering and Patient Safety Symposium, Univ. of Michigan, Ann Arbor, MI. Sept. 2014
5. *“Long term nurse staffing under demand uncertainty using unit, float, and temporary nurses”* Healthcare Engineering and Patient Safety Symposium, Univ. of Michigan, Ann Arbor, MI. Nov. 2013
6. *“The traveling salesman at a home near you: investigating the traveling salesman problem with varying home points”* Joint Mathematics Meetings, New Orleans, LA. Jan. 2011.

**CO-AUTHORED PRESENTATIONS (^Indicates Presenting Author; \*Indicates student)**

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1. *“Breaking Supply Chains in Agricultural Labor Trafficking”* Childress, C.^\*, Yohros, A.\*, Farrell, A., Maass, K.L., Bhimani, S., Jafari, A.\* American Society of Criminology, Chicago, IL. Nov. 2021
2. *“Can’t Wait: Reducing Treatment Delay for Psychiatric Patients”* Adeyemi, N.^\*, Maass, K.L. Pasupathy, K., Zanjirani Farahani, N. Grahm, A., INFORMS Annual Meeting, Anaheim, CA (Hybrid). Oct. 2021
3. *“Detection of Labor Trafficking using Natural Language Processing: Improving the Investigation of Labor Violations among Employers of Migrant Workers”* Jafari, A.^\*, Klatt, E.\*, Clark, M\*, Kannan, R.\*, Bhimani, S., Farrell, A., Maass, K.L. INFORMS Annual Meeting, Anaheim, CA (Hybrid). Oct. 2021
4. *“Generating Synthetic Sex Trafficking Networks for Interdiction”* Kosmas, D.^\*, Sharkey, T.C., Maass, K.L., Mitchell, J.E., Martin, L., Barrick, K., Melander, C., Singerhouse, E. INFORMS Annual Meeting, Anaheim, CA (Hybrid). Oct. 2021
5. *“Disrupting Sex Trafficking Recruitment using Community Based Resource Allocation Models”* Tezcan, B.^\*, Maass, K.L., Kannan, R.\*, Sharkey, T.C., Farrell, A., Barrick, K., Martin, M. INFORMS Annual Meeting, Anaheim, CA (Hybrid). Oct. 2021
6. *“The Visualization of Labor Trafficking within Supply Chains”* Toole, E.^\*, Bhimani, S., Jafari, A.\*, Farrell, A., Maass, K.L. 2021 POMS Annual Conference, Virtual. May 2021
7. *“Reducing Vulnerability to Human Trafficking by Improving Access to Housing and Support Services”* Kaya, Y.B.^\*, Maass, K.L., Konrad, R.A., Trapp, A.C., Dimas, G.L. INFORMS Annual Meeting, Anaheim, CA (Hybrid). Oct. 2021
8. *“Breaking Supply Chains in Agricultural Labor Trafficking”* Farrell, A.\*, Maass, K.L., Bhimani, S. National Labor Trafficking Conference, Louisville, KY (Hybrid). Oct. 2021
9. *“Reducing Risks of Human Trafficking: Improving Access to Housing and Supportive Services for Runaway and Homeless Youth in NYC”* Kaya, Y.B.^\*, Dimas, G.\*, Trapp, A.C., Konrad, R., Maass, K.L. INFORMS Healthcare, Virtual. Jul. 2021
10. *“Using Simulation to Reduce ED Boarding of Psychiatric Patients”* Adeyemi, N.^\*, Zanjirani Farahani, N. Pasupathy, K., Grahm, A., Maass, K.L., INFORMS Healthcare, Virtual. Jul. 2021

11. *“Interdicting Restructuring Networks with Applications in Illicit Trafficking”* Kosmas, D.^\*, Sharkey, T., Mitchell, J.E., Maass, K.L., Martin, L. IISE Annual Conference, Virtual. May 2021
12. *“Generating Synthetic but Realistic Human Trafficking Networks through Community-Based Action Research”* Kosmas, D.\* , Melander, C., Singerhouse, E., Martin, L., Barrick, K., Maass, K.L., Sharkey, T.^ IISE Annual Conference, Virtual. May 2021
13. *“Identifying Labor Exploitation in the U.S. Agricultural Sector using Data Analysis”* Klatt, E.^\*, Jafari, A.\* , Pak, J.\* , Maass, K.L. IISE Annual Conference, Virtual. May 2021
14. *“Parameter Estimation Challenges in Human Trafficking Network Interdiction”* Tezcan, B.^\*, Maass, K.L. IISE Annual Conference, Virtual. May 2021
15. *“Identifying Run Away Homeless Youth’s Needs: A First Step to Disrupt the Supply of HT Networks”* Dimas, G.^\*, Trapp, A., Konrad, R., Maass, K.L. IISE Annual Conference, Virtual. May 2021
16. *“The Visualization of Labor Trafficking within Supply Chains”* Toole, E.^\*, Bhimani, S., Jafari, A.\* , Farrell, A., Maass, K.L. 2021 POMS Annual Conference, Virtual. May 2021
17. *“The Visualization of Labor Trafficking within Supply Chains”* Toole, E.^\*, Bhimani, S., Jafari, A.\* , Farrell, A., Maass, K.L. Intersections: An Interdisciplinary Human Trafficking Seminar Series. Northeastern University, Virtual. May. 2021
18. *“Increasing Access to Homeless Shelter Services for Youth at Risk of Human Trafficking”* Kaya, Y.B.^\*, Maass, K.L., Dimas, G.L.\* , Konrad, R.A., Trapp, A.C. Equity & AI CAIS Symposium, Univ. of Southern California. Virtual. Apr. 2021.
19. *“Disrupting Human Trafficking Supply Networks via Needs Matching and Capacity Expansion”* Zhu, J.^\*, Maass, K.L. Research, Innovation, and Scholarship Expo, Northeastern University, Virtual. Apr. 2021
20. *“Increasing Access to Homeless Shelter Services for Youth at Risk of Human Trafficking”* Kaya, Y.B.^\*, Maass, K.L. Research, Innovation, and Scholarship Expo, Northeastern University, Virtual. Apr. 2021
21. *“Detecting Labor Violation Among Employers of Migrant Workers: Analyses of H2A Applications”* Jafari, A.^\*, Bhimani, S., Farrell, A., Klatt, E.\* , Clark, M.\* , Maass, K.L. Research, Innovation, and Scholarship Expo, Northeastern University, Virtual. Apr. 2021

22. *“Food Insecurity in Boston”* Clark, M.<sup>^\*</sup>, Berkey, B., Maass, K.L. Research, Innovation, and Scholarship Expo, Northeastern University, Virtual. Apr. 2021
23. *“MEND – Modeling Effective Network Disruptions for Human Trafficking”* Kannan, R.<sup>^\*</sup> Maass, K.L. Research, Innovation, and Scholarship Expo, Northeastern University, Virtual. Apr. 2021
24. *“Estimating Effectiveness of Identifying Human Trafficking via Data Envelopment Analysis”* El Khalkhali, M.<sup>^\*</sup>, Bender, A.<sup>\*</sup>, Trapp, A. C., Maass, K.L., Konrad, R.A. Intersections: An Interdisciplinary Human Trafficking Seminar Series. Northeastern University, Virtual. Mar. 2021
25. *“Estimating Effectiveness of Identifying Human Trafficking Victims: An Application of Data Envelopment Analysis (DEA) on the Nepal-India Border”* El Khalkhali, M.<sup>^\*</sup>, Bender, A.<sup>^\*</sup>, Trapp, A. C., Maass, K.L., Konrad, R.A. INFORMS Annual Meeting, Virtual. Nov. 2020
26. *“Mitigating Supply Chain Disruption: Designing Sustainable Networks Using Stochastic Programming”* Jafari, A.<sup>^\*</sup>, Bhimani, S., Maass, K.L. INFORMS Annual Meeting, Virtual. Nov. 2020
27. *“Interdicting Restructuring Networks with Applications in Human Trafficking”* Kosmas, D.<sup>^\*</sup>, Sharkey, T., Mitchell, J.E., Maass, K.L. INFORMS Annual Meeting, Virtual. Nov. 2020
28. *“Human Trafficking Interdiction with Decision Dependent Success”* Tezcan, B.<sup>^\*</sup>, Maass, K.L. INFORMS Annual Meeting, Virtual. Nov. 2020
29. *“Needs Estimation of At-Risk, Runaway and Homeless Youth in NYC via Survey Design: A First Step to Disrupt The Supply of Human Trafficking Networks”* Dimas, G.<sup>^\*</sup>, Konrad, R.A., Trapp, A.C., Maass, K.L. INFORMS Annual Meeting, Virtual. Nov. 2020
30. *“Optimization of Transfer Policies for Psychiatric Inpatient Units”* Adeyemi, N.<sup>^\*</sup>, Maass, K.L. INFORMS Annual Meeting, Virtual. Nov. 2020
31. *“Interdicting Multi-Stage Stochastic Human Trafficking Networks with Varying Success Parameters”* Tezcan, B.<sup>^\*</sup>, Maass, K.L. IISE Annual Conference, Virtual. Nov. 2020
32. *“Breaking Supply Chains in Agricultural Labor Trafficking”* Childress, C.<sup>^\*</sup>, Farrell, A., Maass, K.L., Bhimani, S., Jafari, A.<sup>\*</sup> American Society of Criminology, Washington, D.C. \*Cancelled due to COVID-19. Nov. 2020

33. “*Modeling Operations of Sex Trafficking Networks*” Sharkey, T.<sup>^</sup>, Martin, L.<sup>^</sup>, Barrick, K. Maass, K.L. Clemson IE Research Seminar, Clemson University, Virtual. Oct. 2020
34. “*A Two-Stage Stochastic Programming Model for Supply Chain Networks under Disruption*” Jafari, A. <sup>^\*</sup>, Peterson, M.\*, Maass, K.L. Transportation, Science & Logistics Annual Conference, Arlington, VA \*Cancelled due to COVID-19. May 2020
35. “*Health Care & Human Trafficking: Understanding Accessibility & Utility*” Szaniawski, K.<sup>^\*</sup>, Maass, K.L. Poster Presentation, Research, Innovation, and Scholarship Expo, Northeastern University, Boston, MA. Apr. 2020
36. “*Queueing Theory-Based Inpatient Arrival Rate Approximation*” Adeyemi, N.<sup>^\*</sup>, Maass, K.L. Poster Presentation, Research, Innovation, and Scholarship Expo, Northeastern University, Boston, MA. Apr. 2020
37. “*Interdicting Multi-Stage Stochastic Human Trafficking Networks with Varying Success Parameters*” Tezcan, B.<sup>^\*</sup>, Maass, K.L. Poster Presentation, Research, Innovation, and Scholarship Expo, Northeastern University, Boston, MA. Apr. 2020
38. “*Mitigating Supply Chain Disruption: Designing Sustainable Networks using Stochastic Programming*” Jafari, A. <sup>^\*</sup>, Maass, K.L. Poster Presentation, College of Engineering PhD Research Expo, Northeastern University, Boston, MA. Feb. 2020
39. “*Interdicting Multi-Stage Stochastic Human Trafficking Networks with Varying Success Parameters*” Tezcan, B. <sup>^\*</sup>, Maass, K.L. Poster Presentation, College of Engineering PhD Research Expo, Northeastern University, Boston, MA. Feb. 2020
40. “*Interdicting Reconfiguring Networks with Applications in Human Trafficking*” Kosmas, D.<sup>^</sup>, Sharkey, T., Maass, K.L. INFORMS Annual Meeting, Seattle, WA. Oct. 2019
41. “*Human Trafficking Transit Monitoring in Nepal: A Data Analytics Case Study*” Dimas, G.<sup>^\*</sup>, Konrad, R., Maass, K.L., Trapp, A. INFORMS Annual Meeting, Seattle, WA. Oct. 2019
42. “*A Data Analytic Approach to Understanding Human Trafficking Networks*” Konrad, R.<sup>^</sup>, Maass, K.L., Trapp, A., Dank, M., Blom, J., Dimas G.\*, Longenback, S.\*, Wang, Q.\*, & Yin, B.\* NSF Grantees Meeting: EAGER Disrupting Illicit Supply Networks, George Mason University, Arlington, VA. Mar. 2019
43. “*Modeling Operations of Human Trafficking Networks for Effective Interdiction*” Martin, L.<sup>^</sup>, Maass, K.L., Melander, C., Sharkey, T., Samad, T., & Barrick, K. NSF Grantees Meeting: EAGER Disrupting Illicit Supply Networks, George Mason University, Arlington, VA. Mar. 2019

44. *"Data-Driven Capacity Assessment of Nursing Bay Resources Shared Among Multiple Radiology Modalities"* Kostandy, P.<sup>^</sup>, Maass, K.L., Bai, M., Romero Brufau, S., Schultz, S., Sir, M., Pasupathy, K., Bartholmai, B. Radiological Society of North America 2018 Scientific Assembly and Annual Meeting, Chicago, IL. Nov. 2018
45. *"Using Discrete-Event Simulation to Evaluate Radiology Process Changes Pre-Implementation"* Halter, L.<sup>^\*</sup>, Maass, K.L., Huschka, T., Sir, M., & Pasupathy, K. Poster Presentation, INFORMS Annual Meeting, Phoenix, AZ. Nov. 2018
46. *"Using Optimization to Maximize Diversity in Engineering Discussion Groups at the University of Michigan"* Daskin, M.S.<sup>^</sup>, Maass, K.L., INFORMS Annual Meeting, Nashville, TN. Nov. 2016
47. *"Patient-centered goals and expectations following kidney transplantation: Comparison of patients to providers"* Tucker, E.L.<sup>^</sup>, Maass, K.L., Daskin, M.S., Smith, A.R., Schapiro, H., Cottrell, S.M., Gendron, E., Li, M., Hill-Callahan, P., Gill, S.J., Merion, R.M., & Leichtman A.B. Poster Presentation, Healthcare Engineering and Patient Safety Symposium, Univ. of Michigan, Ann Arbor, MI. Sept. 2016
48. *"Locating rehabilitative shelters for survivors of domestic human trafficking"* Konrad, R.<sup>^</sup>, Maass, K.L., & Trapp, A. Poster Presentation, Health & Humanitarian Logistics Conference, Atlanta, GA. Aug. 2016
49. *"Designing a nurse scheduling model for implementation"* Daskin, M.S., Maass, K.L., Tucker, E.L.<sup>^</sup>, Cahnman, E., Rider, K., McGonegal, A., & Feuerbacher, L. INFORMS International Conference, Waikoloa, Hawaii. Jun. 2016
50. *"Variability in kidney transplant recipient and provider goals"* Tucker, E.L.<sup>^</sup>, Maass, K.L., Daskin, M.S., Smith, A.R., Schapiro, H., Cottrell, S.M., Gendron, E., Li, M., Hill-Callahan, P., Gill, S.J., Merion, R.M., & Leichtman A.B. INFORMS International Conference, Waikoloa, Hawaii. Jun. 2016
51. *"The importance of including infeasibility while scheduling operating room staff"* Daskin, M.S., Maass, K.L., Tucker, E.L.<sup>^</sup>, Cahnman, E., Rider, K., McGonegal, A., & Feuerbacher, L. Industrial and Systems Engineering Research Conference, Anaheim, CA. May 2016
52. *"Using optimization to assist in surgical nurse scheduling"* Daskin, M.S., Maass, K.L., Tucker, E.L.<sup>^</sup>, Cahnman, E., Rider, K., McGonegal, A., & Feuerbacher, L. Seminars in Healthcare Systems Engineering, Univ. of Michigan, Ann Arbor, MI. Nov. 2015

53. *"Mitigating hard capacity constraints in facility location models"* Daskin, M.S.<sup>^</sup>, Maass, K.L., Operations Research Colloquium, The Pennsylvania State Univ., University Park, PA. Oct. 2015
54. *"Mitigating capacity constraints in facility location models"* Daskin, M.S.<sup>^</sup>, Maass, K.L., Workshop on Supply Chain Analytics, Univ. of California, Berkeley, CA. Oct. 2015
55. *"Incorporating nurse absenteeism into long term staffing with demand uncertainty"* Daskin, M.S., Maass, K.L., Duck, M., Liu, B., Mwenesi, R., & Wang, Z. Poster Presentation, 2015 Dean's Research Day, Univ. of Michigan, Ann Arbor, MI. Mar. 2015
56. *"MCubed: study of variability in kidney transplant patient and caregiver expectations"* Merion, R., Maass, K.L., Leichtman, A., Daskin, M.S., Hill-Callahan, P., Gill, S.J., & Taborn, M.<sup>^</sup> Poster Presentation, MCubed Symposium, Univ. of Michigan, Ann Arbor, MI. Nov. 2013
57. *"Integrating inventory into a new approach to capacitated facility location modeling"* Daskin, M.S.<sup>^</sup>, Maass, K.L., & Shen, S. International Workshop on Locational Analysis and Related Problems, Torremolinos, Spain. Jun. 2013
58. *"Analytics, big data, and operations research"* Daskin, M.S.<sup>^</sup>, Maass, K.L., RWTH Aachen Univ., Aachen, Germany. Aug. 2012

## INVITED WORKSHOPS

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### National Science Foundation

1. *Food Security in Extreme Environments and Food Deserts: Accelerating Sustainable Systems*, Virtual. May 2021
2. *Future Directions in Service, Manufacturing, and Operations Research*, Southern Methodist University, Dallas, TX. March 2019
3. *Disrupting Illicit Supply Networks: New Applications of Operations Research and Data Analytics to End Modern Slavery (Part 1: Idea Exploration)*, The University of Texas at Austin, Austin, TX. December 2017
4. *Disrupting Illicit Supply Networks: New Applications of Operations Research and Data Analytics to End Modern Slavery (Part 2: Research Agenda)*, Washington D.C., May 2017

**United Nations University/Delta 8.7**

5. CCC/Code 8.7 Workshop on Applying AI in the Fight Against Modern Slavery, Washington D.C.. Mar. 2020
6. Code 8.7: Using Computational Science and Artificial Intelligence to End Modern Slavery. United Nations Headquarters, New York, NY. Feb. 2019

**MEDIA/PRESS**

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**Podcasts**

1. [\*Resoundingly Human: November 2018 Part 1\*](#), [Podcast hosted by INFORMS; Ashley Kilgore] Topic: Human Trafficking and Operations Research, (Nov. 2018) DOI: 10.1287/orms.2018.11.01

**Reports**

2. [Current and Emerging Forms of Slavery: Report of the Special Rapporteur on Contemporary Forms of Slavery, Including its Causes and Consequences](#), Urmila Bhoola for *United Nations Human Rights Office of the High Commissioner* (Jul. 25, 2019)

**Featured Media Mentions**

3. [Human Trafficking Networks Targeted in New Research](#) *Clemson News* (Jan. 25, 2021)
4. [Five Questions with Engineer Kaye Lee Maass](#) Sophie Okolo for *Global Health Aging* (Nov. 19, 2019)
5. ['How Do We Break the Supply Chain?'](#) Ian Thomsen for *News@Northeastern* (Nov. 18, 2019)
6. [NSF Funds WPI-led Research Team to Help New York City Homeless Youths at Risk for Human Trafficking](#), Lisa Eckelbecker for *Worcester Polytechnic Institute* (Nov. 7, 2019)
7. [Using Engineer-Developed Models to Disrupt Human Trafficking](#), Torie Wells for *Rensselaer Polytechnic Institute News* (Sept. 25, 2019)
8. [Part 3: The Ideas—Changing Tack in the Battle Against Human Trafficking](#), Joel Wittnebel for *The Pointer* (July 5, 2019)
9. [In the Fight Against Human Trafficking, Industrial Engineers Can Help](#), Laura Castañón for *News@Northeastern* (Feb. 8, 2019)
10. [Powerful, Pragmatic Pioneers](#), Kara Tucker for *ORMS Today* (Feb. 3, 2019)



11. [Researchers to Analyze Sex Trafficking Networks](#), Nikki Pederson for *Minnesota Daily* (Oct. 31, 2018)
12. [The National Science Foundation Funds Research at WPI Aimed at Disrupting Trafficking Networks](#), Alison Duffy for *Worcester Polytechnic Institute* (Oct. 2, 2018)
13. [Renata Konrad Using Industrial Engineering, Mathematics to Combat Human Trafficking](#), Ellen Ishkanian for *Worcester Polytechnic Institute* (July 28, 2017)
14. Konrad, R., Trapp, A., and [Maass, K.L.](#) (2017) [Human Trafficking Analysis](#). *ORMS Today*. Vol. 4, No. 2

#### **Additional Media Mentions**

15. [World Full of Problems, O.R.-Driven Solutions](#) Peter Horner for *ORMS Today*, Apr. 2017, Vol. 44, No. 2

#### **GRANTS:**

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#### **EXTERNAL GRANTS AWARDED (Total: \$3,352,544; Share: \$672,686)**

1. National Science Foundation (Subaward) – **Subaward PI** – Primary Institution: Clemson University – “D-ISBN: TRACK 1: Modeling Effective Network Disruptions for Human Trafficking” – \$999,780 (Subaward Share: \$99,767) for 5 years: 2021-2025
2. National Institute of Justice (Subaward) – **Subaward PI** – Primary Institution: University of Minnesota – “Identification of Effective Strategies to Disrupt Recruitment of Victims in Human Trafficking: Qualitative Data, Systems Modeling, Survivors and Law Enforcement” – \$758,811 (Subaward: \$198,330, Subaward Share: \$188,414) for 2 years: 2021-2023
3. Institute of Operations Research and the Management Sciences – **PI** – “*Creating an Accessible ORMS Community for Disabled People*” – \$5,000 (Share: \$5,000) for 1 year: 2021
4. National Science Foundation (REU Supplement) – **Single PI** – “ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector” – \$16,000 for 3 months: 2021
5. National Science Foundation – **PI** – “*ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*” – \$574,126 (Share: \$258,357) for 3 years: 2020-2022

6. National Science Foundation (Subaward) – **Subaward PI** – Primary Institution: Worcester Polytechnic Institute – “*ISN2: Disrupting Human Trafficking via Needs Matching and Capacity Expansion*” – \$535,565 (Subaward Share: Submitted request for \$85,129 but NSF Program Manager reduced amount to \$29,582 because I was PI/co-PI on multiple awarded grants for this CFP; Note: There were no restrictions on number of applications a person can submit listed in the CFP) for 3 years: 2020-2022
7. National Science Foundation (REU Supplement) – **Single PI** – “*ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*” – \$16,000 for 3 months: 2020
8. Unchartered Software (Data Access Grant) – **PI** – “*Modeling Online Sex Trafficking Networks for Effective Interdiction: Operations and Organizational Features*” – Amount Requested: N/A; 2019 – present
9. National Institute of Justice (Travel Grant) – **Single PI** – “*Human Trafficking Disruption: From Data Insights to Decision Making*” – International Association of Crime Analysts Training Conference – \$1,587 for 1 trip: 2019
10. National Science Foundation (Subaward) – **Subaward PI** – Primary Institution: University of Minnesota – “*ISN: Modeling Operations of Human Trafficking Networks for Effective Interdiction*” – \$299,743 (Subaward Share: \$57,979) for 2 years: 2018-2020
11. National Science Foundation (Subaward) – **Subaward PI** – Primary Institution: Worcester Polytechnic Institute – “*ISN: A Data Analytic Approach to Understanding Human Trafficking Networks*” – \$145,932 (Subaward Share: Submitted request for \$44,757 but NSF Program Manager reduced amount to \$0 because I was PI/co-PI on multiple awarded grants for this CFP; Note: There were no restrictions on number of applications a person can submit listed in the CFP) for 1 year: 2018-2019

***External Grants Awarded Prior to Northeastern Appointment (Not Included In Above Totals)***

12. National Science Foundation (Graduate Research Fellowship Award) – **PI** – “*Improving Operations Research by Developing Techniques for Incorporating Large Data Sets*” – \$126,000 for 3 years: 2013 - 2016

**INTERNAL GRANTS (NU) – AWARDED (Total: \$55,495, Share: \$21,415)**

1. Project-Based Exploration for the Advancement of Knowledge (PEAK) – Base Camp – (Undergraduate Research Award) – **Faculty Advisor** – Student: M. Clark. – “Addressing Food Insecurity in Boston” – \$500 for 1 semester: 2021
2. TIER 1 Seed Grant – **Co-PI** – “Optimizing Criminal Justice Responses to the Business of Labor Trafficking” – \$49,995 (Share: \$16,665) for 1 year: 2020-2021
3. Project-Based Exploration for the Advancement of Knowledge (PEAK) – Base Camp – (Undergraduate Research Award) – **Faculty Advisor** – Student: J. Zhu. – “Disrupting Human Trafficking Supply Networks via Needs Matching and Capacity Expansion” – \$500 for 1 semester: 2020
4. Project-Based Exploration for the Advancement of Knowledge (PEAK) – Base Camp – (Undergraduate Research Award) – **Faculty Advisor** – Student: J. Saini. – “Disrupting Human Trafficking in the Agricultural Sector” – \$500 for 1 semester: 2020
5. Project-Based Exploration for the Advancement of Knowledge (PEAK) – Base Camp – (Undergraduate Research Award) – **Faculty Advisor** – Students: E. Klatt & J. Solano Quesada – “H-2A Visa and Wage/Labor Violation Insights” – \$1,000 for 1 semester: 2020
6. Project-Based Exploration for the Advancement of Knowledge (PEAK) – Base Camp – (Undergraduate Research Award) – **Faculty Advisor** – Student: P. Calderon Villa – “Sustainable Agricultural Supply Chains and Their Disrupters” – \$500 for 1 semester: 2020
7. Project-Based Exploration for the Advancement of Knowledge (PEAK) – Base Camp– (Undergraduate Research Award) – **Faculty Advisor** – Student: O. Johnian – “Incorporating Societal Factors into Industrial Engineering Models” – \$500 for 1 semester: 2020
8. Project-Based Exploration for the Advancement of Knowledge (PEAK) – Base Camp – (Undergraduate Research Award) – **Faculty Advisor** – Student: L. Reyes Gonzalez – “Human Trafficking Data Availability” – \$500 for 1 semester: 2019
9. Mutual Mentoring Advancement Program – **co-PI** – “*Mutual Mentorship for Faculty in Analytics for Eliminating Mental Health Crisis and Improving Critical Healthcare System*” – \$1,500 (Share: \$750) for 1 year: 2019

**INTERNAL GRANTS (U. OF MICHIGAN) – AWARDED (Total: \$4,800, Share: \$4,800)**

1. Rackham Travel Grant (Travel Grant) – **Single PI** – “*Incorporating Chance Constraints into the Inventory Modulated Capacitated Facility Location Models Stochastic Demand*”- Workshop on Location and Network Design-Transportation and Logistics – \$1,300 for 1 trip: 2016
2. Graduate Student Community Grant – **Single PI** – “*Business in a Global World Workshop: Developing Cultural Awareness*” – \$1,000 for 1 event: 2014
3. Rackham Travel Grant (Travel Grant) – **Single PI** – “*Temporal allocation policies for an inventory modulated capacitated facility location problem*” – INFORMS Annual Meeting – \$800 for 1 trip: 2014
4. Rackham Travel Grant (Travel Grant) – **Single PI** – “*A new approach for integrating inventory into capacitated facility location modeling*” – INFORMS Annual Meeting – \$750 for 1 trip: 2013
5. Rackham Travel Grant (Travel Grant) – **Single PI** – “*New Approach to Capacity Modeling in Location Models*” – ISERC Conference – \$950 for 1 trip: 2013

**EXTERNAL GRANTS – PENDING (Total: \$1,736,281, Share: \$503,007)**

1. National Science Foundation (INTERN Supplement) – **Single PI** – Student: A. Jafari – “*ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*” – \$36,281 for 6 months: 2021
2. National Institute of Justice (Subaward) – **Subaward PI** – Primary Institution: National Opinion Research Center – “*Implementing a Proactive Response to Labor Trafficking in the United States: A Pilot Test and Participatory Process Evaluation*” – \$600,000 (Subaward share: \$189,226) for 3 years: 2022 – 2024
3. National Institute of Justice (Subaward) – **Subaward co-PI** – Primary Institution: Research Triangle Institute – “*Labor trafficking in construction and hospitality: Analyzing victim recruitment, exploitation, and service needs to identify strategies for prevention and intervention*” – \$600,000 (Subaward: \$110,000, Subaward Share: \$27,500) for 3 years: 2022 – 2024
4. Criminal Investigations and Network Analysis – **PI** – “*A Spatiotemporal Pattern Detection Approach to Improve Identification and Response to Labor Trafficking*” – \$500,000 (Share: \$250,000) for 2 years: 2021 - 2023

**INTERNAL GRANTS – PENDING (Total: \$0, Share: \$0)**

*None to report*

**EXTERNAL GRANTS – NOT FUNDED (Total: \$3,527,965, Share: \$1,539,654)**

1. National Institute of Justice. – **PI** – “Developing a Data Driven Framework to Improve Identification and Response to Labor Trafficking.” – \$884,712 (Share: \$339,667) for 5 years: 2021 – 2026
2. National Science Foundation (Graduate Student Research Award) – **Faculty PI** – Student: N. Adeyemi. – “Reducing Psychiatric Patient Boarding through Simulation Modeling.” – \$138,000 for 3 years: 2021 – 2024
3. National Institute of Justice (Graduate Student Research Award) – **Faculty PI** – Student: B. Tezcan. – “Increasing Human Trafficking Interdiction Effectiveness with Coordinating Stakeholders.” – \$150,000 for 3 years: 2021 – 2023
4. Salesforce AI Research Grant – **PI** – “AI Applications in Social Good.” – \$50,000 (Share: \$25,000) for 1 year: 2021 – 2022.
5. National Institutes of Health (Subaward). – **Subaward PI** – Prime Institution: Mayo Clinic - “Understanding and Reducing Age-based Disparities in Access to Psychiatric Care using Systems Simulation.” – \$1,000,000 (Subaward Share: \$381,874) for 4 years: 2020 – 2024
6. U.S. Department of Agriculture. – **PI** – “Immediate Relief Mechanisms and Long-term Resiliency for Small Farm Supply Chains.” – \$728,262 (Share: \$242,754) for 2 years: 2020 – 2022
7. Johnson & Johnson WiSTEM2D Scholars. – **Single PI** – “From Insight to Action: Optimizing Anti-Human Trafficking Disruption Efforts.” – \$149,991 for 3 years: 2020 – 2022.
8. Robert Wood Johnson Foundation – **PI** – “Community Based Mental Health Networks: Optimizing the Continuum of Care” – \$425,000 (Share: \$110,368) for 3 years: 2019 – 2022
9. National Science Foundation (Travel Grant) – **PI** – NSF ENG Career Proposal Writing Workshop - \$1,000 for 1 year: 2019

10. Union for Concerned Scientists: The Science for Public Good Fund (Outreach Grant) – **Single PI** – “Partnering for Sustained Impact: Community-Centered Industrial Engineering to Address Human Trafficking” – \$1,000 for 1 trip: 2019

### **INTERNAL GRANTS – NOT FUNDED (Total: \$500, Share: \$500)**

1. Northeastern University (Undergraduate Research Award) – **Faculty Advisor** – Student: M. Petrovsky. – “Minnesota Mental Health Statewide Inpatient Bed Data Analysis.” – Project-Based Exploration for the Advancement of Knowledge (PEAK) – Base Camp – \$500 for 1 semester: 2020

### **TEACHING EXPERIENCE**

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#### **Northeastern Univ., Dept. of Mechanical and Industrial Engineering**

- **Stochastic Modelling (IE 4520, 4 Credits, Undergraduate)**
  - Fall 2018 (35 students)
  - Spring 2019 (48 students)
  - Fall 2019 (35 students)
  - Spring 2020 (48 students)
  - Fall 2020 (46 students)
- **Capstone Design (MEIE 4701/4702, 6 Credits Total, Undergraduate, Advisor)**
  - Fall 2020/Spring 2021 (5 students)
- **Independent Study: Human Trafficking Applications in Industrial Engineering (IE 4993, 4 Credits, Undergraduate, Developed New Course)**
  - Spring 2021 (2 students)
  - Fall 2020 (1 student)
  - Fall 2019 (1 student at 2 credit hours)

#### **Univ. of Michigan, Industrial and Operations Engineering Dept.**

- **Operations Modeling (IOE 202, 2 credits, Undergraduate)**
  - Fall 2014 (140 students)

#### **Guest Lecturer**

- **Human Trafficking (CCJ 4938), Florida State University, College of Criminology and Criminal Justice, Undergraduate, Fall 2020**
- **Supply Chain and Operations Strategy (SCO 4065), University of Minnesota, Carlson School of Management, Undergraduate, Apr. 2017, Apr. 2018, & Nov. 2018**

- **Service Operations Management (IOE 419), University of Michigan**, Industrial and Operations Engineering Department, Undergraduate/Masters, Winter 2016, 60 Students
- **Inventory Analysis and Control (IOE 541), University of Michigan**, Industrial and Operations Engineering Department, Graduate, Fall 2015, 40 students

## ADVISING

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### PhD Dissertation Advisor (Chair)

#### Northeastern University

1. Yaren Bilge Kaya, PhD Industrial Engineering, Spring 2021 – Present
  - *Optimization Methods for Improving Access to Public Services*
2. Nathan Adeyemi, PhD Industrial Engineering, Fall 2019 – Present
  - *Policy and Operational Tactics to Improve Inpatient Mental Health Access to Care*
3. Barış Tezcan, PhD Industrial Engineering, Fall 2019 – Present
  - *Network Interdiction Models to Disrupt Human Trafficking*
4. Arezoo Jafari, PhD Industrial Engineering, Spring 2019 – Present
  - *Methods to Mitigate or Facilitate Supply Chain Disruptions*

### PhD Dissertation Committee

#### Northeastern University

1. Matthew Williams, PhD, Industrial Engineering, Chair: Dr. Ozlem Ergun, Spring 2021 – Present
  - *Considering Equity and Robustness in the Capacitated House Allocation Problem with Conflicts and Priorities*
2. Ann Suhaimi, PhD Industrial Engineering, Chair: Dr. Jacqueline Griffin, Spring 2020 - Present
  - *Ensuring Resiliency in Complex, Interdependent Healthcare Systems*
3. Razan Hassan, PhD Industrial Engineering, Chair: Dr. Noor Alam, Summer 2021 – Present
  - *Decision Making Under Uncertainty for a Wind & Storage Power Plant*

### PhD Oral Exam Committee

#### Northeastern University

1. Weijia Jing, PhD Industrial Engineering, Chair: Dr. Ozlem Ergun, Spring 2021
  - *Two-stage stochastic programming models for disaster preparedness and response in humanitarian relief*
2. Min Gong, PhD Industrial Engineering, Chair: Dr. Jacqueline Griffin, Fall 2020 & Spring 2021
  - *Inventory Management with Advance Demand/Supply Information*
3. Basma Bargal, PhD Industrial Engineering, Char: Dr. James Benneyan, Spring 2020
  - *Caregiver Burnout from a Systems Science Perspective*
4. Md Saiful Islam, PhD Industrial Engineering, Chair: Dr. Noor Alam, Fall 2019
  - *Achieving Covariate Balance in Observational Studies with Optimization Techniques*

5. Razan Hassan, PhD Industrial Engineering, Chair: Dr. Noor Alam, Fall 2018
  - *Decision Making Under Uncertainty for a Wind & Storage Power Plant*

### **PhD Project Co-Advisor**

#### Northeastern University

1. Jillian Reeves, PhD, Criminology and Justice Policy, May 2021 – Present
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
2. Jesenia Robles, PhD, Criminology and Criminal Justice, May 2021 – Present
  - *Criminal Justice Responses to the Business of Labor Trafficking*
3. Alexis Yohros, PhD Criminology, Sept. 2020 – Present
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
  - *Optimizing Criminal Justice Responses to the Business of Labor Trafficking*
4. Chase Childress, JD/PhD Criminology, Sept. 2019 – Present
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*

#### External Universities

5. Daniel Kosmas, Rensselaer Polytechnic Institute, PhD Mathematics, Spring 2020 – Present
  - *EAGER: ISN: Modeling Operations of Human Trafficking Networks for Effective Interdiction*
  - *Identification of Effective Strategies to Disrupt Human Trafficking Recruitment: Qualitative Data, Mathematical Modeling, and a Transdisciplinary University-Community Team*
  - *D-ISN: TRACK 1: Modeling Effective Network Disruptions (MEND) for Human Trafficking*
6. Geri Dimas, Worcester Polytechnic Institute, PhD Student—Data Science, Fall 2018 – Present
  - *ISN2: Disrupting Human Trafficking via Needs Matching and Capacity Expansion*
  - *NSF EAGER: ISN: A Data Analytic Approach to Understanding Human Trafficking Networks*
7. Biao Yin, Worcester Polytechnic Institute, PhD Student – Data Science, Fall 2018
  - *NSF EAGER: ISN: A Data Analytic Approach to Understanding Human Trafficking Networks*

### **Masters Thesis Advisor**

#### Northeastern University

1. Barış Tezcan, MS Industrial Engineering, Fall 2018 – Fall 2019
  - “A Stochastic Network Interdiction Model for Human Trafficking Intervention,”



**Masters Project Co-Advisor**Northeastern University

1. Aubrey Sneesby, MS, Criminology and Criminal Justice, Summer 2021 – Present
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
2. Ciara Tenney, Criminology, Spring 2021 – Present
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
3. Ramandip Dhariwal, MS, Business Analytics, Spring 2021 – Present
  - *Optimizing Criminal Justice Responses to the Business of Labor Trafficking*
4. Yidan Wang, Industrial Engineering, Fall 2018 – Spring 2019
  - *Data Analytics and Simulation Modeling to Study Mental Health Crisis and Disparities - A Case Study of Olmsted County, Minnesota*

External Universities

5. Michael Clark, Clemson University, Industrial Engineering, Spring 2021 – Present
  - *D-ISN: TRACK 1: Modeling Effective Network Disruptions for Human Trafficking*
6. Maria Diaz, Clemson University, Industrial Engineering, Spring 2021 – Present
  - *D-ISN: TRACK 1: Modeling Effective Network Disruptions for Human Trafficking*
7. Queting Wang, Worcester Polytechnic Institute, MS Student—Operations Analytics and Management, Spring 2019
  - *NSF EAGER: ISN: A Data Analytic Approach to Understanding Human Trafficking Networks*
8. Samuel Longenbach, Worcester Polytechnic Institute, MS Student—Data Science, AY 2018/2019
  - *NSF EAGER: ISN: A Data Analytic Approach to Understanding Human Trafficking Networks*

**Undergraduate Research – Primary Advisor**Northeastern University

1. Sophia Mantell, Industrial Engineering, Summer 2021 – Present
  - *ISN2: Disrupting Human Trafficking via Needs Matching and Capacity Expansion*
2. Maryam Rahman, Computer Science, Summer 2021 – Present
  - *Operations Research & Social Justice Lab Project Manager*
3. Margaret Clark, Industrial Engineering, Spring 2021 – Present
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
  - *PEAK Award: “Addressing Food Insecurity in Boston”*

4. Renuka Kannan, Industrial Engineering, Spring 2021 – Present
  - *D-ISN: TRACK 1: Modeling Effective Network Disruptions for Human Trafficking*
5. Elaine Klatt, Industrial Engineering, Summer 2020 – Present
  - *PEAK Award: “H-2A Visa and Wage/Labor Violation Insights*
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
6. Joseph Pak, Computer Engineering, Fall 2020 – Spring 2021
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
7. Sundos Al Husayni, Health Sciences, Fall 2020 – Spring 2021
  - *Operations Research & Social Justice Lab Project Manager*
8. Jocelyn Zhu, Industrial Engineering, Fall 2020
  - *PEAK Award: “Disrupting Human Trafficking Supply Networks via Needs Matching and Capacity Expansion”*
9. Alex Bender, Industrial Engineering, Summer 2019 – Fall 2020
  - *NSF EAGER: ISN: A Data Analytic Approach to Understanding Human Trafficking Networks*
10. Jahaan Saini, Industrial Engineering, Summer 2020
  - *PEAK Award: “Disrupting Human Trafficking in the Agricultural Sector”*
11. Juan Solano Quesada, Industrial Engineering, Summer 2020
  - *PEAK Award: “H-2A Visa and Wage/Labor Violation Insights”*
12. Paloma Calderon Villa, Industrial Engineering, Summer 2020
  - *PEAK Award: “Sustainable Agricultural Supply Chains and Their Disrupters”*
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
13. Olivia Johnian, Industrial Engineering, Spring 2020
  - *PEAK Award: “Incorporating Societal Factors into Industrial Engineering Models”*
14. Maxim Petrovsky, Behavioral Neuroscience, Spring 2020
  - *“Improving Statewide Access to Inpatient Mental Health Beds”*
15. Jahan Silverman, Economics and Mathematics, Spring 2020
  - *“Correlation between H-2A Visa Denials and Wage/Labor Violations”*
16. Leticia Reyes Gonzalez, Industrial Engineering/Engineering Management, Fall 2019 – Spring 2020
  - *PEAK Award: “Human Trafficking Data Availability”*
17. Rosemary Ajegwu, Industrial Engineering, Spring 2019 & Spring 2020
  - *“Incorporating Joy into Shelter Optimization Models”*
18. Olanrewaju Abdul-Hakeem Oloritun, Industrial Engineering, Fall 2019
  - *“Mitigating Supply Chain Disruptions with Recovery Suppliers: Literature Review”*
19. Maxwell Peterson, Industrial Engineering, Fall 2019
  - *“Mitigating Supply Chain Disruptions with Recovery Suppliers: Literature Review”*
20. Laura O'Donnell, Industrial Engineering, Spring 2019
  - *“Improving Criminal Justice Diversion for Mental Health Patients”*

**Undergraduate – Capstone Advisor**Northeastern University

- 1-5. Isabel Cusack, Thomas Minutella, John Hopper, Anna Sosa, & Chia-hsiang Hsu Tai  
—Industrial Engineering, Fall 2020 – Spring 2021
  - *Meeting the Needs of Homeless and Unstably Housed Youth and Young Adults in NYC*
6. Kelly Szaniawski, Health Science, Spring 2020
  - *Violent Crime-Resource/Support Database*

**Undergraduate Project Co-Advisor**Northeastern University

1. Emma Toole, Business Administration, Fall 2020 – Present
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*
2. Ciara Tenney, Criminology, Fall 2020 [then transitioned to MS student]
  - *ISN2: Coordinated Interdiction for Disruption of Labor Trafficking in the Agricultural Sector*

External Universities

3. Matthew Dzwil, Worcester Polytechnic Institute, Data Science, Summer 2021 – Present
  - *ISN2: Disrupting Human Trafficking via Needs Matching and Capacity Expansion*
4. Eliza Macaulay, Clemson University, Industrial Engineering, Spring 2021 – Present
  - *D-ISN: TRACK 1: Modeling Effective Network Disruptions for Human Trafficking*
5. Malak El Khalkhali, Worcester Polytechnic Institute, Industrial Engineering, Fall 2019 – Spring 2020
  - *NSF EAGER: ISN: A Data Analytic Approach to Understanding Human Trafficking Networks*
6. Breanna Schad, Rutgers University, Business Analytics and Information Technology, Summer 2019
  - *NSF EAGER: ISN: A Data Analytic Approach to Understanding Human Trafficking Networks*
7. Elizabeth Halter, Mayo Clinic, Summer 2018
  - *Using Discrete-Event Simulation to Evaluate Radiology Process Changes Pre-Implementation*

**INSTITUTIONAL SERVICE ACTIVITIES**

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**Northeastern University**Mechanical and Industrial Engineering Department Service:

- |  |             |
|--|-------------|
| - Diversity, Equity, and Inclusion Committee     | 2020 – 2021 |
| - Undergraduate Advisor for Career Opportunities | 2020 - 2021 |
| - Undergraduate Advisor for Operations Research  | 2020 - 2021 |

- Engineers Week MIE Alumni/Faculty Panel 2021
- Research Advancement Departmental Committee 2019 - 2020
- Communication Departmental Committee 2019 – 2020
- IE Open House, Presenter 2018
- IISE Student Chapter Faculty Research Night, Presenter 2018
- INFORMS Student Chapter IE Faculty Meet and Greet 2018

College of Engineering Service:

- Online Programs Committee 2020 – 2021
- College of Engineering Advancement Team, Presenter 2021
- Online Teaching Committee 2020
- College of Engineering Undergraduate Research Fair, Presenter/Recruiter 2018

University-Level Service:

- Showcase of Opportunities for Undergrad. Research & Creative Endeavor 2019 - 2020
- RISE ‘Solution Award’ Poster Judge 2019

**University of Michigan**

Industrial and Operations Engineering Department Service:

- NSF GRFP Application Reviewer 2013-2017
- Univ. of Michigan INFORMS Student Chapter
  - Past-President* 2016
  - President* 2015
  - Vice President* Oct. 2013-2014
- “Thriving and Surviving in a PhD Program” Panel Member 2015
- Initiated and Developed the PhD Mentoring Program 2015
- Lunch and Lab with a Grad Student 2015
- Graduate Student Coordinator 2014-2016
- Graduate Student Advisory Committee Member 2014-2016
- NSF GRFP Application Preparation Panel Member 2013-2014
- Recruiter for the “Recruit at Home” Program 2013-2014
- IOE Tech Day Presenter 2013

College of Engineering Service:

- SYNC Blue (Strengthen Your eNginering Connection) alumni mentoring 2016
- Face2Face Engineering Mentoring 2016
- Masters Mentoring Program 2014
- Michigan Mentorships 2013

**PROFESSIONAL SERVICE ACTIVITES**

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**Journal Editorial Board**

- IISE Transactions (Social Media Coordinator) 2021

**Panel Reviewer**

- National Science Foundation 2019 – 2020

Operations Engineering Program  
Graduate Research Fellowship Program

### Professional Society Leadership Roles

- INFORMS Subdivision Council 2020-2021
- Committee on Subdivision Collaborations (co-Chair) 2020
- INFORMS Section on Location Analysis
- Cluster Chair (INFORMS Annual Mtg. SOLA Cluster) 2021
- Secretary 2019-Present
- Treasurer 2017-2019
- INFORMS Diversity, Equity, Inclusion Ambassador 2021

### Awards Committees

- INFORMS Undergraduate Operations Research Prize, INFORMS
- Chair 2021
- Member 2020
- Award for Advancement of Women in OR/MS, INFORMS WORMS 2020
- Location Analysis Dissertation Award, INFORMS SOLA 2020
- INFORMS Annual Meeting Interactive Poster Session, INFORMS 2018

### Conference Activities

- POMS College of Humanitarian Operations and Crisis Management, Mini-Conference
- Panel Organizer, “Human Trafficking & COVID-19” 2021
- POMS College of Humanitarian Operations and Crisis Management, Mini-Conference
- Panel Organizer, “Human Trafficking” 2020
- POMS Annual Meetings, Session Chair 2019-2021
- INFORMS Annual Meeting, Session Chair 2013-2020
- ISERC Annual Conference, Facility Logistics Track, Session Chair 2015

### Facilitating Cross-Disciplinary Multi-Institution Research

- “Intersections: An Interdisciplinary Human Trafficking Seminar Series,”
- Creator, Organizer & Moderator 2021 - Present

### Undergraduate and Graduate Student Opportunities (National/International)

- ORMS Student Opportunities Listserv, Creator and Moderator 2019 - Present
- Experienced GRFP Resource Person, NSF GRFP website 2013-Present

### K-12 Outreach:

- “Bringing STEM Education to Underserved Communities” High School Outreach 2020

### Journal Referee

- *Computers & Operations Research*
- *European Journal of Operational Research*
- *IIE Transactions*
- *IIE Transactions on Healthcare*

- *INFOR: Information Systems and Operational Research*
- *International Journal of Production Research*
- *Journal of the Operational Research Society*
- *Omega, Operations Research Letters*
- *Optimization Letters*
- *Patient Education and Counseling*
- *PLOS ONE*
- *Production and Operations Management*
- *Service Science*
- *Socio-Economic Planning Sciences*
- *Soft Computing*
- *Transportation Science*

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## COMMUNITY/PUBLIC SERVICE ACTIVITIES

### Policy & Advocacy

- Congressional Hearing on *The Role of Technology in Countering Trafficking in Persons* – Written Testimony 2020
- Policy Briefings on ORMS and Human Trafficking, Washington, D.C.
  - o Senate Homeland Security and Governmental Affairs Committee 2020
  - o Senate Judiciary Committee 2020
  - o U.S. Department of Treasury 2020
- Delta 8.7 Policy Guides – Human Trafficking Markets Working Group, United Nations University 2020
- Behavioral Health Policy Committee, Mayo Clinic 2018

### Community Services Planning

- ProBono Analytics: NYU Criminal Justice Innovation Lab & Marion County Mayors Office 2018- 2019
- Southeast Minnesota Mental Health Crisis Center Planning Committee (Mayo Clinic Operations Research Lead)2018

### Human Trafficking/Sexual Assault Volunteer

- Sexual Violence Victim/Survivor Advocate; Certified in Minnesota 2016 - Present
- Breaking Free Mathematics & Life-Skills Tutor 2010 - 2012

### Other Outreach

- The Stem Squad, Guest Scientist Host, Twitter 2018