

Sayanti Mukherjee, Ph.D.

Assistant Professor
Director of OASIS Laboratory

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UB Faculty Webpage
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Google Scholar

APPOINTMENTS

Assistant Professor Department of Industrial and Systems Engineering University at Buffalo, The State University of New York, Buffalo NY	Aug 2018—Present
Adjunct Assistant Professor Department of Electrical Engineering University at Buffalo, The State University of New York, Buffalo NY	Aug 2023—Present
Visiting Assistant Professor <i>(joint appointment with Postdoctoral & Visiting Scholar position)</i> School of Industrial Engineering Purdue University, West Lafayette IN	Jan 2018—Jul 2018
Postdoctoral Research Assistant School of Civil Engineering (Division: Construction Engineering and Management) Purdue University, West Lafayette IN	Aug 2017—Jul 2018

EDUCATION

Ph.D. in Civil Engineering Purdue University, West Lafayette, IN Advisor: Dr. Makarand Hastak Dissertation: <i>Towards a resilient grid: A risk-based decision analysis incorporating the impacts of severe weather-induced power outages</i>	Aug 2017
M.S. in Economics Focus area: Econometrics Purdue University, West Lafayette, IN	May 2016
M.S. in Civil Engineering Iowa State University, Ames, IA Advisor: Dr. Jennifer Shane Thesis: <i>Identification, assessment and proposing mitigation strategies for the risks involved in operations and maintenance activities on highways-crash data analysis and development of integrated risk management model</i>	Dec 2011
B.S. in Construction Engineering and Management Jadavpur University, Kolkata, India	Jun 2008

AWARDS & HONORS

Society Awards

Outstanding Young Investigator Award 2021
Institute of Industrial & Systems Engineering (IISE)
Energy Systems (ES) Division

Best Paper Awards

SRA Student Best Paper Award 2023
International Society for Risk Analysis (SRA)
Justice, Equity and Risk Specialty Group (JERSG)
Paper: *Data-Driven Analysis of Equity in Wildfire Resource Allocation*

SRA Student Best Paper Award 2023
International Society for Risk Analysis (SRA)
Engineering and Infrastructure Systems Specialty Group (EISG)
Paper: *Examining disparities in access to critical facilities using fine-grained human mobility network*

IISE Work Systems Best Student Paper 2nd place 2023
Institute of Industrial & Systems Engineering (IISE)
Work Systems Division
Paper: *Forecasting Spatial-temporal Variations in Emergency Shelter Demand Leveraging Human Mobility Data: A Data-Centric Multivariate Framework*

IISE Work Systems Best Track Paper 2nd place 2023
Institute of Industrial & Systems Engineering (IISE)
Work Systems Division
Paper: *Forecasting Spatial-temporal Variations in Emergency Shelter Demand Leveraging Human Mobility Data: A Data-Centric Multivariate Framework*

IISE DAIS Best Student Paper Finalist 2022
Institute of Industrial & Systems Engineering (IISE)
Data Analytics & Information Systems (DAIS) Track
Paper: *Mapping Human Mobility Variation and Identifying Critical Services During a Disaster Using Dynamic Mobility Network*

SRA Student Best Paper Award 2021
International Society for Risk Analysis (SRA)
Occupational Health and Safety Specialty Group (OHSSG)
Paper: *Investigating Post-traumatic Stress Disorder (PTSD) among US Physicians during COVID-19: A Data-centric Approach Based on Survey Data*

Risk Analysis Best Paper Award 2019
Risk Analysis Journal
Paper: *A data-driven approach to assess supply inadequacy risks related to climate-sensitive electricity demand*

IEEE Best Conference Paper 2017
Selected as one of the Best Conference Papers submitted to the 2017 IEEE PES General Meeting and presented at one of the four concurrent Best Conference Paper sessions
Paper: *Estimating Climate—Demand Nexus to Support Long-term Adequacy Planning in the Energy Sector*

PMI Jury Best Paper Award 2017
PMI Project Management Research & Academic Conference, Delhi India
Paper: *Optimal selection of transmission line rehabilitation strategies to minimize power transmission costs*

Academic Awards

1st Rank in B.S. Civil Engineering Jadavpur University, Kolkata India	2008
University Gold Medal Jadavpur University, Kolkata India	2008
Prabhat Kumar Memorial Gold Medal Jadavpur University, Kolkata India	2008
1st rank in the National Level Technical Paper Presentation Hyderabad, India	2008

Student Awards

Drury/Thomas Scholarship Recipient 2023-2024 Poulomee Roy, M.S. Student	2024
Winner of the UB ISE Poster Competition Zhiyuan Wei, Ph.D. Student	2024
Student Merit Award: SRA Justice, Equity and Risk Specialty Group (JERSG) Fatima Umar, M.S. Student	2023
Student Merit Award: Society for Risk Analysis (SRA)'s Engineering and Infrastructure Specialty Group (EISG) Zhiyuan Wei, Ph.D. Student	2023
ISE Graduate Student Research Award Prasangsha Ganguly, Ph.D. Student	2023
ISE Graduate Student Teaching Award Zhiyuan Wei, Ph.D. Student	2023
ISE Graduate Student Teaching Award - Honorable Mention Zhiyuan Wei, Ph.D. Student	2022
Student Merit Award: Society for Risk Analysis (SRA)'s Occupational Health and Safety Specialty Group (OHSSG) Zhiyuan Wei, Ph.D. Student	2021

PEER REVIEWED JOURNAL PUBLICATIONS

Citation counts, h-index, and i10-index from Google Scholar, as of April 25, 2024:
Total Citations: 813
h-index: 15
i10-index: 18

Indicators	
My PhD student	Ψ
Other graduate student supervised	⊗
Corresponding author	★

Published

[J25] Hunt, K. [⊗], Behlendorf, B., Wang, S., **Mukherjee, S.**, and Zhuang, J. (2024). "Near-repeat Terrorism: Identifying and Analyzing the Spatiotemporal Attack Patterns of Major Terrorist Organizations", *Expert Systems With Applications (Elsevier, IF: 8.67)*; Volume 249, Part B, 1 September 2024, 123712. [[Link](#)]

- [J24] Wei, Z.[‡], and **Mukherjee, S.*** (2024). "Analyzing and forecasting service demands using human mobility data: A two-stage predictive framework with decomposition and multivariate analysis", *Expert Systems With Applications (Elsevier, IF: 8.67)*; Volume 238, Part B, 15 March 2024, 121698. [[Link](#)]
- [J23] Ganguly, P.[‡]; and **Mukherjee, S.*** (2023). "A Simulation-based Hybrid Generalized Framework to Model Vulnerability of Interdependent Critical Infrastructure Systems Under Incomplete Information", *Computer-Aided Civil and Infrastructure Engineering (Wiley, IF 11.7)*; April 2023; pp. 1–23. [[Link](#)].
- [J22] Wei, Z.[‡]; and **Mukherjee, S.*** (2023). "Examining Income Segregation within Activity Spaces Under Natural Disaster Using Dynamic Mobility Network", *Sustainable Cities and Society (Elsevier, IF 10.696)*; Volume 91, April 2023, 104408; [[Link](#)].
- [J21] **Mukherjee, S.***, Shucard, J., Rintamaki, L., Wei, Z.[‡], Carlasare, L., and Sinsky, C. (2022). "A statistical learning approach to evaluate factors associated with post-traumatic stress symptoms in physicians: Insights from the COVID-19 pandemic", *IEEE Access (IEEE, IF 3.367)*; 10, 114434-114454; [[Link](#)].
- [J20] Wei, Z.[‡], Narin, A. B.[⊗], and **Mukherjee, S.*** (2022). "Multidimensional population health modeling: a data-driven multivariate statistical learning approach", *IEEE Access (IEEE, IF 3.367)*, 10, 22737-22755; [[Link](#)].
- [J19] Obringer, R.; Nateghi, R.; Maia-Silva, D.; **Mukherjee, S.**; CR, Vineeth.; McRoberts, DB; and Kumar, R. (2021) "Implications of increasing household air conditioning use across the United States under a warming climate", *Earth's Future (American Geophysical Union Publisher, IF 8.85)*; [[Link](#)]
- [J18] **Mukherjee, S.***; and Wei, Z.[‡] (2021). "Suicide disparities across urban and suburban areas in the U.S.: A comparative assessment of socio-environmental factors using a data-driven predictive approach", *PLoS ONE 16(11): e0258824 (Public Library of Science, IF 3.752)*; [[Link](#)]
- [J17] Masoudvaziri, N.[⊗], Ganguly, P.[‡], **Mukherjee, S.***, Sun, K. (2021) "Impact of geophysical and anthropogenic factors on wildfire size: A spatiotemporal data-driven risk assessment approach using statistical learning", *Stochastic Environmental Research and Risk Assessment journal (Elsevier, IF 3.97)*; [[Link](#)].
- [J16] **Mukherjee, S.***; Boamah, E.F.; Ganguly, P.[‡]; and Botchwey, N.; (2021) "Towards resilient mental wellbeing in cities: A data-driven learning from mental health-environment nexus", *Nature Scientific Reports, 11, 17548 (2021) (Nature Publisher, IF 4.996)*; [[Link](#)].
- [J15] Fontecha, J.E.[⊗]; Agarwal, P.[⊗]; Torres, M.N.[⊗]; **Mukherjee, S.***, Walteros, J., and Rodriguez, J.P., (2021). "A two-stage data-driven spatiotemporal analysis to predict failure-risk of urban sewer systems leveraging machine learning algorithms", *Risk Analysis (Wiley, IF 4.302)*; [[Link](#)]
- [J14] Ganguly, P.[‡]; and **Mukherjee, S.*** (2021). "A Multifaceted Risk Assessment Approach Using Statistical Learning to Evaluate Socio-environmental Factors Associated with Regional Felony and Misdemeanor Rates", *Physica A: Statistical Mechanics and its Applications (Elsevier Publisher, IF 3.263)*; Volume 574, 15 July 2021, 125984; [[Link](#)]
- [J13] Wei, Z.[‡] and **Mukherjee, S.*** (2020). "Health-behaviors associated with the growing risk of adolescent suicide attempts: A data-driven cross-sectional study", *Journal of Health Promotion Research (Sage Publisher, IF 3.028)*, PMID: 33297721; [[Link](#)]
- [J12] Obringer, R., **Mukherjee, S.***, and Nateghi, R. (2020). "Evaluating climate sensitivity of coupled electricity-natural gas demands using a multivariate framework", *Applied Energy (Elsevier, IF 11.446)*; Volume 262, 15 March 2020, 114419; [[Link](#)]
- [J11] Alipour, P.[⊗], **Mukherjee, S.***, and Nateghi, R. (2019). "Assessing climate sensitivity of peak electricity load for resilient power systems planning and operation: A study applied to the Texas region", *Energy (Elsevier, IF 8.857)*; Volume 185, pp 1143-1153; [[Link](#)]
- [J10] **Mukherjee, S.***, Vineeth, CR.[⊗], and Nateghi, R. (2019). "Evaluating regional climate-electricity demand nexus: A composite Bayesian predictive framework", *Applied Energy (Elsevier, IF 11.446)*; Volume 235, 1 February 2019, Pages 1561-1582; [[Link](#)]
- [J9] Raymond, L., Gotham, D., McClain, W., **Mukherjee, S.**, Nateghi, R., Preckel, P., Schubert, P. J., Singh, S., Wachs, L., (2019). "Projected Climate Change Impacts on Indiana's Energy Demand and Supply", *Climatic Change (Springer, IF 6.059)*; ISSN 1573-1480 (online), 0165-0009 (print); [[Link](#)]

- [J8] **Mukherjee, S.*** and Nateghi, R. (2019). "A data-driven approach to assess supply inadequacy risks related to climate-sensitive electricity demand", *Risk Analysis (Wiley, IF 4.302)*; Volume 39 Issue 3, pp. 673-694; [\[Link\]](#) (*Best Paper Award*)
- [J7] **Mukherjee, S.***, Nateghi, R. and Hastak, M. (2018). "Data on Severe Weather-Induced Major Power Outage Risks in the U.S.", *Data in Brief (DIB), (Elsevier, IF 1.38)*, Vol 19 (2018) pp. 2079–2083; [\[Link\]](#)
- [J6] **Mukherjee, S.***, Nateghi, R. and Hastak, M. (2018). "A Multi-Hazard Approach to Assess Severe Weather-Induced Major Power Outage Risks in the U.S.", *Reliability Engineering and System Safety (Elsevier, IF 7.247)*; Volume 175, July 2018, pp. 283-305; [\[Link\]](#)
- [J5] **Mukherjee, S.***, and Hastak, M. (2017). "A novel methodological approach to estimate the impact of natural disaster on country-level economic growth", *International Journal of Disaster Risk Science (Springer, IF 4.5)*; pp 1–12; [\[Link\]](#)
- [J4] Nateghi, R. and **Mukherjee, S.*** (2017). "A multi-paradigm framework to assess the impacts of climate change on end-use energy demand", *PLoS ONE (Public Library of Science, IF 3.752)*, 12(11): e0188033; [\[Link\]](#)
- [J3] **Mukherjee, S.*** and Nateghi, R. (2017). "Climate sensitivity of end-use electricity consumption in the built environment: An application to the state of Florida, United States", *Energy (Elsevier, IF 8.857)*, Vol 128, pp. 688-700; [\[Link\]](#)
- [J2] **Mukherjee, S.*** and Nateghi, R. (2017). "Climate, Weather, Socio-economic and Electricity Usage Data for the Residential and Commercial Sectors in FL, U.S.", *Data in Brief (Elsevier, IF 1.38)*, Vol 13, pp 193-195; [\[Link\]](#)
- [J1] **Mukherjee, S.***, Halligan, J., and Hastak, M. (2016). "Assessment of major causes: Nuclear power plant disasters since 1950", *International Journal of Disaster Resilience in the Built Environment (Emerald Group of Publishing, IF 1.9)*, Vol 7, Issue 5, pp. 521-543; [\[Link\]](#)

Under Review

- [1] Ganguly, P.[¶], **Mukherjee, S.**, Walteros, J.*, and Herrera, L. (2023). "A Three Level Framework to Improve Resiliency of Electricity Distribution System Under Wildfire Scenario: A Worst Case Analysis", *European Journal of Operational Research (EJOR) (Elsevier, IF: 6.4)* [under 2nd review]
- [2] Wei, Z.[¶], and **Mukherjee, S.*** (2023). "An integrated approach to analyze equitable access to food stores under disasters from human mobility patterns", *Risk Analysis (Wiley, IF: 4.3)* [under 2nd review].
- [3] Jose, E.[⊗], **Mukherjee, S.***, and Swaminathan, J. (2024) "Evaluating socioeconomic factors for crime against women in developing countries: A data-centric statistical learning approach", *Socio-Economic Planning Sciences (Elsevier, IF: 6.1)* [under review]

In Preparation

- [1] Ramirez-Rios, D., **Mukherjee, S.**, Soto-Vergel, A.[⊗], Brennan, J.[⊗], Hou, H.†, and Ganguly, P.[¶] (2023). "Disaster Impacts on Critical Infrastructures: A Framework based on Qualitative and Quantitative Analyses of Fieldwork Data after Natural Hazards".
- [2] Ganguly, P.[¶], Sharma, Y.[⊗], **Mukherjee, S.*** (2023). "A Deep Learning Based Wildfire-induced Infrastructure Failure Risk Map and Validating their Feasibility Using Generative Adversarial Network Algorithm".
- [3] Ganguly, P.[¶], and **Mukherjee, S.*** (2023). "A transformer-based neural network architecture for multi-variate time series prediction with spatiotemporal correlation".
- [4] Ganguly, P.[¶], **Mukherjee, S.***, Ramirez-Rios, D., Walteros, J. (2023). "Towards Equity Driven Resilience Enhancement of Interdependent Infrastructure System: A Case Study for Hurricane Fiona".

PEER REVIEWED BOOK CHAPTERS

- [B1] **Mukherjee, S.^Φ** and Obringer, R.^Φ (2022). "Short-term and Long-term Electricity Demand Forecasting Under Climate Change for Efficient Grid Management"; *Advancing the Resilience of the Power Grid under a Changing Climate*, edited by Roshanak Nateghi and Abdollah Shafieezadeh, Wiley-IEEE Press Book (under review) [^Φ: co-first authors]

PEER REVIEWED CONFERENCE PROCEEDINGS & PRESENTATIONS

Indicators	
My PhD student	Ψ
My undergraduate student	†
Other graduate student supervised	⊗
Corresponding author	*
Presenter	<i>name</i>

- [C19] Wei, Z.^Ψ, Mukherjee, S.^{*}, and Chen, J.[†] (2023) “Forecasting spatiotemporal variations in emergency shelter demand leveraging human mobility data: A data-centric multivariate framework”, *Proceedings of the IISE Annual Conference & Expo 2022*, New Orleans, LA; May 19-23, 2023 (*secured the 2nd Prizes in both Best Track Paper and Best Student Paper competitions by the Work Systems Track*)
- [C18] Wei, Z.^Ψ, and Mukherjee, S.^{*} (2022) “Mapping Human Mobility Variation and Identifying Critical Services During a Disaster Using Dynamic Mobility Network”, *Proceedings of the IISE Annual Conference & Expo 2022*, Seattle, WA; May 22-25, 2022 (*selected as the best student paper finalist by the Data Analytics & Information Systems (DAIS) Track*); [[Link](#)]
- [C17] Ganguly, P.^Ψ, and Mukherjee, S.^{*} (2021). “Understanding Wildfire Induced Risk on Interconnected Infrastructure Systems Using a Bow-Tie Model and Self Organizing Maps”, *Proceedings of the 31st European Safety and Reliability Conference (ESREL 2021)*, France Angers, September 19-23, 2021; [[Link](#)]
- [C16] Mukherjee, S.^{*}; Botchwey, N.; Boamah, E.F. (2020) “Towards resilient mental wellbeing in cities: A data-driven learning from mental health-environment nexus”, *Proceedings of the 30th European Safety and Reliability Conference (ESREL 2020)*, Venice Italy, November 1-6, 2020; [[Link](#)]
- [C15] Masoudvaziri, N.[⊗], Ganguly, P.^Ψ, Mukherjee, S.^{*}, Sun, K. (2020) “An integrated risk-informed decision framework to minimize wildfires-induced power outage risks”, *Proceedings of the 30th European Safety and Reliability Conference (ESREL 2020)*, Venice Italy, November 1-6, 2020; [[Link](#)]
- [C14] Yoon, S.^{*}, Mukherjee, S., and Hastak, M. (2019). “Evaluating natural hazard-induced electricity sector inoperability leveraging data-driven statistical learning approach”, *Proceedings of the Canadian Society for Civil Engineers (CSCE) 2019 General Conference*, June 12-15, 2019; [[Link](#)]
- [C13] Mukherjee, S.^{*}, and Nateghi, R. (2017). “Estimating Climate—Demand Nexus to Support Long-term Adequacy Planning in the Energy Sector”, *Proceedings of the IEEE Power and Energy Society General Meeting at Chicago*, 2017, July 16-20, 2017 [Paper acceptance rate: 10%]: **Selected among the best conference papers**; [[Link](#)]
- [C12] Mukherjee, S.^{*}, Yoon, S., and Hastak, M. (2017). “Implementing Intelligent Planning Unit (IPU) Concept for Optimized Electricity Demand Management in the Complex Built Environment”, *Proceedings of the 6th CSCE/ASCE/CRC International Construction Specialty Conference 2017*; May 31 – June 3, 2017, Vancouver, Canada; [[Link](#)]
- [C11] Mukherjee, S.^{*} and Hastak, M. (2017). “Optimal selection of transmission line rehabilitation strategies to minimize power transmission costs”, *Proceedings of the PMI Project Management Research & Academic Conference 2017*; March 2-4 2017, Indian Institute of Technology, Delhi, India: **Awarded Best Jury Award**
- [C10] Kang, K.^{*}, Mukherjee, S., and Hastak, M. (2017). “A Framework for Analyzing Multidimensional Infrastructure Supply Chain and Business Continuity Plans to Enhance City-Level Resilience” *Proceedings of the 10th Anniversary Homeland Defense/Security Education Summit*, March 2017, Arlington VA; [[Link](#)]
- [C9] Mukherjee, S.^{*}, and Hastak, M. (2016). “Risk of natural disasters on the economic growth of a country: A random parameter panel-data analysis” *Proceedings of the 12th International Conference of International Institute for Infrastructure Resilience and Reconstruction, IIIRR/011*, August 5–7, Peradeniya, Sri Lanka, pp. 29-37; [[Link](#)]

- [C8] **Mukherjee, S.***, and Hastak, M. (2016). “Sustainability in the context of resilience enhancement and capacity building strategies”, *Proceedings of the 6th International Conference on Building Resilience*, September 7–9, 2016, Auckland, NZ; [[Link](#)]
- [C7] Ji, R., Liu, K., Nantung, T., **Mukherjee, S.** and Hastak, M. (2016). “Numerical modeling for sealed and unsealed pavement drainage performance: A case study on US-24”, *Proceedings of the Transportation Research Board 95th Annual Meeting*, Washington D.C., January 10-14, 2016; [[Link](#)]
- [C6] **Mukherjee, S.***, and Hastak, M. (2016). “Public Utility Commissions to Foster Resilience Investment in Power Grid Infrastructure.” *Procedia - Social and Behavioral Sciences*, Volume 218, May 9, 2016, Pages 5-12; [[Link](#)]
- [C5] **Mukherjee, S.***, Hassan, M.E. and Shafaat, A. (2015). “Developing a system-of-system framework for an integrated transportation system using system dynamics”. *Proceedings of the 5th International / 11th Construction Specialty Conference (CSCE)*, June 8-10, 2015. (1323-1332); Vancouver, British Columbia; [[Link](#)]
- [C4] **Mukherjee, S.***, Hastak, M., and Halligan, J. (2014). “Compare and contrast major nuclear power plant disasters: Lessons learned from the past”. *Proceedings of the 10th International Conference of the International Institute for Infrastructure Resilience and Reconstruction (I3R2)*; May 20-22 2014. (163-169), Purdue University, West Lafayette, Indiana; [[Link](#)]
- [C3] **Mukherjee, S.***, Shane, J., and Strong, K. (2012). “Safety risk analysis and proposing risk mitigation strategies for operations and maintenance activities in highways”, *Proceedings of the Construction Research Congress 2012*, Purdue University, West Lafayette, IN; [[Link](#)]
- [C2] **Mukherjee, S.***, Shane, J.S., and Strong, K.S. (2012). “Identification and assessment of risks involved in operations and maintenance activities on highways – Crash data analysis and development of severity-frequency lists”, *Proceedings of the Transportation Research Board 91st Annual Meeting*, Washington D.C.; [[Link](#)]
- [C1] **Mukherjee, S.***, Shane, J.S., and Strong, K.C. (2011). “Implementing an enterprise project management system in a large, multidisciplinary engineering consulting firm”, *Proceedings of the Engineering Project Organization Conference (EPOC 2011)*, Estes Park, CO; [[Link](#)]

CONFERENCE ORAL PRESENTATIONS

Indicators	
My PhD student	Ψ
Other graduate student supervised	⊗
Corresponding author	★
Presenter	<i>name</i>

- [O51] Ramirez-Rios, D., **Mukherjee, S.**, Soto-vergel, A., Brennan, J., Hou, H. and Ganguly, P.^Ψ (2024) “A Disaster Impacts Framework from Fieldwork Data to Assess Critical Infrastructure Impacts on Communities”, 34th Annual Conference Production and Operations Management Society, April 25-29, 2024, Minneapolis, MN.
- [O50] Roy, P.[⊗], and **Mukherjee, S.***, (2024) “Assessing Inequity in Wildfire Resource Allocation Using a Data-Driven Approach”, Natural Hazards Workshop, Researchers Meeting July 17-18, 2024, Broomfield, CO.
- [O49] Ramirez-Rios, D., **Mukherjee, S.**, Soto-vergel, A., Brennan, J., Hou, H. and Ganguly, P.^Ψ (2024) “Synthesizing post-disaster fieldwork data: A comprehensive framework integrating qualitative and quantitative analyses”, Natural Hazards Workshop, Researchers Meeting July 17-18, 2024, Broomfield, CO.
- [O48] Clark, S., **Mukherjee, S.***, Walteros, J., and Yeo, J. (2024) “Social Burden of Wildfire-Induced Critical Infrastructure Service Disruptions on Disadvantaged Communities: The Case of Wildfire in the Western U.S.”, Natural Hazards Workshop, Researchers Meeting July 17-18, 2024, Broomfield, CO.

- [O47] Umar, F.[⊗] and Mukherjee, S.* (2023) “Data-Driven Analysis of Equity in Wildfire Resource Allocation”, Society for Risk Analysis (SRA) Annual Meeting, December 10-14, 2023, Washington D.C. (*SRA Student Best Paper Award from the SRA Justice, Equity and Risk Specialty Group (JERSG)*)
- [O46] Wei, Z.^Ψ and Mukherjee, S.* (2023) “Examining disparities in access to critical facilities using fine-grained human mobility network”, Society for Risk Analysis (SRA) Annual Meeting, December 10-14, 2023, Washington D.C. (*SRA Student Best Paper Award from the Engineering and Infrastructure Specialty Group (EISG)*)
- [O45] Jose, E.[⊗] and Mukherjee, S.* (2023) “Evaluating socioeconomic factors for crime against women in developing countries using a data-centric statistical learning approach”, Society for Risk Analysis (SRA) Annual Meeting, December 10-14, 2023, Washington D.C.
- [O44] Wei, Z.^Ψ and Mukherjee, S.* (2023) “A Two-Stage Spatiotemporal Analysis to Forecast Mobility Patterns at Critical Facilities”, INFORMS Annual Meeting, October 15-18, 2023, Phoenix AZ.
- [O43] Ganguly, P.^Ψ, Mukherjee, S.*, and Walteros, J. (2023) “Designing a Resilient Power Grid System through Optimal Public Safety Power Shutoffs and Microgrid Formation under Wildfire Scenarios”, INFORMS Annual Meeting, October 15-18, 2023, Phoenix AZ.
- [O42] Mukherjee, S.*, and Ramirez-Rios, D. (2023) “Advancing equity-focused post-disaster community recovery using a human-centered uncertainty-informed decision framework”, Natural Hazards Center Research Meeting, July 12-13, 2023, Boulder CO.
- [O41] Ganguly, P.^Ψ, Mukherjee, S.*, and Walteros, J. (2022) “Designing a Resilient Power Grid System through Optimal Public Safety Power Shutoffs and Microgrid Formation under Wildfire Scenarios”, International Society for Risk Analysis General Meeting, December 4-8, 2022, Tampa FL.
- [O40] Ganguly, P.^Ψ; and Mukherjee, S.* (2022) “A Hierarchical Data-Driven Optimization Framework to Enhance Power Grid Infrastructure Resilience Under Compound Effects of Climate Change and Extreme Weather Events”, International Society for Risk Analysis General Meeting, December 4-8, 2022, Tampa FL
- [O39] Wei, Z.^Ψ, and Mukherjee, S.* (2022) “Advancing Disaster Preparedness: A Data-Driven Spatiotemporal Analysis to Forecast Mobility Patterns at Critical Facilities”, International Society for Risk Analysis General Meeting, December 4-8, 2022, Tampa FL
- [O38] Wei, Z.^Ψ, and Mukherjee, S.* (2022) “Understanding neighborhood-level socioeconomic disparities associated with access to essential services during a disaster using dynamic mobility networks”, International Society for Risk Analysis General Meeting, December 4-8, 2022, Tampa FL
- [O37] Wei, Z.^Ψ, and Mukherjee, S.* (2022). “A Data-Centric Approach to Model Human Behavior Dynamics Under Extreme Weather Events Using Large-Scale Mobility Data”, 2022 INFORMS Annual Meeting Conference, Indianapolis IN, October 16-19, 2022
- [O36] Ganguly, P.^Ψ, and Mukherjee, S.* (2021) “Modeling Wildfire-induced Failure Risk of Interdependent Infrastructure Systems: A Hybrid Approach Using a Bow-Tie Model and Bayesian Network”, International Society for Risk Analysis General Meeting, December 5-9, 2021
- [O35] Wei, Z.^Ψ, and Mukherjee, S.* (2021) “Assessing community resilience: A human mobility perspective”, International Society for Risk Analysis General Meeting, December 5-9, 2021
- [O34] Mukherjee, S.*, Shucard, J., Rintamaki, L., Wei, Z.^Ψ, Carlasare, L., and Sinsky, C. (2021). “Investigating posttraumatic stress disorder (PTSD) the mental wellbeing among US physicians during COVID-19: a data-centric approach based on survey data”, International Society for Risk Analysis General Meeting, December 5-9, 2021 (*Best Student Paper Award from Occupational Health and Safety Specialty Group (OHSSG) SRA*)
- [O33] Ganguly, P.^Ψ, and Mukherjee, S.* (2021) “A Geo-AI Based Framework for Modeling Wildfire-induced Failure Risk of Electric Power Grid”, International Society for Risk Analysis General Meeting, December 5-9, 2021
- [O32] Mukherjee, S.*; Boamah, E.F.; Ganguly, P.^Ψ; and Botchwey, N.; (2021) “Insights Into The Community Mental Health—Built Environment Nexus: A Multi-level Scenario-based Predictive Analytics Framework”, INFORMS Healthcare Conference 2021, Indianapolis IN; July 21-23, 2021

- [O31] **Mukherjee, S.***; Rintamaki, L.; Shucard, J.; Wei, Z.[‡]; Carlasare, L.; Sinsky, C. (2021) “A Novel Data-driven Approach to Evaluate the Risk of Post-traumatic Stress Disorder in the US Physicians During COVID-19 Pandemic”, INFORMS Healthcare Conference 2021, Indianapolis IN; July 21-23, 2021
- [O30] **Mukherjee, S.***; Ganguly, P.[‡], Boamah, E.F., and Botchwey, N. (2020). “An Interdisciplinary Approach to Assess Community Mental Wellbeing of Communities in Cities Leveraging Statistical Learning”, International Society for Risk Analysis General Meeting, December 13-17, 2020
- [O29] Obringer, R., Silva, D.M., Nateghi, R., **Mukherjee, S.**, Vineeth CR.; McRoberts, DB; Kumar, R. (2020). “Characterizing the impact of climate change on household air conditioning use across the United States”, International Society for Risk Analysis General Meeting, December 13-17, 2020
- [O28] Obringer, R., **Mukherjee, S.***, Nateghi, R. (2020). “Modeling Sectoral Electricity—Natural Gas Demand and Climate Nexus: A Data-driven Multivariate Predictive Framework”, International Society for Risk Analysis General Meeting, December 13-17, 2020
- [O27] **Narin, A.B.⊗**, Wei, Z.[‡], and **Mukherjee, S.*** (2020). “A Robust Data-Driven Framework to Evaluate and Predict County Health Rankings Leveraging Statistical Learning”, International Society for Risk Analysis General Meeting, December 13-17, 2020
- [O26] Wei, Z.[‡], and **Mukherjee, S.*** (2020). “A Two-Stage Dynamic Disease Transmission Model Accounting for Behavioral and Epidemiological Heterogeneities in Populations”, International Society for Risk Analysis General Meeting, December 13-17, 2020
- [O25] Ganguly, P.[‡], and **Mukherjee, S.*** (2020). “A Bi-Level Scheduling and Allocation of Frontline Healthcare Workers (FHWs) During a Pandemic to Reduce the Work-Related Stress”, International Society for Risk Analysis General Meeting, December 13-17, 2020
- [O24] **Gupta, A.⊗**, Wei, Z.[‡], and **Mukherjee, S.*** (2020). “Investigating People’s Reactions Towards Government Policies During COVID-19 Using Sentiment Analysis of Twitter Data”, International Society for Risk Analysis General Meeting, December 13-17, 2020
- [O23] **Mukherjee, S.*** (2020) “Studying the Associations Between Community Mental Health Risk, Built Environment And Socioeconomic Factors”, 2020 INFORMS Annual Meeting Conference, November 8-11, 2020
- [O22] Obringer, R.; Maia-Silva, D.; Nateghi, R.; **Mukherjee, S.***; and Kumar, R. “Looking Ahead: How Will Household Air Conditioning Use Be Affected By Climate Change”, 2020 INFORMS Annual Meeting Conference (virtual), November 8-11, 2020
- [O21] Ganguly, P.[‡], and **Mukherjee, S.*** (2020) “Understanding The Wildfire Induced Risk To Interdependent Critical Infrastructures Using Pixel Based Analysis With Probabilistic Graphical Models”, 2020 INFORMS Annual Meeting Conference, November 8-11, 2020
- [O20] Ganguly, P.[‡], and **Mukherjee, S.***, Kumar, A.S. (2020) “Assessing The Factors Causing Physicians Burnout During COVID-19 Pandemic Using A Survey Based Approach”, 2020 INFORMS Annual Meeting Conference, November 8-11, 2020
- [O19] Fontecha, J.E.⊗, **Agarwal, P.⊗**, Torres, M.N., **Mukherjee, S.***, Walteros, J., and Rodriguez, J.P., (2020). “A Two-stage Data-driven Risk Prediction Framework Leveraging Machine Learning And 2D Space-time Analysis: A Case Study For Sewer System Failures In Bogota”, 2020 INFORMS Annual Meeting Conference, November 8-11, 2020
- [O18] Fontecha, J.E.⊗, **Agarwal, P.⊗**, Torres, M.N., **Mukherjee, S.***, Walteros, J., and Rodriguez, J.P., (2020). “A two-stage data-driven spatiotemporal analysis to predict failure-risk of urban sewer systems”, I Simposio Industria 4.0. Universidad del Sinú, Cartagena, Colombia. (September 1, 2020)
- [O17] Obringer, R., **Mukherjee, S.***, and Nateghi, R. (2020) “Modeling Sectoral Electricity—Natural Gas Demand and Climate Nexus: A Data-driven Multivariate Predictive Framework”, Applied Energy Symposium: MIT A+B, Aug 12-14 2020; Cambridge, MA
- [O16] Ganguly, P.[‡], and **Mukherjee, S.*** (2019). “Evaluating factors affecting crime rates in the state of New York: A county-level analysis”, International Society for Risk Analysis General Meeting, Arlington VA, December 8-12, 2019

- [O15] Masoudvaziri, N. [⊗], **Mukherjee, S.***, Sabbaghtorkan, M. [⊗], and Sun, K. (2019). "Investigating the risk factors causing widespread wildfires: a county level study applied to the state of California", International Society for Risk Analysis General Meeting, Arlington VA, December 8-12, 2019
- [O14] Fontecha, J.E. [⊗], Agarwal, P. [⊗], Torres, M.N., Rodriguez, J.P., **Mukherjee, S.*** (2019). "Prediction and Evaluation of Sediment- and Infrastructure-related Failure Risks on Bogotá's Sewer System: A spatiotemporal analysis", International Society for Risk Analysis General Meeting, Arlington VA, December 8-12, 2019
- [O13] Aziz, R.A. [⊗], Mahbub, N. [⊗], Paul, H.K. [⊗], **Mukherjee, S.***, Zhuang, J. (2019). "A Spatial and Temporal Analysis of Impact of Climatic and Physical Factors on Bridge Health", International Society for Risk Analysis General Meeting, Arlington VA, December 8-12, 2019
- [O12] Wei, Z. [∇], and **Mukherjee, S.*** (2019). "Comparative assessment of the risk factors leading to suicide attempts among male and female youths: A predictive analytics approach", International Society for Risk Analysis General Meeting, Arlington VA, December 8-12, 2019
- [O11] Obringer, R., **Mukherjee, S.***, and Nateghi, R. (2019). "Modeling the impact of climate change on the New York state energy consumption", 2019 INFORMS Annual Meeting Conference, Seattle WA, October 20-23, 2019
- [O10] Alipour, P. [⊗], **Mukherjee, S.***, Nateghi, R. (2019). "A Generalized Predictive Modeling Framework to Assess Climate Sensitivity of Peak Electricity Load", 2019 INFORMS Annual Meeting Conference, Seattle WA, October 20-23, 2019
- [O9] Ganguly, P. [∇], and **Mukherjee, S.*** (2019). "Risk assessment framework to evaluate urban vs. rural crime rates leveraging data-driven predictive analytics", The Second Conference on Risk Analysis, Decision Analysis, and Security, Buffalo/Niagara Falls, NY, USA; Jul 30–Aug 2, 2019
- [O8] Worden, M. [⊗]; Kopanon, A. [⊗]; **Mukherjee, S.*** (2019). "Comparative Analysis of Climate-induced Suicidal Rates among Urban and Rural Populations in the U.S.", 2019 INFORMS Healthcare Conference, Cambridge MA, July 27-29, 2019
- [O7] Wei, Z. [∇], Dave, S. [⊗], Gohil, H. [⊗], and **Mukherjee, S.*** (2019). "A Data-driven Framework to Identify and Assess the Risk Factors Leading to Suicide Ideation and Attempts Among Youths", 2019 INFORMS Healthcare Conference, Cambridge MA, July 27-29, 2019
- [O6] **Mukherjee, S.*** (2019). "A data-centric framework to evaluate climate-sensitivities of end-use energy demands", IISE Annual Conference & Expo 2019, Orlando FL, May 18-21, 2019
- [O5] Alipour, P. [⊗], **Mukherjee, S.***, and Nateghi, R. (2019). "Evaluating climate models-induced uncertainties in projecting long-term regional energy demands", IISE Annual Conference & Expo 2019, Orlando FL, May 18-21, 2019
- [O4] **Mukherjee, S.*** (2019). "Leveraging data-driven predictive analysis to assess and compare the climate sensitivities of regional electricity and natural gas demands", Engineering Sustainability 2019, Pittsburg PA, April 8, 2019
- [O3] **Mukherjee, S.***, CR, V., and Nateghi, R. (2018). "A Comparative Analysis of Climate Sensitivities of High- and Moderate-Intensity Regional Electricity Demands", International Society for Risk Analysis (SRA) 2018 Annual Meeting Conference, New Orleans LA, December 2-6, 2018
- [O2] Alipour, P. [⊗], **Mukherjee, S.*** and Nateghi, R. (2018). "Impact of climate model uncertainties in projecting long-term regional energy demand", 2018 INFORMS Annual Meeting Conference, Phoenix AZ, November 4-7, 2018
- [O1] **Mukherjee, S.***, Nateghi, R. and Hastak, M. (2018). "Modeling Risks of Extreme Weather Induced Power Outages", 2018 INFORMS Annual Meeting Conference, November 4-7, 2018

POSTER PRESENTATIONS

Indicators	
My PhD student	Ψ
Other graduate student supervised	⊗
Corresponding author	★
Presenter	<i>name</i>

- [P12] Roy, P.[⊗], **Mukherjee, S.**, Ramirez-Rios, D., Soto-vergel, A., Brennan, J., Hou, H. and Ganguly, P.^Ψ (2024) “Evaluating Impacts of Hurricane Fiona on Puerto Rican Communities Leveraging Quasi-Qualitative Approach”, Natural Hazards Workshop, Researchers Meeting July 17-18, 2024, Broomfield, CO.
- [P11] Brennan, J.[⊗], Ramirez-Rios, D., **Mukherjee, S.**, Soto-Vergel, A., Hou, H., and Ganguly, P.^Ψ (2024). “Infrastructure Failure Impacts on Socially Vulnerable Communities in Puerto Rico after Hurricane Fiona”, Natural Hazards Engineering Engineering Infrastructure (NHERI) Computational Symposium, Los Angeles, CA, USA; February 1-2, 2024
- [P10] Pillai, P.[⊗], Ganguly, P.^Ψ and **Mukherjee, S.**[★] (2022). “What is Energy Poverty? A Systematic Literature Review to Gain Insights”, Industrial and Systems Engineering Poster Competition, University at Buffalo (SUNY), Buffalo NY, USA; December 16, 2022
- [P9] Wei, Z.^Ψ and **Mukherjee, S.**[★] (2022). “A Transformative Data-centric Framework to Assess Community Resilience to Natural Disasters Leveraging Large-scale Human Mobility Data”, 2022 IISE Doctoral Colloquium Poster Presentation, Seattle WA, USA; May 22, 2022
- [P8] Wei, Z.^Ψ and **Mukherjee, S.**[★] (2022). “Formulating Dynamic Mobility Network for Disaster Management”, Industrial and Systems Engineering Poster Competition, University at Buffalo (SUNY), Buffalo NY, USA; February 9, 2022
- [P7] Masoudvaziri, N.[⊗], Ganguly, P.^Ψ, **Mukherjee, S.**[★], Sun, K. (2020) “Fast prediction of wildfire spread: a surrogate to physics-based simulations”, International Society for Risk Analysis General Meeting, Austin TX, December 13-17, 2020
- [P6] Wei, Z.^Ψ, and **Mukherjee, S.**[★], (2020) “Socio-environmental Factors on Spatiotemporal Suicide Risk: A Data-driven Comparative Approach”, 2020 INFORMS Annual Meeting Conference, November 8-11, 2020
- [P5] Rathi, K.[⊗], Mulik, P.[⊗], and **Mukherjee, S.**[★] (2020) “Towards enhancing grid reliability: A multi-time scale framework to forecast climate-induced electricity demand growth”, Applied Energy Symposium: MIT A+B, August 12-14 2020; Cambridge, MA
- [P4] Narin, A.B.[⊗]; Pandey, R.K.[⊗]; Shirsat, A.[⊗]; and **Mukherjee, S.**[★]. (2020) “Predicting the Number of OFF Periods Per Week for Parkinson’s Disease Leveraging Statistical Learning”, Industrial and Systems Engineering Poster Competition, University at Buffalo (SUNY), Buffalo NY, USA; February 14, 2020
- [P3] Wei, Z.^Ψ, and **Mukherjee, S.**[★] (2020). “Investigating the Factors of Gender Paradox in Adolescent Suicide Attempts”, Industrial and Systems Engineering Poster Competition, University at Buffalo (SUNY), Buffalo NY, USA; February 14th, 2020
- [P2] Wei, Z.^Ψ, Dave, S.[⊗], Gohil, H.[⊗], and **Mukherjee, S.**[★] (2019). “Data-informed Modeling to Analyze and Assess the Growing Risks of Suicide Attempts Among Youths”, The Second Conference on Risk Analysis, Decision Analysis, and Security, Buffalo/Niagara Falls, NY, USA; July 30–Aug 2, 2019
- [P1] **Mukherjee, S.**[★] and Nateghi, R. (2018). “Modeling supply inadequacy risks in the regional electricity sector under climate change scenarios”, International Society for Risk Analysis (SRA) 2018 Annual Meeting Conference, New Orleans LA, December 2-6, 2018

RESEARCH REPORTS AND THESIS

- [R4] **Mukherjee, S.** "Towards a resilient grid: A risk-based decision analysis incorporating the impacts of the severe weather-induced power outages" Ph.D. Dissertation (2017)
- [R3] Raymond, L.; Gotham, D.; McClain, W.; **Mukherjee, S.**; Nateghi, R.; Preckel, P.V.; Schubert, P.; Singh, S.; Wachs, L.; Widhalm, M.; and Dukes, J., "Climate Change and Indiana's Energy Sector: A Report from the Indiana Climate Change Impacts Assessment" (2019). Energy Reports. Paper 1; [[Link](#)]
- [R2] **Mukherjee, S.** "Identification, assessment and proposing mitigation strategies for the risks involved in operations and maintenance activities on highways-crash data analysis and development of integrated risk management model." M.S. Thesis (2011)
- [R1] Strong, K.C., Shane, J.S., **Mukherjee, S.**, and Mathes, J. (2011). "Risk Mitigation Strategies for Operations and Maintenance Activities", IHRB Project TR-627, Final report October 2011

INVITED TALKS AND SEMINAR

- [T19] **Society for Risk Analysis - Engineering and Infrastructure Specialty Group (EISG)**, "Promoting Equitable Wildfire Resilience of Critical Infrastructure Systems Using a Human-centric Risk-informed Decision Framework", April 5, 2024
- [T18] **Purdue University - School of Civil Engineering**, "Advancing Equitable Climate Resilience of Interdependent Critical Infrastructure Systems under Deep Uncertainties", March 8, 2024
- [T17] **University at Buffalo (SUNY) - Civil, Structural and Environmental Engineering Department**, "Designing for the future: A roadmap to advance climate resilience of the U.S. energy sector", February 24, 2023;
- [T16] **Rochester Institute of Technology - Industrial and Systems Engineering Department**, "Integrated multilayered modeling of the complex interactions of sociotechnical systems with climatic extremes", November 17, 2022
- [T15] **Society for Risk Analysis 2022**, "A Hierarchical Data Driven Optimization Framework to Enhance Power Grid Infrastructure Resilience Under Compound Effects of Climate Change and Extreme Weather Events", December 4-8, 2022, Tampa FL (*Invited in session – Infrastructure Resiliency*)
- [T14] **University of Oklahoma**, "Harnessing Data-driven Risk Assessment Methods to Advance the Resilience and Sustainability of Socio-technical Systems", January 28, 2022
- [T13] **Society for Risk Analysis 2021**, "A Geo-AI Based Framework for Modeling Wildfire-induced Failure Risk of Electric Power Grid", December 5-9, 2021 (*Invited in session – Resilience Modeling of Energy Systems*)
- [T12] **George Mason University**, "A multifaceted data-driven risk assessment approach to advance the resilience and sustainability of socio-technical systems", April 19, 2021
- [T11] **ASCE Women Water Nexus 11th Short Conference on Sewer Asset Management – Challenges and New Data-driven Methods (Key Speaker)**, "A two stage data driven spatiotemporal analysis to predict failure risk of urban sewer systems", November 17, 2020
- [T10] **INFORMS Annual Meeting 2020**, "Towards Improved Energy Predictions: Modeling Energy Sector Couplings Using A Multivariate Predictive Framework", November 9, 2020 (*Invited in session – Data Analytics in Energy Systems*)
- [T9] **Purdue University**, "Data-driven risk-informed decision analysis: Application towards sustainable energy systems", Webinar; April 3, 2020
- [T8] **Florida State University and Florida A&M University**, "Towards climate-resilience of energy sector: A data-driven multidisciplinary approach to risk-informed decision making", Tallahassee FL, February 26, 2018
- [T7] **University of Virginia**, "A roadmap towards climate-resilient energy infrastructure systems: A data-driven interdisciplinary approach to risk-informed decision analysis", Charlottesville VA, February 20, 2018

- [T6] **University of Michigan**, “Quantifying and predicting the climate-induced demand shifts in the energy sector”, Ann Arbor MI, February 12, 2018
- [T5] **Vanderbilt University**, “Advanced data analytics to understand climate and severe weather risks in the electricity sector”, Nashville TN, April 25, 2017
- [T4] **Wharton Risk and Decision Center**, “Strategic decision-making for resilience investments in the infrastructure systems”, Philadelphia PA, June 21, 2017
- [T3] **Indian Institute of Technology, Delhi**, “Risk and decision analysis for resilience enhancement of critical infrastructure”, Delhi India, March 6, 2017
- [T2] **Cuba Consortium Meeting**, “Disaster Impacts on Communities and Mitigation Strategies”, Gainesville FL, June 17, 2016
- [T1] **World Bank and Indiana University–Purdue University Indianapolis (IUPUI)– Polis Center Joint Meeting**, “Overview of disaster risk reduction approaches”, Indianapolis IN, December 14, 2016

GRANTS

Funded [Total grant amount: \$841K; Total grant money as a PI: \$757.5K]

- [1] **NSF SAI: Strengthening American Infrastructure [Award Number: 2324616]** 2023
 - *Integrating equity in Emergency Management: A human-centered decision framework to improve polycentric governance of critical infrastructure in wildland-urban interfaces*
 - **Role: PI** [Co-PIs: Jose Walteros—Department of Industrial and Systems Engineering, UB; Susan Clark—Department of Environment and Sustainability, UB; Jungwon Yeo—School of Public Administration, UCF]
 - Funding amount: 750,000 USD
 - Project period: 09/15/2023 — 08/31/2026
- [2] **NSF RAPID – HDBE Humans, Disasters and Built Environment [Award Number: 2308524]** 2023
 - *Exploring Impacts of Cascading Failure and Recovery Efforts of Interdependent Critical Infrastructure in Socially Vulnerable Puerto Rican Communities After Hurricane Fiona*
 - **Role: Co-PI (50%)** [PI: Diana Ramirez-Rios — Industrial and Systems Engineering]
 - Funding amount: 49,999 USD
 - Project period: 01/01/2023 — 12/31/2023
- [3] **Natural Hazards Student Research Grant, Center for Geohazards Study** 2022
 - *Modeling Disparities in Accessibility to Essential Services Under Disasters Using Large Scale Mobility Data*
 - **Role: Supervisor**
 - Funding amount: 2000 USD
- [4] **Natural Hazards Student Research Grant, Center for Geohazards Study** 2021
 - *Understanding Wildfire Induced Risk on Interconnected Infrastructure Systems Using a Bow-Tie Model and Self-Organizing Maps*
 - **Role: Supervisor**
 - Funding amount: 1500 USD
- [5] **American Medical Association (AMA) Collaboration** 2020
 - *Towards mental wellbeing of frontline healthcare workers: A risk-informed adaptive decision framework to minimize psychosocial effects of the COVID-19 pandemic*
 - **Role: PI (100%)** [Phase-I, Collaboration study facilitating survey for data collection 2020-2021]
 - Funding amount: N/A
- [6] **SUNY Research Seed Grant Program [RFP #20-03-COVID]** 2020
 - *Towards resilient and sustainable healthcare system: An integrated risk-informed decision framework for optimal allocation of resources*

- **Role: PI (60%)** [Co-PIs: Li Lin—Industrial and Systems Engineering, UB; Winnie Chen—Industrial and Systems Engineering, UB]
- Funding amount: 7500 USD

[7] **SUNY Research Seed Grant Program** 2020

- *Evaluating gaps between perceived and objective risks of fire in wildland-urban interface communicates*
- **Role: Co-PI (33.3%)** [PI: Negar Elhami-Khorasani—Civil, Structural & Environmental Engineering Dept. UB; Co-PIs: Janet Z. Yang—Dept. of Communication UB, Kevin T. Smiley—Dept. of Sociology UB, Kang Sun—Civil, Structural & Environmental Engineering Dept. UB]
- Funding amount: 30,000 USD

[8] **Center for Disease Control and Prevention (CDC) National Violent Death Reporting System (NVDRS) Restricted Access Dataset (RAD) Data Proposal** 2020

- *Develop a data-driven predictive framework to identify, assess and predict the socio-economic, demographic and environmental risk factors for the growing suicide rates in the U.S. at various spatiotemporal scales*
- **Role: PI (100%)** [Phase-I, Data Proposal]
- Funding amount: N/A

INDUSTRY AND CONSULTING EXPERIENCE

- [1] *Consulting for Versar Inc.:* Served as an external peer reviewer for the Climate Change Indicators Report, published by the U.S. EPA's Climate Change Division (CCD) in the Office of Atmospheric Programs (OAP) in the U.S. [2020].
- [2] *Consulting for Customer Care Network, Inc. and New York Power Authority:* Providing expert advice on energy demand forecasting models, assess issues of the existing models used for energy pricing and energy management decision making, and conduct focus group meetings sharing the findings and recommendations [2018-2019].
- [3] *Project Engineer at M.N. Dastur & Company Consulting Firm:* Worked on several civil engineering projects as a planning and scheduling engineer [2008-2010]

MEDIA COVERAGE

- [M29] **University at Buffalo News Center:** UB-led team awarded \$750,000 NSF grant to study wildfire inequities; [[Link](#)]
- [M28] **United Nations Office for Disaster Risk Reduction (UNDRR) News:** Inequity in U.S. Wildfire Emergency Response; [[Link](#)]
- [M27] **Society for Risk Analysis (SRA) News:** Research shows that counties with higher black and lower-income populations receive less support in wildfire disasters; [[Link](#)]
- [M26] **CBS News Live Streaming:** New concerns about U.S. energy grid's durability against climate change; [[Link](#)]
- [M25] **The Hill:** Do humans cause climate change? Even now, only half of Americans say yes; [[Link](#)]
- [M24] **SPECTRUM News:** In the wake of Hurricane Ian: Utility poles versus buried power lines; [[Link](#)].
- [M23] **WGRZ News—Television Station in Buffalo :** Winter heating costs could soar for natural gas customers; [[Link](#)].
- [M22] **American Geophysical Union Press Release:** US Household Air Conditioning Use Could Exceed Electric Capacity in Next Decade due to Climate Change; [[Link](#)].
- [M21] **The Los Angeles Times:** As Earth warms, air conditioning use could exceed power supply in next decade; [[Link](#)].
- [M20] **Tech Xplore:** Microgrids and solar reduce risk of power outages; [[Link](#)].

- [M19] **Popular Science**: Biden’s Infrastructure Act best big on 3 types of ‘green’ energy tech; [\[Link\]](#).
- [M18] **Science and Health, Voice of America**: Cities Unprepared for Intense, Frequent Heat Waves; [\[Link\]](#).
- [M17] **UB SEAS News**: Sayanti Mukherjee recognized by IISE as Outstanding Young Investigator; [\[Link\]](#).
- [M16] **News 5 Cleveland**: Cleveland Public Power lacks transparency in outage reports: Reported data on outages raises questions; [\[Link\]](#).
- [M15] **Popular Science**: The real story behind the Texas power outages; [\[Link\]](#).
- [M14] **Popular Science**: The US has more power outages than any other developed country. Here’s why; [\[Link\]](#).
- [M13] **UBNow**: New model could improve energy demand predictions in New York State; [\[Link\]](#).
- [M12] **ScienceNews**: Here’s what it will take to adapt the power grid to higher wildfire risks; [\[Link\]](#).
- [M11] **OneClass**: Top 10 Professors at the University of Buffalo; [\[Link\]](#).
- [M10] **Phys.Org**: How will climate change stress the power grid? Hint: Look at dew point temperatures; [\[Link\]](#).
- [M9] **Phys.Org**: How will climate change stress the power grid? Hint: Look at dew point temperatures; [\[Link\]](#).
- [M8] **UBMD News**: How will climate change stress the power grid? Hint: Look at dew point temperatures; [\[Link\]](#).
- [M7] **Purdue Engineering News**: How will climate change stress the power grid?; [\[Link\]](#).
- [M6] **Market Business News**: Climate change will stress the power grid more than industry estimates; [\[Link\]](#).
- [M5] **Nicnewmanoxford.com**: Climate change stress on the power grid; [\[Link\]](#).
- [M4] **UPI Science News**: Power grid pressure: Climate change to increase electricity demands; [\[Link\]](#).
- [M3] **Purdue Engineering News**: Research seeks to improve electrical infrastructure against weather outages; [\[Link\]](#).
- [M2] **Purdue Exponent**: Purdue climate change study projects good news, bad news; [\[Link\]](#).
- [M1] **Phys.Org**: Study’s projections show climate change to increase commercial Indiana energy consumption, reduce residential use; [\[Link\]](#).

ADVISING & MENTORING

Ph.D. In Progress

- Poulomee Roy [Incoming PhD student, Fall 2024]

Ph.D. Students Graduated

- Zhiyuan Wei [Graduated – Spring 2024]: *Towards Equitable Access To Essential Services: A Data-driven Human Mobility Modeling Framework*
 - 1st Job: Assistant Professor of Industrial and Manufacturing Engineering at California Polytechnic State University, San Luis Obispo, CA
- Prasangsha Ganguly [Graduated – Summer 2023]: *Strengthening Electricity Infrastructure Under Compound Climatic Threats: A Multi-Faceted Quantitative Framework*
 - 1st Job: Senior Analyst in Revenue Management Operations Research at American Airlines

M.S. Thesis In Progress

- Poulomee Roy [Degree expected – Summer 2024]

M.S. Thesis Completed

- Pranav Vinod Pillai [Graduated – Summer 2023]: *A Multi-Faceted Framework to Comprehend Energy Poverty Dynamics across Climate Zones in the United States Leveraging Data-Driven Machine Learning Techniques*

- Yashraj Shashikant Sharma [Graduated – Spring 2023]: *Generating Wildfire Risk Maps for Critical Infrastructure Systems Using Integrated Generative AI and Simulation Techniques Under Information Uncertainty*
- 1st Job: Revenue Management Analyst at AFSLogistics
- Aishwarya Mahendra Gupta [Graduated – Spring 2021]: *Investigating public sentiment towards government-issued COVID-19 policies and mandates through the Twitter lens: A data-centric approach*
- 1st Job: Safety & Compliance Program Manager at Amazon

M.S. Research Project Supervision

- Gokul Selvaraj [Aug 2020-April 2021]: *Data visualization: Mental health analytics across the US*
- 1st Job: Supply Chain Data Analyst at Logistics Plus, Inc.
- Abinesh Senthil Kumar [Jan 2020-Feb 2021]: *Survey data analytics: Post Traumatic Stress Disorder of Physicians during COVID-19 Pandemic*
- 1st Job: Business Analyst at Amazon
- Pranav Mulik [Jan 2020-May 2020]: *Exploratory Analysis: Predicting hourly electricity demand for the ISO regions in New York*
- 1st Job: Quality Engineer at Henkel Aerospace, San Francisco CA
- Khushbu Girish Rathi [Jan 2020-May 2020]: *Exploratory Analysis: Predicting hourly electricity demand for the ISO regions in New York*
- 1st Job: Business Analyst at Amazon
- Akshay Sanjay Agrawal [Jan 2019-Aug 2019]: *Impact of Thermal Stress on Public Health*
- 1st Job: Credit Risk Analysis at SoFi, California
- Krishna Chaitanya Raja Hajarath [Jan 2020-Aug 2020]: *Mapping of community mental health in the U.S.*
- 1st Job: Supply Chain Planner 2 at Western Digital, California
- Shivam Mayankbhai Dave [Jan 2020-May 2020]: *Suicide disparities in metropolitan areas in the U.S.*
- Adil Baran Narin [Jan 2020-May 2021]: *Modeling multidimensional population health*

Undergraduate Research Mentoring

- Huize Hou [Degree expected – Spring 2024]
- Jonathan Chen [Degree expected – Spring 2024]
- Rufus Nguyen-Mcdowell [Degree expected – Spring 2023]
- Bryce Zhong [Graduated – Spring 2021] (Joined MS program in Computer Science at Johns Hopkins University)
- Saumya Pandey [Graduated – Spring 2021]
- Theodore Gerstein [Graduated - Spring 2019] (Joined Graduate Program at University of Illinois at Urbana-Champaign (UIUC))

Committee Member of Ph.D. Dissertations

- Kaylie Butt, Industrial and Systems Engineering [Expected Graduation - 2024]
- Fernando Szasdi-Bardales, Civil, Structural and Environmental Engineering [Expected Graduation - 2024]
- Himangshu Paul, Industrial and Systems Engineering [Graduated – Summer 2022]
- Nima Masoudvaziri, Civil, Structural and Environmental Engineering [Graduated Spring 2022]
- Ridwan Al Aziz, Industrial and Systems Engineering [Graduated – Fall 2021]
- Nafisa Mahbub, Industrial and Systems Engineering [Graduated – Summer 2021]

Committee Member of M.S. Thesis

- Michael Monzillo, Geography [Graduated - Spring 2021]

- Hailie Suk, Mechanical and Aerospace Engineering [Graduated - Fall 2020]

TEACHING ACTIVITIES

Course Instructor, Industrial and Systems Engineering, University at Buffalo (SUNY)

- IE 500 / 459: Data Analytics and Predictive Modeling
 - Enrollment: Ph.D., M.S., and Undergraduate Students
 - Overall instructor rating: N/A; Overall course rating: N/A Fall 2023
 - Overall instructor rating: 4.8/5; Overall course rating: 4.7/5 Spring 2023
 - Overall instructor rating: 4.8/5; Overall course rating: 4.5/5 Fall 2021
 - Overall instructor rating: 4.9/5; Overall course rating: 4.9/5 Fall 2020
 - Overall instructor rating: 3.9/5; Overall course rating: 3.6/5 Fall 2019
- IE 600 TUT: Advanced Data Analytics and Predictive Modeling
 - Enrollment: Ph.D. and M.S. Students
 - Overall instructor rating: 4.5/5; Overall course rating: 4.5/5 Spring 2019
- IE 600 TUT / IE 670 TUT: Data-driven Risk and Decision Analysis
 - Enrollment: Ph.D. and M.S. Students (*no course ratings available because of enrollment ≤ 5*)
 - Overall rating: – Spring 2024
 - Overall rating: N/A Spring 2023
 - Overall rating: N/A Spring 2022
 - Overall rating: N/A Spring 2021
 - Overall rating: N/A Spring 2020
- IE 322: Analytics and Computing for Industrial Engineers
 - Enrollment: Undergraduate Students
 - Overall instructor rating: N/A; Overall course rating: N/A Fall 2023
 - Overall instructor rating: 3.9/5; Overall course rating: 3.9/5 Fall 2021

Course Co-Instructor, Division of Construction Engineering and Management, Purdue University

- CE 691: Research seminar course for new grad students Spring 2018, Fall 2017
 - Enrollment: Ph.D. and M.S. Students
- CE 222 / CEM 201: Life Cycle Engineering and Management of Construction Facilities Spring 2016
 - Enrollment: Undergraduate Students

Graduate Teaching Assistant, Division of Construction Engineering and Management, Purdue University

- CE 691: Research seminar course for new grad students Fall 2014
 - Enrollment: Ph.D. and M.S. Students

Graduate Teaching Assistant, Civil Engineering, Iowa State University

- GEN CHEM 177: General Chemistry Fall 2010
 - Enrollment: Undergraduate Students

PROFESSIONAL SERVICE ACTIVITIES

Professional Committees

- Competition Judge for JUMP into STEM 2022-2023 Program 2022
- Program organized by Oak Ridge National Laboratory, NREL, Pacific Northwest National Laboratory, and U.S. Department of Energy
- Review Committee Member for the IISE Energy Systems Division Outstanding Young Investigator Award 2022
- Track Chair of the Data Analytics & Information Systems (DAIS) Track at the IISE Annual Conference & Expo 2022
- Chair of the Risk Science Committee, International Society for Risk Analysis 2021-Present
- Guest Editor on Special Issue of Socio-economic Planning Sciences Journal (Elsevier) 2022-2023
- Title: *Data-driven Approaches in Modeling Climate Risk, Resilience and Sustainability of Food, Energy, Water, and Health (FEWH) Systems*
- Chair of the Engineering and Infrastructure Specialty Group, Society of Risk Analysis. 2021-2022
- Vice Chair of the Engineering and Infrastructure Specialty Group, Society of Risk Analysis. 2019–2020
- Reviewer Board Member of Climate Journal (MDPI) 2020-Present
- Editorial Board of Sustainable Infrastructures as Review Editor for Frontiers in Sustainable Cities 2020-Present
- Member of the Global Leadership Forum for Construction Engineering and Management Programs (GLF-CEM) Executive Committee 2020-2021

Conference Leadership

- **Symposium Chair**, Society for Risk Analysis General Meeting December 2022
- Symposium title: *Towards Enhancing Power Grid Resilience Under Climatic Extremes*
- **Symposium Chair**, Society for Risk Analysis General Meeting December 2021
- Symposium title: *Data-Centric Approaches for Efficient Disaster Risk Management and Climate Change Adaptation in the Digital Era*
- **Symposium Chair**, Society for Risk Analysis General Meeting December 2021
- Symposium title: *Machine Learning and AI Towards Advancing Community and Infrastructure Risk and Resilience*
- **Symposium Chair**, Society for Risk Analysis General Meeting December 2020
- Symposium title: *Big Data, Predictive Analytics and Risk Informed Decision Making in Healthcare System*
- **Judge**, Institute of Industrial and Systems Engineers (IISE) Doctoral Student Colloquium November 2020
- **Symposium Chair**, Society for Risk Analysis General Meeting December 2019
- Symposium title: *Data-driven Risk Modeling using Predictive Analytics Approach*
- **Session Chair**, INFORMS General Meeting October 2019
- Session title: *Sustainable and Resilient Energy Systems*
- **Session Chair**, INFORMS Healthcare Conference July 2019
- Session title: *Public Health and Health Policy*
- **Session Chair**, Construction Research Congress Conference April 2018
- **Session Chair**, INFORMS Annual Meeting November 2018
- Session title: *Environmental Decision Analytics*
- **Session Chair**, INFORMS Annual Meeting November 2018

- Session title: *Risk and Decision Analytics*

Proposal Reviewer / Panelist

- **Reviewer:** University of Michigan’s Graham Sustainability Institute 2022
- *FY23 Carbon Neutrality Acceleration Program*
- **Panelist:** National Science Foundation (NSF) 2022
- *Humans, Disasters and Built Environment (HDBE) Program*
- **Reviewer:** Swiss National Science Foundation (SNSF) 2022
- *the Swiss Programme for International Research by Scientific Investigation Teams (SPIRIT) Program*
- **Panelist:** National Science Foundation (NSF) 2021
- *National Institute of Science and Technology (NSF-NIST) Disaster Resilience Research Grants*
- **Reviewer:** National Science Foundation 2019
- *Decision, Risk, and Management Science Program*

Academic Journal Reviewer

(Total articles reviewed till date: 50)

- American Journal of Health Promotion
- American Journal of Public Health
- Applied Energy
- ASCE-ASME: Journal of Risk and Uncertainties in Engineering
- Built Environment Project and Asset Management
- Energy Efficiency
- Energy Systems
- Frontiers in Sustainable Cities
- IEEE Access
- Nature Communications
- OMEGA: The International Journal of Management Science
- Reliability Engineering and System Safety
- Risk Analysis
- Safety Science
- Science of Total Environment
- Socio-Economic Planning Sciences
- Sustainable Cities and Society

University at Buffalo (SUNY)

- *Student Retention Task Force:* Member of the Data & Assessment Subcommittee and the Predictive Analytics Team 2020-2021

University at Buffalo (SUNY): School of Engineering and Applied Sciences (SEAS)

- *Conferral Expert in Energy Systems from SEAS:* “Help meet New York Power Authority (NYPA)’s ambitious renewable energy goals provided for in the Climate Leadership and Community Protection Act (“CLCPA”)” 2023
- *Junior Faculty Panelist:* “Global Dexterity: Tips for Working in a Global Environment” Workshop 2018

University at Buffalo (SUNY): Department of Industrial and Systems Engineering

- Founder and Faculty Adviser of Society for Risk Analysis UB Student Chapter 2021-Present
- Graduate Affairs Committee 2021-Present

- Faculty Search Committee for hiring Assistant Professor for Teaching 2021
- Led INFORMS Student Chapter Workshop on Citation Management Software 2020
- Committee Member of the ISE 75th Anniversary Celebration 2020-2021
- Offered guest lectures to new incoming ISE undergraduates on “How climate change impacts our communities”. 2019-2021
- Led INFORMS Student Chapter Discussion Session on “The Transition from Ph.D. Student to Assistant Professor” 2019
- Institute of Industrial and Systems Engineers (IISE) Club Faculty Co-Advisor 2019
- Faculty Search Committee for hiring Assistant Professor for Teaching 2019
- Faculty representative from the ISE department at the Accepted Graduate Student Reception 2019
- Committee member of ISE Strategic Planning Subcommittee on Infrastructure Development and Department Reputation and Pride 2018-2019
- ISE Department Seminar Coordinator 2018-2019

OUTREACH ACTIVITIES

- Invited Speaker of International Visitor Leadership Program 2023
 - Hosted international visitors from Germany who came to Buffalo as part of the “Critical Infrastructure Security and Resilience” project organized by the U.S. Department of State and the International Institute of Buffalo
- Panelist for the Women in STEM Education (WiSE) 2023
 - WiSE & Shine: Sustainability Month Event, University at Buffalo (SUNY)
- Panelist for New Faculty Brownbag Panel Workshop 2022
 - *Surviving the First Year and Beyond*, University at Buffalo (SUNY)
- Workshop session chair at Tech Savvy Leadership Workshop 2019
 - Science and math workshop for girls in 6-12 grades organized by American Association of University Women, University at Buffalo (SUNY)
- Invited speaker: Middle school students’ research engagement 2017
 - Workshop organized by Women in Engineering Program (WEP)’s I2R and the EPICS (Engineering Projects in Community Service), Purdue University
- Mentoring new graduate students 2015
 - Program conducted by the Graduate School, Purdue University
- American Red Cross (ARC) Member 2013
 - Actively participating in post-disaster relief operation interviewed affected people in the community after an intensive tornado (DR 616 Indiana Tornadoes) hit Indiana

PROFESSIONAL AFFILIATIONS

Member

- International Society for Risk Analysis 2018-Present
- Institute for Operations Research and the Management Sciences (INFORMS) 2018-Present
- Institute of Industrial and Systems Engineers (IISE) 2018-Present
- Institute of Electrical and Electronics Engineers (IEEE) 2017-2019
- American Society of Civil Engineers (AM, ASCE) 2015-2018

PROFESSIONAL DEVELOPMENT

- SUNY Virtual Symposium on Adaptive Learning 2020
 - *University at Buffalo (SUNY)*
- New Faculty Colloquium 2019
 - *Organized by Institute of Industrial and Systems Engineers (IISE), Orlando FL*
- New Faculty Academy, Teaching Workshop 2018
 - *University at Buffalo (SUNY)*
- Faculty Advancement, Success and Tenure (FAST) Workshop 2017
 - *Purdue University*
- Graduate Teacher Certification 2017
 - *Purdue University*
- Preparing for Future Faculty 2016
 - *Purdue University*

Updated on April 25, 2024