

Geri-Louise Dimas (She/Her/Hers)

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RESEARCH INTERESTS

My research interests are in applying machine learning and other data science methods to help address problems in the human welfare domain. Currently my research is interdisciplinary in operations research and machine learning applied to the domains of human trafficking, homelessness, and immigration.

TEACHING INTERESTS

My graduate classes and research have prepared me to teach a variety of data science and business-related courses. Given my technical skills I am particularly interested in teaching courses related to programming and machine learning. Given the opportunity I would be interested in developing curriculum related to Discrete Event Simulation in Python, Ethics and Data Science, and Data Analytics for Social Good.

EDUCATION

Worcester Polytechnic Institute (Worcester, MA) May 2023

PhD in Data Science

Dissertation: Data Science for Improving Operations in Organizations that Serve Vulnerable Populations

Bowling Green State University (Bowling Green, OH) December 2017

Master of Science in Applied Statistics

Roosevelt University (Chicago, IL) May 2016

Bachelor of Arts in Actuarial Science, minor in Business

Bachelor of Science in Computer Science

PUBLICATIONS

Dimas, G. L., Goldkind, L., & Konrad, R. (2023). Big ideas, small data: Opportunities and challenges for data science and the social services sector. *Big Data & Society*, DOI:[10.1177/2053951723117105](https://doi.org/10.1177/2053951723117105).

Dimas, G. L., El Khalkhali, M., Bender, A., Maass, K. L., Konrad, R. A., Blom, J. S., ... & Trapp, A. C. (2023). Estimating effectiveness of identifying human trafficking via data envelopment analysis. *INFORMS Journal on Applied Analytics*, [10.1287/inte.2023.1162](https://doi.org/10.1287/inte.2023.1162). (Preprint available at <https://arxiv.org/abs/2012.07746>)

Konrad, R. A., Maass, K. L., **Dimas, G. L.**, & Trapp, A. C. (2022). Perspectives on How To Conduct Responsible Anti-Human Trafficking Research in Operations and Analytics. *European Journal of Operational Research*. DOI: [10.1016/j.ejor.2022.12.028](https://doi.org/10.1016/j.ejor.2022.12.028). (Preprint available at <https://arxiv.org/abs/2103.16476>)

Dimas, G. L., Konrad, R. A., Maass, K. L., & Trapp, A. C. (2022). Operations research and analytics to combat human trafficking: A systematic review of academic literature. *PLOS ONE* 17(8): e0273708. DOI: [10.1371/journal.pone.0273708](https://doi.org/10.1371/journal.pone.0273708).

Kaya, Y. B., Maass, K. L., **Dimas, G. L.**, Konrad, R., Trapp, A. C., & Dank, M. (2022). Improving access to housing and supportive services for runaway and homeless youth: Reducing vulnerability to human trafficking in New York City. *IISE Transactions*, DOI: [10.1080/24725854.2022.2120223](https://doi.org/10.1080/24725854.2022.2120223).

Mantell, S., Kaya, Y. B., Maass, K. L., Konrad, R., Trapp, A. C., **Dimas, G. L.**, & Dank, M. (2022). Discrete Event Simulation to Evaluate Shelter Capacity Expansion Options for LGBTQ+ Homeless Youth. *2022 Winter Simulation Conference*

SELECT WORKING PAPERS

Miller, F.I, Kaya, Y.B., **Dimas, G. L.**, Konrad, R. A., Maass, K. L., & Trapp, A. C. (2023). On the Optimization of Benefit to Cost Ratios for Public Sector Decision Making. *Under Review: Operations Research* (Preprint available at <https://arxiv.org/abs/2212.04534>)

PRESENTATIONS

- *Panel: Analytics for Immigration, Panelist, Innovations in Immigration Analytics Conference, WPI, 2023.*

- *Workshop: Data Science: What is it, and why should I care?* , Workshop, Girls in STEAM Leadership Summit, Cushing Academy, Ashburnham, MA, 2023.
- *Optimizing the Benefit-to-Cost Ratio for Public Sector Decision Making*, *Presented by F. Miller*, Joint Mathematics Meeting (JMM), Boston, MA, 2023.
- *Modeling the United States Immigration Court System: An Application of Simulation and Data Science*, INFORMS Annual Meeting, Indianapolis, IN, 2022.
- *Optimizing the Benefit-to-Cost Ratio for Effective Capacity Deployment for New York City's Homeless Youth Shelter System*, *Presented by F. Miller*, INFORMS Annual Meeting, Indianapolis, IN, 2022.
- *The Intersection of Applied Analytics and Social Good*, STEM Talk Series, Roosevelt University, 2022.
- *Collecting Data in the Human Trafficking Domain: Lessons Learned from Runaway and Homeless Youth in NYC*, IISE Annual Conference, Seattle, WA, 2022.
- *Modeling the United States Immigration Court System: Using Simulation and Data Science to Effectively Deploy Capacity*, POMS Annual Conference, Virtual, 2022.
- *Streamlining The United States Immigration Court System: Using Simulation and Data Science to Effectively Deploy Capacity*, Winter Simulation Conference, Virtual, 2021.
- *Analytics To Improve The United States Immigration System*, INFORMS Annual Meeting, Virtual, 2021.
- *Modeling the United States Asylum Process via Data Science and Simulation*, INFORMS Healthcare Conference, Virtual, 2021.
- *Reducing Risks of Human Trafficking: Improving Access to Housing and Supportive Services for Runaway and Homeless Youth in NYC*, *Presented by Y. Kaya*, INFORMS Healthcare Meeting, Virtual, 2021.
- *Reducing Vulnerability To Human Trafficking By Improving Access To Housing And Support Services*, *Presented by Y. Kaya*, INFORMS Annual Meeting, Virtual, 2021.
- *Improving Access to Homeless Shelter Services for Youth at Risk of Human Trafficking*, Poster *Presented by Y. Kaya*, INFORMS Annual Meeting, Virtual, 2021.
- *Immigration and Mobility: United States Southern Border*, Arts & Sciences Week, WPI, 2021.
- *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*, INFORMS Annual Meeting, Virtual, 2020.
- *Modeling The United States (US) Defensive Asylum Process: A Queueing Approach*, INFORMS Annual Meeting, Virtual, 2020.
- *Estimating Effectiveness of Identifying Human Trafficking Victims: An Application of Data Envelopment Analysis (DEA) on The Nepal/India Border*, *Presented by M. El Khalkhali and A. Bender*, INFORMS Annual Meeting, Virtual, 2020. Finalist INFORMS Undergraduate Operations Research Prize.
- *Addressing the Backlog of Asylum Cases in the United States Immigration Courts: An Application of Queueing Theory*, Migration and Technology Conference, WPI, 2020.
- *Modeling the Defensive Asylum Process: How Data Science Can Help*, WPI Arts & Sciences Week, 2020.
- *Human Trafficking Transit Monitoring in Nepal: A Data Analytics Case Study*, INFORMS Annual Meeting, Seattle, WA, 2019.

RESEARCH AWARDS

- [Robert and Esther Goddard Fellowship](#), WPI, 2018-2019
- [Summer Institute in Migration Research Methods \(SIMRM\)](#), UC Berkeley, 2020-2021
- WIN Women's Young Investigator Fellowship, 2020-2021
- [Institute for the Quantitative Study of Inclusion, Diversity, and Equity \(QSIDE\) Fellowship](#), 2022-Current

TEACHING AND LEADERSHIP AWARDS

- Data Science Outstanding Teacher's Assistant Award, Spring 2020
- Annual Graduate Research Innovation Exchange Competition, WPI, 2021. (Data Science, Finalist)
- Annual Graduate Research Innovation Exchange Competition, WPI, 2022 (Data Science, 2nd place)

- Diversity Award, Winter Simulation Conference, 2021
- Graduate Leadership Award, Spring 2020, Fall 2020, Spring 2021, Fall 2021
- Data Science Graduate Community-Building Award, Fall 2019, Spring 2020

FUNDED RESEARCH EXPERIENCE

Research human trafficking and homeless youth in New York City (NYC)(NSF award # [1935602](#))

- Designed a survey for qualitative research data collection currently being deployed to 500 homeless youth
- Developed a sampling mechanism for prevalence estimation of homeless youth in NYC
- Leveraged secondary data to produce a dataset on homeless youth and their needs in NYC
- Collaborated with homelessness organizations and the NYC Mayor's Office to inform analysis

Research on the U.S. immigration system (NSF award # [1825348](#))

- Applied discrete event simulation and data science methodologies to analyze, understand and build models involving the backlog of cases in the immigration court system
- Assembled a database of data obtained through the Freedom of Information Act (FOIA)
- Conducted exploratory data analysis on millions of court proceedings from 1985-2019

Research on human trafficking (HT) in Nepal (NSF award # [1841893](#))

- Analyzed data from a non-profit organization to extract insights on individuals at risk of experiencing HT
- Developed a data envelopment analysis model to evaluate the effectiveness of their current operations across 7 different locations from 2016 to 2019

RECENT PROFESSIONAL EXPERIENCE

QSIDE (Remote) May 2022 - Current

Stopping Trafficking And Modern-day Slavery Project (STAMP) research lab Co-Director and Fellow

- Explored the broad research landscape of human trafficking, and modern slavery
- Applied analytical skills to enhance algorithm's ability to identify and disrupt human trafficking activities

Worcester Polytechnic Institute (Worcester, MA) August 2019 - December 2019

Teaching assistant

- Selected as a teaching assistant for graduate level CS 548: knowledge, discovery, and data mining course
- Hosted office hours and graded homework assignments and exams

Illinois Department of Child and Family Services (Chicago, IL) June 2018 - August 2018

Statistical intern-special assistant to the director

- Created baselines for department projects
- Performed statistical and in-depth data analysis to provide insights on the current operations
- Advised on a predictive analytics initiative to illuminate potential bias and ethical concerns

Bowling Green State University (Bowling Green, OH) August 2016 - December 2017

Math/statistics instructor

- Taught MATH 1150: introduction to statistics course to over 150 undergraduate students
- Implemented a curriculum built around active learning and project-based learning initiatives

RECENT LEADERSHIP AND TEAMWORK

Women in Data Science (WiDS) (Worcester, MA) October 2019 - Present

WiDS central Massachusetts head ambassador

- Led the organization and implementation of the central Massachusetts regional event over the past three years
- Worked alongside a faculty member and oversaw a team of 15 students in the planning process

Graduate Student Advisory Council (Worcester, MA) October 2019 - May 2023

Data science program graduate representative

- Collaborated with other graduate student representatives to voice the concerns and needs of graduate students to the dean of arts and sciences

- Organized and host semi-annual graduate student events to facilitate community building

Undergraduate Research Advisor (Worcester, MA)

May 2019 – July 2023

Graduate advisor on junior, senior, and summer undergraduate projects

- Helped oversee 6 different research projects with students across various majors (data science, computer science, mathematical sciences, industrial and mechanical engineering, and supply chain management)
- Provided research guidance and domain expertise

Data Science Peer Mentor Program (Worcester, MA)

August 2020 – May 2023

Peer mentor

- Mentored first year PhD students, providing support and guidance on research and studies

CV Last Updated 06/05/2023