Puneet Agarwal

Industrial and Manufacturing Engineering Department   pagarw05@calpoly.edu
College of Engineering   +1 716 597 3642
California Polytechnic State University, San Luis Obispo, CA   linkedin.com/in/puneetag02

EDUCATION

Ph.D.   Industrial Engineering, University at Buffalo, Buffalo, NY, 2021

M.S.   Industrial Engineering, University at Buffalo, Buffalo, NY, 2019

B.E.   Production Engineering, Jadavpur University, Kolkata, India, 2016

EMPLOYMENT

2021–   Assistant Professor (Start Date: September 23, 2021)
Industrial and Manufacturing Engineering Department
California Polytechnic State University, San Luis Obispo, CA

2021   Data Science Intern
Otis Elevator Company, Southlake, TX

2017–21   Graduate Research Assistant
Decision, Risk and Data Laboratory
Department of Industrial and Systems Engineering
University at Buffalo, Buffalo, NY

2017–21   Graduate Teaching Assistant
Department of Industrial and Systems Engineering
University at Buffalo, Buffalo, NY

2020   Data Science Intern
WestRock, Atlanta, GA

2019   Data Science Intern
WestRock, Atlanta, GA

AWARDS AND HONORS

2020   Graduate Student Teaching Award, Industrial and Systems Engineering, University at Buffalo

2019   Society for Risk Analysis (SRA) Travel Award to participate in SRA Annual Meeting, Arlington, VA

2019   17th Annual IISE Doctoral Colloquium Participant, Orlando, FL

2019   University at Buffalo - Industrial and Systems Engineering Travel Grant to participate in IISE Annual Conference, Orlando, FL

2019   Natural Hazards Student Research Grant, Center for GeoHazards Studies, University at Buffalo

2017	Graduate Achievement Award, Industrial and Systems Engineering, University at Buffalo
2016	University Gold Medal for securing 1st position in B.E. Production Engineering, Jadavpur University
2016	Departmental Award for outstanding performance in undergraduate studies, Jadavpur University

PROFESSIONAL MEMBERSHIPS

Society for Risk Analysis (SRA)

Institute for Operations Research and Management Science (INFORMS)

Institute of Industrial and Systems Engineers (IISE)

PUBLICATIONS

(* indicates student coauthor)

Peer-reviewed Journal Papers

2022	Jose, E., P. Agarwal, J. Zhuang, and J. Swaminathan "A Multi-criteria Decision Making Approach to Evaluating the Performance of Indian Railway Zones," *Annals of Operations Research*, under second round of review.
2022	Agarwal, P., R. Aziz, and J. Zhuang "Interplay of Rumor Propagation and Clarification on Social Media during Crisis Events - A Game-Theoretic Approach," *European Journal of Operational Research*, 298(2), 714-733.
2022	Hunt, K., P. Agarwal, and J. Zhuang "On the Adoption of New Technology to Enhance Counterterrorism Measures: An Attacker-defender Game with Risk Preferences," *Reliability Engineering and System Safety*, 218: 108151.
2021	Fontecha, J., P. Agarwal, M. Torres, S. Mukherjee, J. Walteros, and J. Rodriguez "A Two-stage Data-driven Spatiotemporal Analysis to Predict Failure-risk of Urban Sewer Systems Leveraging Machine Learning Algorithms," *Risk Analysis*, published online ahead of print.
2021	Hunt, K., P. Agarwal, and J. Zhuang "Technology Adoption for Airport Security: Modeling Public Disclosure and Secrecy in an Attacker-defender Game," *Reliability Engineering and System Safety*, 207: 107355.
2021	Agarwal, P., K. Hunt, J. Zhuang, B. Sarkar, A. Sarkar, and R. Sharma "An Exploratory Analysis for Performance Assessment of State Police Forces in India: An Eclectic Approach," *Operational Research*, 21(2): 1125-1151.
2020	Hunt, K., P. Agarwal, and J. Zhuang "Monitoring Misinformation on Twitter during Crisis Events: A Machine Learning Approach," *Risk Analysis*, published online ahead of print.
2020	Agarwal, P., K. Hunt, S. Srinivasan, and J. Zhuang "Fire Code Inspection and Compliance: A Game-Theoretic Model between Fire Inspection Agencies and Building Owners," *Decision Analysis*, 17(3): 208-226.
2020	Agarwal, P., J. Tang, A. Lakshmi Narayanan, and J. Zhuang "Big Data and Predictive Analytics in Fire Risk using Weather Data," *Risk Analysis*, 40(7): 1438-1449.

2017   Chakraborty, S., D. Paul, and P. Agarwal "Evaluation of Educational Performance of Indian States using PROMETHEE-GIS Approach," *Benchmarking: An International Journal*, 24(6): 1709-1728.

2016   Paul, D., P. Agarwal, and S. Chakraborty "Performance Appraisal of Indian State Police Forces using ARAS Method," *Management Science Letters*, 6(5): 361-372.

2015   Paul, D., P. Agarwal, G. Mondal, and D. Banerjee "A Comparative Analysis of Different Hybrid MCDM Techniques Considering a Case of Selection of 3D Printers," *Management Science Letters*, 5(7): 695-708.

Peer-reviewed Conference Papers

2019   Hunt, K., P. Agarwal, and J. Zhuang. "Applying Machine Learning to Track Misinformation During Disasters," *Proceedings of the 2019 Industrial and Systems Engineering Research Conference (IISE 2019)*, Orlando, Florida, May 18-21, 2019.

Professional Magazine Articles

2020   Hunt, K., P. Agarwal, R. Aziz, and J. Zhuang "Fighting fake news during disasters - Machine learning and game theory shown to be effective tools to monitor, debunk misinformation," *ORMS Today Magazine*, 47(1): February 2020.

2019   Hunt, K., P. Agarwal, and J. Zhuang "Tracking storms of misinformation spread amid disasters - Machine learning can be used to identify 'fake news' shared via social media" (cover story), *ISE Magazine*, 51(9): 28-32, 2019.

2018   Agarwal, P., and J. Zhuang "Twitters and Early Warning Systems: Limits and Potential for India," *Asian Early Warning Systems: A View, southasiadisasters.net*, Special Issue No. 170, June 2018.

CONFERENCE PRESENTATIONS

(* indicates presenting coauthor)

2020   Agarwal, P.*, R. Aziz, and J. Zhuang "Interplay of Rumor Propagation and Clarification on Social Media during Crisis Events: A Game-Theoretic Approach," *Virtual 2020 Institute for Operations Research and Management Sciences (INFORMS 2020) Annual Meeting*, November 8-13.

2020   Agarwal, P.*, J. Fontecha, M. Torres, S. Mukherjee, J. Walteros, and J. Rodriquez "A Two-stage Data-driven Risk Prediction Framework Leveraging Machine Learning and 2D Space-time Analysis: A Case Study for Sewer System Failures in Bogotá," *Virtual 2020 Institute for Operations Research and Management Sciences (INFORMS 2020) Annual Meeting*, November 8-13.

2019   Agarwal, P.*, K. Hunt, R. Aziz, and J. Zhuang "Rumor Tracking and Strategic Decision-Making during Disasters using Supervised Machine Learning and Game Theory," *2019 Society for Risk Analysis (SRA 2019) Annual Meeting*, Arlington, Virginia, December 8-12.

2019   Agarwal, P.*, E. Jose, and J. Zhuang "Effectiveness of Prescribed Fires in Wildfire Mitigation," *2019 Society for Risk Analysis (SRA 2019) Annual Meeting*, Arlington, Virginia, December 8-12.

2019   Agarwal, P.*, J. Fontecha, M. Torres, J. Rodriquez, and S. Mukherjee "Prediction and Evaluation of Sediment and Infrastructure-related Failure Risks on Bogotá's Sewer System: A

Spatiotemporal Analysis," *2019 Society for Risk Analysis (SRA 2019) Annual Meeting*, Arlington, Virginia, December 8-12.

2019   Agarwal, P.*, K. Hunt, R. Aziz, and J. Zhuang "Rumor Tracking and Strategic Decision-making during Disasters using Supervised Machine Learning and Game Theory (flash talk + poster)," *2019 Institute for Operations Research and Management Sciences (INFORMS 2019) Annual Meeting*, Seattle, Washington, October 20-23.

2019   Agarwal, P.*, K. Hunt*, and J. Zhuang "Tracking Misinformation on Twitter during Disasters: A Machine Learning Approach," *2019 Institute of Industrial and Systems Engineering Conference (IISE 2019)*, Orlando, Florida, May 18-21.

2019   Agarwal, P.*, K. Hunt, R. Aziz, and J. Zhuang "Rumor Tracking and Strategic Decision-Making during Disasters using Supervised Machine Learning and Game Theory (poster)," *2019 Institute of Industrial and Systems Engineering Conference (IISE 2019)*, Orlando, Florida, May 18-21.

2018   Agarwal, P.*, R. Aziz*, K. Hunt*, and J. Zhuang* "Communication and Misinformation: A Comprehensive Outlook at Disaster Response on Social Media," *2018 Technology and Homeland Security Forum*, Niagara Falls, New York, October 24.

RESEARCH GRANTS

2022   "Decision Support System for Real-Time Electric Vehicles Routing during Short-Notice Evacuations," submitted to the Research, Scholarly, and Creative Activities (RSCA) Grant Program, Role: co-PI (PI: Dr. Mohamed Awwad, IME Department, Cal Poly), Result: Declined.

2022   "Temporal Life Cycle Modeling of Social Media User Activity During the Spread of Rumors and Fake News," submitted to the Data Strategic Research Initiative (SRI) Grant Incubation Support Competition, Role: sole PI, Result: Declined.

GRADUATE STUDENTS SUPERVISION

2021–   Jack McGuinness
         Master's Project Title: Life Cycle Modeling of Social Media Activity during Natural Disasters

2021–   Jamie Cullen
         Master's Thesis Title: Analyzing the Impact of Official Accounts on the Spread of Rumors on Social Media

COURSES TAUGHT

IME 212 Introduction to Enterprise Analytics: Spring 2022

IME 372 Applications of Enterprise Analytics: Spring 2022, Winter 2022

IME 409 Economic Decision Systems: Fall 2021 (Co-Instructor)

SERVICE

Academic Journal Peer Review

Number of Papers Reviewed: 9

Applied Mathematics and Computation
Benchmarking
Decision Analysis
Natural Hazards
Operational Research
Risk Analysis

Conference Organizing and Review Services

Co-Organizer: Session on Disaster Management and Homeland Security for the *Virtual 2020 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, November 8-13, 2020.

Service to Professional Organizations

Vice-Chair, Society of Risk Analysis (SRA) Engineering and Infrastructure Specialty Group (EISG), 2022–

Services to Department

Member, Continuous Improvement – Career and Graduate Advising Committee, 2021–

Member, IME Student Support Fund Review Committee, 2021–

Other

Industrial and Systems Engineering Graduate Student Ambassador, University at Buffalo, 2021

Treasurer, Industrial and Systems Engineering – Graduate Student Association, University at Buffalo, 2018–2020

Updated June 2022