

# Curriculum Vitae

## Renata A. Konrad

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### Education

- 2009 Ph.D. Industrial Engineering, Purdue University
- 2004 M.A.Sc. Industrial Engineering, University of Toronto
- 1999 B.A.Sc. Industrial Engineering, University of Toronto

### Academic Experience

- 2018–present Associate Professor with Tenure Operations and Industrial Engineering, Worcester Polytechnic Institute
- 2009–2017 Assistant Professor Operations and Industrial Engineering, Worcester Polytechnic Institute
- 2007–2009 Instructor Department of Nursing, Purdue University

### Publications

† denotes student author.

#### Peer-Refereed Journal Articles

1. G.Dimast†, **R. Konrad**, K. Maass, and A. Trapp. Operations research and analytics to combat human trafficking: A systematic review of academic literature. *PLoS ONE*, 17(8): e0273708. <https://doi.org/10.1371/journal.pone.0273708>, 2022.
2. Y.Kaya†, K. Maass, G. Dimast†, **R. Konrad**, A. Trapp AC, and M. Dank. Improving Access to Housing and Supportive Services for Runaway and Homeless Youth: Reducing Vulnerability to Human Trafficking in New York City. Accepted for publication in *IISE Transaction*, <https://lnkd.in/dMpEjfxz>, 2022.
3. H. Abouee-Mehrzi, A. Ghareaghaji Zare, and **R. Konrad**. Pricing in Service Systems with Rational Balking and Abandonment of Time-Sensitive Customers. *Production and Operations Management*, 31(2), 495–510, 2022.
4. A. Trapp, **R. Konrad**, J. Sarkis, A. Zeng. Closing the Loop: Forging High-Quality Agile Virtual Enterprises in a Reverse Supply Chain via Solution Portfolio. *Journal of the Operational Research Society*, 2(4), 908–922, 2021.
5. M. Gallo, **R. Konrad**, and H. Thinyane. An Epidemiological Perspective on Labor Trafficking. *Journal Human Trafficking*, 8(2), 113–134, 2020.
6. K. Maass, A. Trapp, **R. Konrad**. Optimizing Placement of Residential Shelters for Human Trafficking Survivors. *Socio-Economic Planning Sciences*, 70, pp. 100730, 2020.

7. **R. Konrad**, W. Zhang<sup>†</sup>, M. Bjarnadóttir, R. Proaño. Key Considerations When Using Health Insurance Claims Data in Advanced Data Analyses: An Experience Report. *Health Systems*, 2 1–9, 2019.
8. J. Caulkins, M. Kammer-Kerwick, **R. Konrad**, K. Maass, L. Martin, T. Sharkey. A Call to the Engineering Community to Address Human Trafficking. *National Academy of Engineering, The Bridge*, 49(3), 67–73, 2019.
9. **R. Konrad**. Designing Awareness Campaigns to Counter Human Trafficking: An Analytic Approach. *Socio-Economic Planning Sciences*, 1 (67) 86–93, 2019.
10. **R. Konrad**, A. Hall-Phillips, A. Vila-Parrish. Are Our Students Prepared? The Impact of Capstone Design Pedagogical Approaches on Student Skill Development During Industry-Sponsored Fieldwork. *INFORMS Transactions on Education*, 18 (3) 183–193, 2018.
11. W. Zhang<sup>†</sup>, M. Bjarnadóttir, R. Proaño, D. Anderson, **R. Konrad**. Accelerating the Adoption of Bundled Payment Reimbursement Systems: A Data-driven Approach Utilizing Claims Data. *IIE Transactions on Healthcare Systems Engineering*, 8 (1) 22–34, 2018.
12. **R. Konrad**. Effectively Engaging Industry Partners within the Classroom. *INFORMS Transactions on Education*, 18 (3) 174–182, 2018.
13. **R. Konrad**, A. Trapp, T. Palmbach, and J. Blom. Overcoming Human Trafficking via Operations Research and Analytics: Opportunities for Methods, Models, and Applications. *European Journal of Operational Research*, 259 (2), 733–745, 2017.
14. **R. Konrad**, S. Albrecht<sup>†</sup>, C. Danko<sup>†</sup>, et al. A Decision-Support Approach for Provider Scheduling in a Patient-Centered Medical Home. *Journal of Healthcare Management*, 62(1), 46–59, 2017.
15. **R. Konrad**, C. Tang<sup>†</sup>, B. Shiner, and B. Watts. Workforce Design in Primary Care-Mental Health Integration: A Case Study at One Veterans Affairs Medical Center. *Health Systems*, 6 (2), 146 – 160, 2017.
16. **R. Konrad**, P. VanBerkel, and M. Lawley. A New Data Source to Support Hospital Operations Modeling, Message-Exchange Protocols as Illustrated through Simulation. *IIE Transactions on Healthcare Systems Engineering*, 7(1), 30–42, 2016.
17. B. Faber, **R. Konrad**, C. Tang<sup>†</sup>, and A. Trapp. Examining the Impact of Regular Physician Visits on Heart Failure Patients: A Use Case with Electronic Health Data. *Health Systems*, 5(2), 132–139, 2016.
18. A. Trapp and **R. Konrad**. Finding Diverse Optima and Near-Optima to Binary Integer Programs. *IIE Transactions*, 47(11), 1300–1312, 2015.
19. B. Shiner, C. Tang<sup>†</sup>, A. Trapp, **R. Konrad**, I. Bar-On, and B. Watts. The Provision of Mental Health Treatment After Screening: Exploring the Relationship between Treatment Setting and Treatment Intensity. *General Hospital Psychiatry*, 36(6), 581–588, 2014.
20. B. Kim, Y. Elstein, B. Shiner, **R. Konrad**, A. Pomerantz, and B. Watts. Use of Discrete Event Simulation to Improve a Mental Health Clinic. *General Hospital Psychiatry*, 35(6), 668–670, 2013.
21. **R. Konrad**, K. Desotto<sup>†</sup>, A. Grocela<sup>†</sup>, et al. Modeling the Impact of Changing Patient Flow Processes in an Emergency Department: Insights from a Computer Simulation Study. *Operations Research for Health Care*, 2(4), 66–74, 2013.

22. **R. Konrad**, B. Tulu, and M. Lawley. Monitoring Adherence to Evidence-Based Practices: A Method to Utilize HL7 Messages from Hospital Information Systems. *Applied Clinical Informatics*, 4(1), 126–143, 2013.
23. **R. Konrad**, K. Butler, and M. Dubyk Wodoslawsky. Allocation of Aid for Health Institutions in Ukraine: Implication from a Case Study of Chernobyl Area Hospitals. *International Journal of Health Services*, 39(4), 623–641, 2009.
24. **R. Kopach**, B. Balcioglu, and M. Carter. Tutorial on Constructing a Red Blood Cell Inventory Management System with Two Demand Rates. *European Journal of Operational Research*, 185(3), 1051–1059, 2008.
25. **R. Kopach**, M. Lawley, M. Criswell, et al. Applying Systems Engineering Concepts to the Care of Complex Patients. *Journal of General Internal Medicine*, 22(Suppl 3), 431–437, 2007.
26. **R. Kopach**, P. DeLaurentis, M. Lawley, et al. Effects of Clinical Characteristics on Successful Open Access Scheduling. *Health Care Management Science*, 10(2), 111–124, 2007.
27. **R. Kopach**, S. Sadat, I. Galloway, et al. A Cost Effectiveness Analysis of Medical Documentation Alternatives. *International Journal of Technology Assessment in Health Care*, 21(1), 126–131, 2005.

### Select Working Papers

1. S. Azizi<sup>†</sup>, B. Faber, S. Johnson, R. Konrad, and A. Trapp. Select, Route and Schedule: Optimizing Community Paramedicine Service Delivery with Mandatory Visits and Patient Prioritization. Available at [http://www.optimization-online.org/DB\\_HTML/2020/12/8151.html](http://www.optimization-online.org/DB_HTML/2020/12/8151.html) 2022.
2. R. Konrad, K. Maass, and A. C. Trapp, A Perspective on How to Conduct Responsible Anti- Human Trafficking Research in Operations and Analytics. Available at <https://arxiv.org/abs/2006.16445>, 2022.
3. G. Dimas<sup>†</sup>, M. El Khalkhali<sup>†</sup>, A. Bender<sup>†</sup>, K. Maass, R. Konrad, J. Blom, J. Zhu, and A. Trapp. Estimating Effectiveness of Identifying Human Trafficking via Data Envelopment Analysis. Available at <https://arxiv.org/abs/2012.07746>, 2022.
4. G. Dimas<sup>†</sup>, R. Konrad and L. Goldkind. Big ideas, small data: Opportunities and Challenges for Data Science and the Social Services Sector.
5. S. Sorokotyaha<sup>†</sup>, R. Konrad and D. Walker. Humanitarian Inventory Management by Grassroot Associations during Military Conflicts.
6. R. Konrad, K. Saeed, M. Kammer-Kerwick, P. Busaranuvong<sup>†</sup>, and W. Khumwang<sup>†</sup>. “Fish-y Banks”: Using System Dynamics to Evaluate Policy Interventions for Reducing Labor Exploitation in the Seafood Industry.
7. F. Miller<sup>†</sup>, Y. B. Kaya<sup>†</sup>, A. Trapp, G. Dimas<sup>†</sup>, R. Konrad, K. L. Maass, and M. Dank. Optimizing the Benefit to Cost Ratio for Public Sector Decision Making.

### Technical and Industry Reports, Collections and Dissertations

1. Delta 8.7 Markets Working Group [including R. Konrad]. Delta 8.7 Markets Policy Guide. United Nations University. Available at [http://collections.unu.edu/eserv/UNU:8066/Delta87\\_MarketsPolicyGuide.pdf](http://collections.unu.edu/eserv/UNU:8066/Delta87_MarketsPolicyGuide.pdf), 2021.

2. Research-to-Policy Collaborative. COVID-19: Human Trafficking and Exploitation. Fact sheet distributed to U.S. federal staff and state legislators. <https://research2policy.org/human-trafficking-and-exploitation/>
3. U.S. Department of Transportation Advisory Committee on Human Trafficking. Combating Human Trafficking in the Transportation Sector. Available at <https://www.transportation.gov/sites/dot.gov/files/docs/mission/international-policy-and-trade/against-human-trafficking/338066/acht-draft-final-report.pdf>
4. **R. Konrad** and K. Taylor (co-editors). Ending Human Trafficking with Analytics. In A. Robinson (Series Editor) *INFORMS Editor's Cut*. INFORMS, Maryland, 2017.
5. **R. Konrad**, A. Trapp and K. Maass. Human Trafficking Analysis. *ORMS Today*, April 2017.
6. A. Trapp and **R. Konrad**. Finding Diverse Solutions of High Quality to Binary Integer Programs. *OO Digest: Oct 2013 (Optimization Online Digest)*, 2013.
7. **R. Konrad**. Using HL7 Messaging and Diagnostic Related Groups to Characterize Inpatient Flow. Ph.D. Dissertation, Purdue University, West Lafayette, IN, 2009.
8. P. Whitten, E. Gabor, V. Agarwal, and **R. Kopach**. Telemedicine in Indiana Policy Whitepaper. Report prepared for the Regenstrief Center for Healthcare Engineering, Purdue University, West Lafayette, IN, 2006.
9. **R. Kopach**. Finding the Optimal Switchover Level between Two Levels of Demand in a Blood Bank. M.A.Sc. Thesis, University of Toronto, Toronto, Canada, 2004.

### Peer Reviewed Chapters in Books

1. **R. Konrad**, B. Kucukyazici, and M. Lawley. "Using Patient Flow to Examine Hospital Operations". *Management Engineering for Effective Healthcare Delivery Principles and Applications*, Editors A. Kolker and P. Story, 2011.

### Grants Awarded

1. D-ISN: TRACK 2: Disrupting Wildlife Trafficking Networks through Convergence of Physical and Virtual Ecosystems  
Source: National Science Foundation                      Award # 2039951  
PI: M. Gore    co-PI: **R. Konrad**, K. Lee  
Amount \$265,998    Duration 1/2021-06/2022
2. Disrupting Human Trafficking Networks in Ukraine with Operations Research Methods  
Source: Fulbright U.S. Scholar Program  
PI: **R. Konrad**  
Duration 2021/22
3. ISN2: Disrupting Human Trafficking via Needs Matching and Capacity Expansion  
Source: National Science Foundation                      Award # 1935602  
PI: **R. Konrad**    co-PI: A. Trapp, K. Maass, M. Dank  
Amount \$563,249    Duration 1/2020-12/2022
4. EAGER: ISN: A Data Analytic Approach to Understanding Human Trafficking Networks  
Source: National Science Foundation                      Award # 1841893  
PI: **R. Konrad**    co-PI: A. Trapp, K. Maass, M. Dank  
Amount \$166,098    Duration 9/2018-8/2020

5. Designing and Deploying Hospital Capacity Effectively  
Source: WPI Health Delivery Institute                      PIs: S. Johnson, R. Konrad, A. Trapp  
Amount (all for graduate student support)              Duration 7/2016–7/2017  
\$31,000
6. A Logic-based Tool for Improving Access  
Source: U.S. Department of Veterans Affairs              PI: S. Johnson  
Amount (awarded to R. Konrad) \$13,063                      Duration 6/2015–3/2016
7. Part of an initiative led by Professor Brenton Faber to bring to WPI the Data Analytics Lab. This lab is sponsored by Dimensional Insight and represents a \$300,000 in-kind and \$50,000 cash gift.

## Presentations

<sup>†</sup> denotes student author

1. Anti-Human Trafficking Efforts and the Potential of Operations Research, **Keynote** *CORS/INFORMS International Conference*, Vancouver, Canada, 2022.
2. Invited Panelist for the *National Academies Workshop on Optimizing Investments for Urban Sustainability Infrastructure: Mathematical Approaches for Optimizing Investments*, virtual, 2022.
3. Collecting Data in the Human Trafficking Domain: Lessons Learned from Runaway and Homeless Youth in NYC Presented by G. Dimas<sup>†</sup>, IISE Annual Conference, Seattle, WA, 2022.
4. Reducing Vulnerability To Human Trafficking By Improving Access To Housing And Support Services, Presented by Y. Kaya<sup>†</sup>, *INFORMS Annual Meeting*, Anaheim, CA, 2021.
5. Analytics To Improve The United States Immigration System, Presented by G. Dimas<sup>†</sup>, *INFORMS Annual Meeting*, Anaheim, CA, 2021.
6. Improving Access to Homeless Shelter Services for Youth at Risk of Human Trafficking, Poster Presented by Y. Kaya<sup>†</sup>, *INFORMS Annual Meeting*, Anaheim, CA, 2021.
7. Anti-Human Trafficking Efforts and the Potential of Engineering and Analytical Techniques, *Kyiv Polytechnic Institute*, Kyiv, Ukraine, 2021.
8. Reducing Risks of Human Trafficking: Improving Access to Housing and Supportive Services for Runaway and Homeless Youth in NYC, Presented by Y. Kaya<sup>†</sup>, *INFORMS Healthcare Meeting*, 2021.
9. Anti-Human Trafficking Efforts and the Potential of Engineering and Analytical Techniques. *Harvard University Intersections of STEM and Social Justice Series (Invited)*, Boston, Massachusetts, 2021.
10. 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, Presented by G. Dimas<sup>†</sup>, *INFORMS Annual Meeting*, Virtual, November, 2020.
11. Estimating Effectiveness Of Identifying Human Trafficking Victims: An Application Of Data Envelopment Analysis (DEA) On The Nepal/India Border, Presented by M. El Khalkhali<sup>†</sup> and A. Bender<sup>†</sup>, *INFORMS Annual Meeting*, Virtual, November, 2020. **Finalist** INFORMS Undergraduate Operations Research Prize.
12. Optimizing The Selection, Scheduling, And Routing Of Foster Care Visitation Meetings, Presented by C. Johnston<sup>†</sup>, *INFORMS Annual Meeting*, Virtual, November, 2020.

13. Applying Epidemiological Thinking to Assess Anti-Trafficking Interventions in the Thai Garment Industry, Presented by M. Gallo, *Data for Policy International Conference*, Virtual, September 2020.
14. Human Trafficking Transit Monitoring in Nepal: A Data Analytics Case Study, Presented by G. Dimas<sup>†</sup>, *INFORMS Annual Meeting*, Seattle, WA, October, 2019.
15. Improving Community Paramedicine via Data Driven Optimization: Selective, Proactive Treatment of Patients, Presented by S. Azizi<sup>†</sup>, *INFORMS Annual Meeting*, Seattle, WA, October, 2019.
16. Improving Community Paramedicine via Data Driven Optimization. Selective, Proactive Management of Emergency Department Patients, Presented by S. Azizi<sup>†</sup>, *INFORMS Healthcare*, Boston, MA, 2019.
17. Combating Human Trafficking: Anti-Human Trafficking Efforts and the Potential of Engineering and Analytic Techniques, *Shevchenko Scientific Society Canada*, Toronto, Canada, 2019.
18. A Broader Perspective: Integrating Societal Factors into Human Trafficking Shelter Location Models, Presented by K. Maass, *POMS Annual Conference*, Washington DC, 2019.
19. Integrating Vehicle Routing and Scheduling to Optimize Foster Care Visitations, Poster presented by C. Johnston<sup>†</sup>, *POMS Annual Conference*, Washington DC, 2019.
20. A Data Analytic Approach to Understanding Human Trafficking Networks, *NSF Grantees Meeting*, Washington DC, 2019.
21. Illegal Fishing and Trafficked Labor: An Examination of Policies to Address the Intersection of Prosperity and Exploitation, Poster *Winter Simulation Conference*, Gothenburg, Sweden, 2018.
22. A Broader Perspective: Integrating Societal Factors Into Human Trafficking Shelter Location Models, Presented by K. Maass, *INFORMS Annual Meeting*, Phoenix, AZ, 2018.
23. Improving Community Paramedicine via Data Science and Optimization: Selective, Proactive Management of ED Patients, Presented by S. Azizi<sup>†</sup>, *INFORMS Annual Meeting*, Phoenix, AZ, 2018.
24. Integrating Vehicle Routing and Scheduling to Optimize Foster Care Visitations, Poster presented by C. Johnston<sup>†</sup>, *INFORMS Annual Meeting*, Phoenix, AZ, 2018.
25. Can Data Analytics and Mathematical Models Aid Anti-Human Trafficking and Social Justice Efforts? Presented by K. Maass, *International Human Trafficking and Social Justice Conference*, Toledo, OH, 2018.
26. A System Dynamics Approach to Illegal Fishing and Trafficked Labor: An Examination of Policies to Address the Intersection of Prosperity and Exploitation, *4th International Conference on Governance, Crime and Justice Statistics*, sponsored by the UN Office of Drugs and Crime, Lima, Peru, 2018.
27. Opportunities to Address Human Trafficking Using Operations Research and Analytics, *University of Massachusetts - INFORMS Speaker Series*, Amherst, MA, 2017.
28. Opportunities to Address Human Trafficking Using Operations Research and Analytics, *Clemson University - Industrial Engineering Speaker Series*, Clemson, NC, 2017.
29. Human Trafficking: Can OR/MS Help Counter the Issue? *IISE Annual Conference*, Pittsburgh, PA, 2017.
30. Applications of Industrial and Operations Engineering in Healthcare, *Innovation Forum Series: Improving Healthcare Experiences through Systems Engineering, Design, and Data Intelligence*, Worcester, MA, 2017.

31. Risk/Return Trade-off in Queues with a Nonlinear Waiting Cost Function, Presented by H. Abouee-Mehrzi, *INFORMS Annual Meeting*, Nashville, TN, 2016.
32. Human Trafficking: Opportunities for Operations Research and Management Science, *INFORMS Annual Meeting*, Nashville, TN, 2016.
33. Data Driven Approach to Bundled Payments, Presented by M. Bjarnadóttir, *INFORMS Annual Meeting*, Philadelphia, PA, 2015.
34. Tools to Support Managing Access in the Veterans Health Administration, *Presented by S. Johnson*, *INFORMS Annual Meeting*, Philadelphia, PA, 2015.
35. Human Trafficking: Opportunities for Operations Research and Analytics, *IISE Annual Conference*, Nashville, TN, 2015.
36. Automatic Detection of Episodes of Care in an Insurance Claims Repository, *Presented by M. Bjarnadóttir*, *INFORMS Annual Meeting*, San Francisco, CA, 2014.
37. Does the Structure of a Capstone Design Course Matter? Presented by A. Vila-Parrish, *INFORMS Annual Meeting*, San Francisco, CA, 2014.
38. Opportunities for OR/MS in Healthcare Payment Reform, Presented by R. Proaño, *INFORMS Annual Meeting*, San Francisco, CA, 2014.
39. Systems Science and Health: Using Analytical Approaches to Evaluate Healthcare Policy Decisions, *5th Annual UMass Center for Clinical and Translational Science Research*, Worcester, MA, 2014.
40. Finding Diverse Solutions of Quality to Binary Integer Programs, Presented by A. Trapp, *INFORMS Annual Meeting*, Minneapolis, MN, 2013.
41. Assessing and Maintaining Quality of Care for Veterans with Mental Health Disorders. Presented by S. Oo<sup>†</sup>, *INFORMS Healthcare*, Chicago, 2013.
42. The Role of Preventative Care for Congestive Heart Failure Patients in a Rural Health System, *INFORMS Healthcare*, Chicago, IL, 2013.
43. Investigating Control Policies to Mitigate Hospital Congestion, *Operational Research Applied to Health Services*, Cardiff, UK, 2011.
44. Identifying Near-Bottlenecks For Hospital Congestion Relief. *INFORMS Healthcare*, Montréal, Canada, 2011.
45. Advanced Tutorial: Input Modeling for Hospital Simulation Models Using Electronic Messages. *Winter Simulation Conference*, Austin, TX, 2009.
46. Modeling Inpatient Flow from Hospital Information Systems. University of Washington, Industrial Engineering Department. 2009.
47. Constructing Patient Flow Paths from Health Information Systems Data. *INFORMS Annual Meeting*, Washington, D.C., 2008.
48. Developing Diagnosis Based Patient Flow Paths from Health Information Systems. *Data-Mining and Health Informatics Workshop*, *INFORMS Annual Meeting*, Washington, D.C., 2008.
49. Mining and Synthesis of Flow Patterns from Hospital Information Systems. Dalhousie University, Halifax, Canada, 2008, (Invited as part of the Travelling Speaker's Program for Canadian Operational Research Society).

50. Industrial Engineering Research in Health Care Delivery: One Engineer's Experience. *Center for Information Technology Research in the Interest of Society (CITRIS), Innovation in Services Conference*, University of California, Berkeley, CA, 2008. (Invited)
51. Go with the Flow: Developing a Methodology to Support Hospital Operations Modeling. *INFORMS Annual Meeting*, Seattle, 2007.
52. Blueprint for Effective Patient Flow in Ascension Health Hospitals. *INFORMS Annual Meeting*, Pittsburgh, 2006.
53. Using Patient Flow Data to Predict Hospital States. *Canadian Operational Research Society Annual Meeting*, Montréal, Canada, 2006.
54. Prospective of Hospital Administration in Ukraine. *Regenstrief Center for Healthcare Engineering Brown Bag Series*, Purdue University, West Lafayette, IN, 2006.
55. Switching between Demand Rates in a Blood Bank. *European Summer Institute*, Southampton, Great Britain, 2005. (Selected by the Canadian Operational Research Society to present).
56. Switching Demand Rates in a Blood Bank. *Canadian Operational Research Society Annual Meeting*, Halifax, Canada, 2005.
57. Models for Assessment of Blood Product Shortages: Likelihood and Consequences. *Operations Research Applications in Health Care*, Prague, Czech Republic, July 2003.
58. Models for Assessment of Blood Product Shortages: Likelihood and Consequences. *Canadian Operational Research Society Annual Meeting*, Ottawa, Canada, May 2003.

### Peer-Reviewed Conference Proceedings

1. D. Coughlin<sup>†</sup>, M. Gagnon<sup>†</sup>, V.Grasso<sup>†</sup>, G. Mou<sup>†</sup>, R. Konrad, M. Gore, P. Raxter and K. Lee. Extracting and Visualizing Wildlife Trafficking Events from Wildlife Trafficking Reports. Forthcoming in *IEEE/ACM International Conference on Social Networks Analysis and Mining (ASONAM 2022)*, 2022.
2. Y. Kaya<sup>†</sup>, S. Mantell<sup>†</sup>, K. Maass, R. Konrad, A. Trapp, G. Dimas<sup>†</sup>, and M. Dank. Discrete Event Simulation to Evaluate Shelter Capacity Expansion Options for LGBTQ+ Homeless Youth. Forthcoming in *Proceedings of the 2022 Winter Simulation Conference*, 2022.
3. M. Gallo, **R. Konrad**, and H. Thinyane. Applying Epidemiological Thinking to Assess Anti-Trafficking Interventions in the Thai Garment Industry. *Data for Policy International Conference*, virtual, September 2020.
4. A. Vila-Parrish, **R. Konrad**, and A. Hall-Phillips. Is There a Difference in the Engineering Skills Fostered in Structured vs. Unstructured Capstone Courses? *Proceedings of the Capstone Design Conference*, Columbus, OH, June 2014.
5. **R. Konrad** and M. Lawley. Advanced Tutorial on Input Modeling for Hospital Simulation Models Using Electronic Messages. *Proceedings of the 2009 Winter Simulation Conference*, Austin, TX, December 2009.
6. **R. Konrad**, M. Lawley, and M. Criswell. Incorporating Diagnosis-Based Patient Flow Paths from Health Information Systems Messages into Hospital Decision Models. *Proceedings of the 3rd INFORMS Workshop on Data Mining and Health Informatics (DM-HI) 2008*, Washington, D.C., November 2008.



7. **R. Konrad**, M. Lawley, Y. Yih, and S. Lambert. Characterizing Inpatient Hospital Flow from Information Systems Messaging. *Proceedings of the Industrial Engineering Research Conference*, Vancouver, Canada, May 2008.
8. M. Criswell, I. Hasan, **R. Kopach**, et al. Emergency Department Divert Avoidance Using Petri Nets. *Proceedings System of Systems Engineering Conference*, San Antonio, April 2007.
9. P. DeLaurentis, **R. Kopach**, R. Rardin, et al. Open Access Appointment Scheduling-An Experience at a Community Clinic. *Proceedings Industrial Engineering Research Council*, Orlando, May 2006.
10. **R. Kopach**, S. Sadat, and D. Frances. Models for Predicting Critical Blood Product Shortages. *Proceedings of Operations Research Applications in Health Care*, Prague, 2003.

## Courses Taught at WPI

**BUS 631** Research Methods and the Research Process. PhD - elective.

Topics include research approaches and designs, data types and their collection, measurement approaches, testing procedures, and interpreting and presenting findings. 2022

**BUS 2080** Data Analysis for Decision Making. Undergraduate - required.

Introduction to data mining and analytics to create business intelligence. Topics include regression analysis, forecasting, optimization and spreadsheet skills. 2011

**OIE 2081** Introduction to Prescriptive Analytics. Undergraduate - required.

Introduction to prescriptive analytics, which involves the application of mathematical and computational sciences, such as linear optimization and simulation, to recommend optimal courses of action for decision making. 2021

**OIE 2500** Management Science I: Deterministic Decision Models. Undergraduate - required.

Covers optimization and basic methods of linear programming: model formulation, integer programming, transshipment models, network flow models, and assignment problems. 2009, 2010

**OIE 3460** Simulation Modeling and Analysis. Undergraduate - required.

Modeling and analysis of dynamic systems subject to uncertainty. Topics include design of simulation experiments, probability review, output analyses, data structures and discrete-event simulation modeling. 2011, 2013-2018, 2020, 2021 (Ukrainian Catholic Univeristy), 2022

OIE 3460 is part of a Collaborative Online International Learning (COIL) project 2020/21.

**OIE 3510** Stochastic Models. Undergraduate - required.

Probabilistic models and decision-making under risk. Topics covered include discrete time Markov chains, a review of the exponential distribution and its properties, the Poisson process, queueing systems, Monte Carlo simulations and decision trees. 2011, 2013-2020, 2022

**OIE 542** Risk Management and Decision Making. Graduate - required.

Decision making under uncertainty. Topics include decision trees, Monte Carlo simulations, value of information, utility, multi-attribute choice, and applications in operations risk management and design such as quality assurance and supply chains. 2011-2014, 2016-2018 (as OIE 541); 2019, 2021-2022.

**Institute on Project-Based Learning.** Coached teams from higher education institutions to drive sustainable and systemic pedagogical, curricular and cultural project-based pedagogy. 2021.

## Honors and Awards

Fulbright Scholar Award, Ukrainian Catholic University, L'viv Ukraine, 2021/22

Institute of Industrial Systems Engineers (IISE Modeling and Simulation Division, Modeling Simulation Division Teaching Award, 2021

Romeo L. Moruzzi Young Faculty Award for Innovation in Undergraduate Education 2018

WPI Faculty Achievement Award awarded by WPI's Board of Trustees 2015, 2018

Major Qualifying Project Provost Award Winner 2014, 2018, 2019

## Industry Experience

2002	Systems Contractor	Toronto East General Hospital, Toronto, Canada
1999–2002	Business Analyst	Consumer Financial Services Practice, American Management Systems (now CGI), Toronto, Canada
1996–1998	Assistant Project Engineer	Retail and Distribution Divisions, Loblaw Companies Limited, Toronto, Canada

## Service and Professional Activities

### To National and International Interests

Selected member of the United Nations University Delta 8.7 Markets Working Group to identify which multilateral and national policies are proven to deal with modern slavery, forced labour, human trafficking and child labour, 2020.

Invited member of the United States Department of Transportation Advisory Committee on Human Trafficking, 2018.

Invited member of United States Department of Homeland Security – Science and Technology, Human Trafficking Advisory Committee, 2018.

As part of the Research-to-Action Collaborative, produced a fact sheet on human trafficking which was distributed to 2,500 congressional staffers (April 2020) Available at: <https://www.research2policy.org/covid19-trafficking-exploitation>

### To the Profession

Institute for Operations Research and Management Science (INFORMS)

- INFORMS Professional Recognition Committee member (PRC) (2022)
- Organizing Committee INFORMS Annual Meeting 2021 - Poster (Interactive) Session co-Chair (2021)
- Judge INFORMS Doing Good With Good OR Competition (2020, 2021 co-chair)
- INFORMS K-12 Education Outreach Subcommittee member (2020–present)
- Diversity, Equity, and Inclusion Committee member (2016–2021)
- Panelist at the INFORMS Doctoral Colloquium (2016)
- Women in Operations Research and the Management Sciences (WORMS) Officer (Past-)President(-Elect) 2015-2017; Secretary 2013; Sr VP of Meetings 2014

- Junior Faculty Interest Group (JFIG) Officer (2010–2012)
- Judge INFORMS Section on Public Programs, Services and Needs Paper Competition (2012)

#### To Science

##### National Academy of Sciences

- Invited panelist – Workshop Optimizing Investments for Urban Sustainability Infrastructure (2022)

##### National Science Foundation

- Invited participant – Workshop on Decision Analytics for Dynamic Policing (2019)
- Invited participant – Workshop on the Intersection of Operations Research Methods and Human Trafficking (2017)
- Reviewer (2012, 2017)

##### Editorial Activities

- Editorial Board: *Operations Research for Health Care, IISE Transactions*
- Guest Editor: *Special Issue of IISE Transactions on Analytical Methods for Detecting, Disrupting, and Dismantling Illicit Operations*

##### Natural Sciences and Engineering Research Council of Canada

- Discovery Grant reviewer (2011)

#### To the Department and University

- Committee on Tenure Academic Freedom (2022 – present)
- Operations and Supply Chain Analytics Graduate Program Director (2021 – present)
- Search Committee - Associate Dean of Undergraduate Studies (2021)
- Faculty Program Director for Undergraduate Programs (2018 – 2019)
- Graduate Research Innovation Exchange (GRIE) Judge (2016, 2017)
- Undergraduate Policy Curriculum Committee (2012 – 2019)
- Search Committee - Assistant Professor in Operations and Industrial Engineering (2015, 2010)
- President's IQP Awards Competition Review Panel - Committee Chair (2010), member (2009)

#### Professional Society Memberships

- Institute for Operations Research and the Management Sciences (INFORMS)
- Institute of Industrial and Systems Engineers (IISE)
- HEAL Trafficking: Health, Education, Advocacy, Linkage