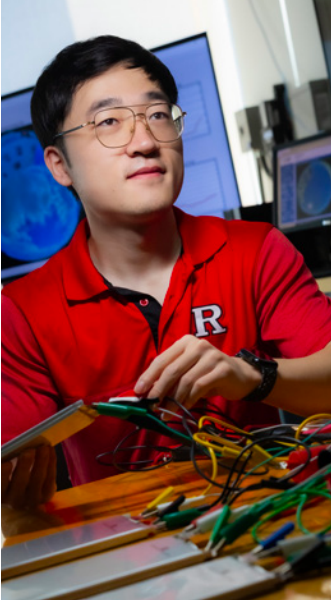




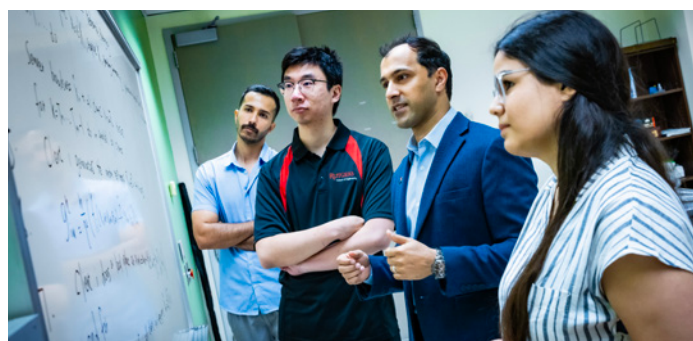
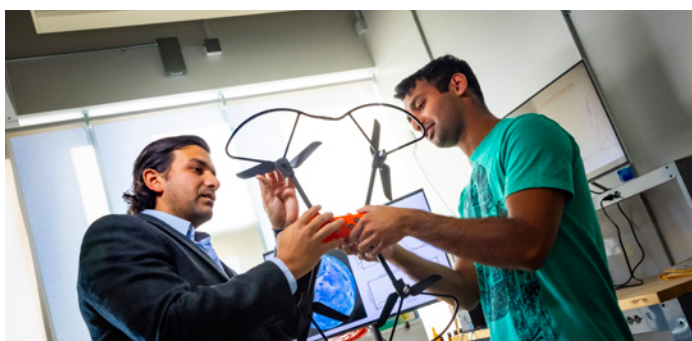
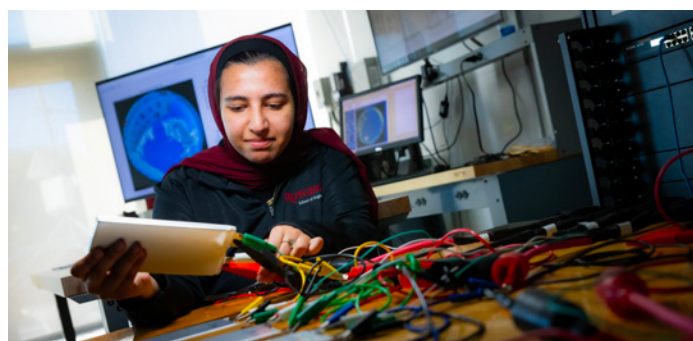
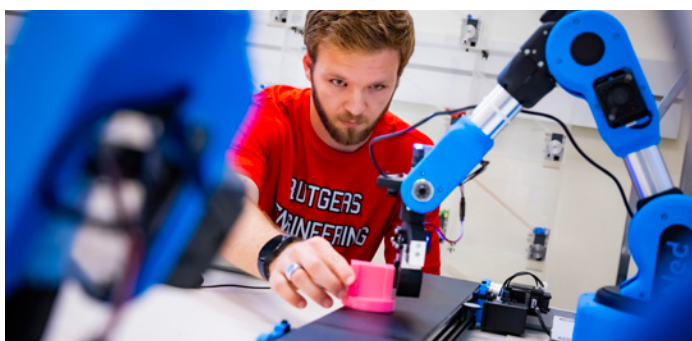
Department of Industrial and Systems Engineering

Biannual Report: 7/2021-7/2023



TABLE OF CONTENTS

Greetings from the Department Chair	3
Faculty	4
Active Reserach Funding.....	13
Major Awards, Recognitions and Honors.....	14
Keynote and Plenary Addresses	15
Journal Papers	15
Refereed Conference Papers	22
Invited Presentations, Lectures, and Seminars	23
Books and Book Chapters	24
PhD Thesis Completed	25
Patents.....	25



GREETINGS FROM THE DEPARTMENT CHAIR



In looking back at the period covered in this Department of Industrial and Systems Engineering Annual Report, one thing stands out: the outstanding level of achievement that our faculty have sustained in their research and academic endeavors.

I am delighted to share here a recap of faculty achievements, along with an overview of our program. At Rutgers, industrial and systems engineering offers students a robust engineering education that prepares them for specialization in a broad spectrum of industrial engineering, operations research and data science fields. We bring cutting-edge concepts and technology to instruction and research in everything from optimization and data science to advanced manufacturing and production; from quality and reliability engineering to energy systems; and from AI, big data, and machine learning to smart built environment.

We connect students with invaluable hands-on experience in energy, manufacturing, finance, and transportation research projects that are often supported by dynamic cross-disciplinary and industry collaborations.

Our department generated more than \$2.2 million in active research funding between July 2021 and July 2023 for projects addressing some of today's pressing energy, transportation, manufacturing, and AI challenges. The national and international recognition of a number of ISE faculty includes fellow status in professional societies and best paper awards. And more than 110 of their refereed papers have been published in technical journals.

Our collective knowledge and expertise engage us in major initiatives at the state and federal levels, including wind and clean hydrogen initiatives in the northeast, and the New Jersey government task force on clean energy.

As thought leaders, we organized and chaired a regional conference on clean hydrogen's benefits and were honored to serve as general co-chair of the joint 2023 North American Manufacturing Research Conference (NAMRC) at Rutgers ASME International Manufacturing Science and Engineering Conference (MSEC) and JMSE International Conference on Leading Edge Manufacturing Materials & Process (LEM&P) at Rutgers.

U.S. News & World Report consistently gives high marks to our graduate program, which celebrated the graduation of seven doctoral students in the past two years – all of whom are joining academia or high-tech industry.

While proud of our past, the future for all of us in ISE at Rutgers, I am certain, promises to be even brighter.

Sincerely,

Mohsen Jafari, PhD

Chair and Professor, Department of Industrial and Systems Engineering



Melike Baykal-Gürsoy, PhD

Professor

<https://gursoy.rutgers.edu>

Director of Laboratory for Stochastic Systems

Director of Game Research for Infrastructure Security (GRIST) Lab

Research Focus: Stochastic Modeling, Optimization and Control: Markov Decision Processes; Stochastic Games, Queueing Theory; and their applications to Cyber-Physical Security, Transportation, Production/Inventory, and Communication Systems.

Research Keywords: Stochastic optimization, Markov decision processes, game theory, queueing, systems analytics.

Active Research Funding and Awards: National Science Foundation award for work on developing games and game-theory based protection policies against lone-wolf attacks on soft targets.

Funded Research Track Record: Research on security games was funded by the National Science Foundation, National Institute of Justice, and Siemens Foundation. She also received funding from the Transportation Coordinating Council/Federal Transit Administration, Department of Defense, Rutgers Research Council, and industry.

Professional Associations: INFORMS

Publications: For the period of this report, she published 9 peer reviewed journal articles in the journals including IEEE Trans. on Information Forensics and Security, IEEE Trans. on Intelligent Transportation, Annals of Operations Research, European Journal of Transportation and Logistics, Transportation Research Part C, and Terrorism and Political Violence.

Publication Track Record: Published a total of 42 refereed articles in journals including Mathematics of Operations Research, Queueing Systems: Theory and Applications, Probability in Engineering and Informational Sciences, European Journal of Operational Research, IEEE Transactions, and a total of 13 peer reviewed conference proceedings including IEEE CDC, IEEE SMC, MILCOM, ValueTools. She co-authored a book entitled "An Introduction to Probability and Statistics". <https://scholar.google.com/citations?user=FMnsO1oAAAAJ&hl=en>

Peer-reviewed Conferences: Published 5 peer reviewed conference articles during the report period in conference proceedings including IEEE CNS, IEEE ICASSP, IEEE HST, NetGCoop, and EAI SecureComm.



David W. Coit, PhD

Professor

<https://www.davidcoit.net>

Research Focus: Conducts research on system reliability modeling and optimization, degradation modeling, reliability and maintenance theory, and energy systems optimization.

Research Keywords: System reliability, optimization, degradation, maintenance, energy systems

Active Research Funding and Awards: Rutgers / Global Grant: Collaboration between Rutgers and Tecnológico de Monterrey, Mexico, New Jersey Board of Public Utilities (BPU), Université Paris-Saclay Jean d'Alembert fellowship.

Research Funding Track Record: Research was funded by the NSF CAREER grant; U.S. Army; U.S. Navy; and industry.

Professional Associations and Leadership: Member of IISE and INFORMS. Associate Editor of IEEE Transactions on Reliability, Associate Editor Journal of Risk and Reliability, Management Advisory Board RAMS symposium, IISE Fellow

Journal Publications: Published eight peer reviewed journal articles in journals including IEEE Transactions on Reliability, Reliability Engineering & Systems Safety, Energy Policy

David W. Coit, PhD (continued)

Publication Track Record: More than 135 published journal papers and over 100 peer-reviewed conference papers in journals including IISE Transactions, IEEE Transactions on Reliability, Reliability Engineering & Systems Safety, European Journal of Operations Energy, Computers & Industrial Engineering. <https://www.davidcoit.net/publications>

Peer-reviewed Conferences: Three conference papers. Typical conferences attended are RAMS, ISERC, INFORMS, QR2MSE

Major Recognitions: P.K. McElroy, Alain O. Plait, and William A.J. Golomski Awards for best papers and tutorials at the Reliability and Maintainability Symposium, IISE Fellow, NSF CAREER Award, Jean d'Albembert Fellowship.



E.A. Elsayed, PhD

Distinguished Professor

Director of NSF/Industry/University Cooperative Research Center for Quality and Reliability Engineering

Research Focus: Quality and reliability engineering and production planning and control, resilience modeling and quantification, reliability modeling for human parts replacements including artificial heart and hip joints.

Active Research Funding and Awards: Supported by the Department of Homeland Security and Infrastructure Security Agency (CISA). This research develops a risk-based methodology that will allow for quantitative comparisons of relative risk of different Information Communication Technology (ICT) supply chain threat scenarios, identify potentially useful countermeasures for different scenarios, and make quantitative comparisons of relative risk reduction of the countermeasures.

Research Funding Track Record: Research funded by NSF, DoD, ILA, FAA, Lockheed Martin and many industries.

Publications Track Record: Co-author of several books, including Reliability Engineering, Wiley and Sons, 2021, and more than 150 refereed journal articles. Two of his three books received book of the year award by IISE and other awards.

Major Recognition, Awards and Honors: Recipient of Rutgers University Board of Trustees Award for Excellence in Research; IISE David F. Baker Research Award; IISE Fellow Award; ASME Fellow; INFORMS Fellow, Senior Fulbright Award; Thomas Alva Edison Award for US Patent 7,115,089 B2; Doctor Honoris Causes, University of Agers, France. Recipient of the Industrial Engineering and Operations Management (IEOM) Distinguished Educator Award, Sep. 2022.

Professional Associations and Leadership: QSR advisory board chair, INFORMS; Editor, International Journal of Reliability, Quality and Safety Engineering; Associate editor, Wiley IEEE Encyclopedia, Reliability Engineering Area; Editorial Board Member, International Journal of Production Research; Associate editor, Quality Technology and Quantitative Management.

Peer-reviewed Conferences: Four peer reviewed conference proceedings during 2019-2023, and more than a total of 280 conference presentations. Conferences include ASME, IEEE, IISE, INFORMS, Winter Simulation Conference and others.



Ahmed Aziz Ezzat, PhD

Assistant Professor

<https://sites.rutgers.edu/azizezzat/>

Director of Renewables & Industrial Analytics (RIA) Research Lab

Research Focus: The Renewables & Industrial Analytics (RIA) research laboratory located in Richard Weeks Hall of Engineering includes research and educational activities to address fundamental technical challenges of renewable energy and industrial systems through a Machine Learning (ML) and Operations Research (OR) lens. His research group specializes in developing ML/OR models for renewable energy forecasting, asset and system management, diagnostics, and prognostics, as well as operations and maintenance (O&M) modeling and optimization for improved asset- and system-level performance and reliability.

Ahmed Aziz Ezzat, PhD (continued)

Research Keywords: Forecasting, Machine Learning, Optimization, Renewable Energy, Quality and Reliability Engineering.

Active Research Funding: Leading two federal projects that are funded by NSF and DoE/NOWRDC, respectively, that are broadly focused on designing and developing innovative solutions to improve the operation of renewable energy systems. He is also a co-PI on another NSF project on machine learning and analytics for materials engineering and informatics.

Funded Research Track Record: Research has been funded by several external and internal grants including from the NSF, DOE, NOWRDC, NJ EDA, Rutgers Provost-Chancellor Office, Rutgers Global Grants, Institute of International Forecasters and SAS Corporation, as well as Industry. Between 2019-2023, he has been the PI or co-PI on ~\$1.6M of research grants.

Professional Associations and Leadership: 2023-2024 president of the IISE Energy Systems Division and has served as a board member on the IISE Quality Control & Reliability Engineering Division (2022-2023), and the secretary of the Forecasting for Social Good Cluster of IIF (2022-present). He is a professional member of IISE, IEEE-PES, INFORMS, and IIF.

Journal Publications: For the period of this report, he has published eight journal publications including in IEEE Transactions, IISE Transactions, Renewable Energy, Applied Energy.

Publication Track Record: More than 20 papers in peer-reviewed journals and conferences in the areas of data and decision sciences and energy analytics, including in Annals of Applied Statistics, Technometrics, IEEE Transactions, IISE Transactions, Renewable Energy, among others. Link: <https://scholar.google.com/citations?user=PB7AmR8AAAAJ&hl=en&authuser=1>

Peer-reviewed Conferences: For the period of this report, he has published two peer-reviewed conference papers in IEEE PES GM and IISE Proceedings.

Major Recognition, Awards and Honors : The 2022 IISE DAIS Teaching Award, and three best paper awards (jointly with co-authors and/or students) from INFORMS and IISE.



Weihong "Grace" Guo, PhD

Associate Professor

<https://ise.rutgers.edu/weihong-guo>

Research Focus: Develops novel methodologies for extracting and analyzing massive and complex data to facilitate effective monitoring of operational quality, early detection of system anomalies, quick diagnosis of fault root causes, and intelligent system design and control. Application areas include manufacturing processes/systems, supply chain, and healthcare.

Research Keywords: Process monitoring, quality engineering, prognostics and diagnostics, system informatics.

Active Research Funding and Awards: Research on smart food supply chain supported by Qatar National Research Fund; research on threat assessment for the ICT supply chain supported by the Department of Homeland Security; research on digital twin of metal additive manufacturing supported by Rutgers Global International Collaborative Research Grant.

Funded Research Track Record: Research supported by funds from the NSF, U.S. Department of Transportation, U.S. Department of Homeland Security Cybersecurity and Infrastructure Security Agency, Oak Ridge National Lab, Ford Motor Company, Colgate-Palmolive, Rutgers Global Grant, Rutgers Research Council Grant.

Professional Associations and Leadership: IEEE, ASME, SME, INFORMS, and IISE. Associate Editor of IEEE TASE and IEEE RA-L. Co-Chair of 2023 NAMRC/MSEC/LEM&P Conference.

Conference General Co-Chair, 2023 NAMRC/MSEC/LEM&P Conference (the joint conference of the 51st SME's North American Manufacturing Research Conference (NAMRC51), the ASME's International Manufacturing Science and Engineering Conference (MSEC 2023), and the Japan Society of Mechanical Engineers (JSME)'s International Conference on Leading Edge Manufacturing/Materials & Processing (LEM&P 2023), Rutgers University-New Brunswick, June 12-16, 2023.

Conference Organizing Committee Chair, the 30th CIRP Life Cycle Engineering Conference, Rutgers University-New Brunswick, May 15-17, 2023.

Weihong “Grace” Guo, PhD (continued)

Journal Publications: For this period, published 19 peer-reviewed journal articles in IEEE Transactions on Automation Science and Engineering (TASE), Journal of Manufacturing Science & Engineering (JMSE), International Journal of Production Research (IJPR), etc.

Publication Track Record: In total, 55 peer-reviewed journal articles published in journals including IEEE-TASE, JMSE, IISE Transactions, CIRP Annals, IJPR. <https://scholar.google.com/citations?user=PKdHF-CgAAAAJ&hl=en>

Peer-reviewed Conferences: For this period, 13 peer-reviewed conference papers were published. Typical conferences attended: INFORMS Annual Meeting, ASME Manufacturing Science and Engineering Conference (MSEC), SME North American Manufacturing Research Conference (NAMRC), IISE Annual Conference, and IEEE Conference on Automation Science and Engineering (CASE).

Major Recognition, Awards and Honors: Outstanding Young Manufacturing Engineer Award from the Society of Manufacturing Engineers (2019). Best paper awards in this period include:

- Winner of the IEEE Transactions on Automation Science and Engineering Best New Application Paper Award (2023)
- Best Case Study Paper Competition Finalist at INFORMS Annual Meeting (2022)
- Best Track Paper Competition Finalist at IISE Annual Conference (2022)
- Best Paper Award Runner-Up (Applied Track) at INFORMS Annual Meeting (2021)



Mohsen A. Jafari, PhD

Professor

Department Chair

Director of Laboratory for Energy Smart Systems (LESS)

Less@rutgers.edu

Research Focus: Automation sciences, AI in decision making and control, stochastic systems with applications in manufacturing, transportation and energy.

Research Keywords: Distributed systems, Active Inferencing, Generative models.

Active Research Funding and Awards: Impact analysis of wind power to grid integration, energy storage and Hydrogen production – funded by Atlantic Shores-Shell Company, Net-zero smart communities funded by the Qatar National Research Foundation and planning for clean energy for transit, funded by the New Jersey Transit.

Funded Research Track Record: Research funded by the NSF, DoE, ONR-MURI, DoD, New Jersey Board of Public Utility, US FWA, NJ DOT, and many domestic and international industries. He has been PI or Co-PI and key investigator in over \$25M R&D funding.

Professional Associations: IEEE

Publications: Published eight articles mainly related in energy applications in IEEE ACCESS, IEEE Systems Journal, Applied Energy and IEEE Trans. on Intelligent Transportation, etc.

Publication Track record: Published a total of 125 articles in technical journals and peer reviewed conference proceedings, such as IEEE Trans. Robotics and Automation, IEEE Trans. on Automation Sciences, IEEE Trans. on Systems, Man and Cybernetics, IEEE Trans. on Intelligent Transportation, Applied Energy, IISE Transactions, Annals of Operations Research, etc.

Peer-reviewed Conferences: Four refereed conference papers published in conference proceedings. Typical conferences attended are IEEE Power and Energy, IEEE SMC, INFORMS, IWAI, etc.



Myong K. (MK) Jeong, PhD

Professor

Graduate Director

Director, KISTI-Rutgers Joint Laboratory, supported by KISTI
(Korea Institute of Science and Technology Information)

Research Focus: Developing advanced machine learning and data mining algorithms to improve the process based on various data such as sensor signals

Research Key Words: Data mining; sensor data analytics; process monitoring; and intelligent transportation.

Active Research Funding and Awards: Several projects on various Machine Learning applications, such as monitoring critical disasters, digital transformation support for domestic industries, and patent mining for new technology development in electronics and telecommunication.

Funded Research Track Record: Research supported by the NSF, National Transportation Research Center, U.S. Department of Agriculture, Qatar National Research Fund, and Electronics and Telecommunications Research Institute, KISTI (Korea Institute of Science and Technology Information), Samsung Electronics.

Professional Associations and Leadership: Senior member of IEEE, Associate editor for the IEEE Transactions on Automation Science and Engineering, International Journal of Quality, Statistics and Reliability, President of Omega Rho International Society, 2020 – present.

Publications: Published 16 articles during the two-year period.

Publication Track Record: Published 130 refereed articles in IEEE journals such as IEEE Transaction on Automation Science and Engineering, International Journal of Production Research, Journal of Quality Technology, IEEE Transactions on Systems, Man and Cybernetics, IEEE Industrial Informatics, Annals of Operations Research.

Peer-reviewed Conferences: Typical conferences attended are INFORMS Annual Conference, IISE Annual Conference.

Awards: Freund International Scholarship; NSF CAREER Award.



Robert Mieth, PhD

Assistant Professor

<https://sites.rutgers.edu/ropes-lab/>

Founder/PI of the Reliability, Operation, and Planning of Power and Energy Systems (ROPES) Lab

Research Focus: Realizing that power and energy systems are the sum of infrastructure and institutions, the Reliability, Operation and Planning of Power and Energy Systems (ROPES) Lab has two central missions: (i) Advancing the technical and economic tools to ensure sustainable, reliable, and accessible electricity supply, and (ii) illuminating the status-quo and trajectory of our power and energy systems in the context of climate change and in an effort to educate current and future decision-makers. Dr. Mieth has a background in both industrial engineering and electrical engineering and has studied a broad range of aspects of electric power delivery. His current research interests include the modelling of risk, uncertainty, and information in power systems with high shares of variable renewable energy sources. He is also interested in energy-adjacent topics like urban planning and transportation.

Research Keywords: (Topics) Power systems, renewable energy integration, electricity markets, risk analysis; (Methods) linear optimization, conic optimization, MIP, MPEC, stochastic optimization, robust optimization, machine learning, data analytics

Active Research Funding: Having started his position in fall 2023, currently preparing multiple grant applications to support ROPES lab.

Funded Research Track Record: Prior to joining Rutgers, previous research and academic trajectory has been supported by various prestigious fellowships granting him a total of ~\$270k of personal research support in the past years.

Professional Associations and Leadership: IEEE-PES, IEEE-CSS, and INFORMS (ENRE). Selected to organize and chair a “Community Choice” session in the at the INFORMS 2023 Annual Meeting.

Robert Mieth, PhD (continued)

Publication Track Record: More than 20 papers in peer-reviewed journals and conferences in the areas of power system operations, control and decision, and electricity markets. Outlets include IEEE Transactions on Power Systems, IEEE Transactions on Smart Grid, IEEE Transactions on Energy Markets, Policy, and Regulation, and Advances in Applied Energy, among others. Link: <https://scholar.google.de/citations?user=xF6QXAUAAAAJ&hl=en>

Major Recognition, Awards and Honors: Fellowships by the German National Academic Foundation, Reiner Lemoine-Foundation, and German Academy of Sciences (Leopoldina). Runner-up in the 2022 ArcGIS Storymaps Competition, and Finalist in the 2019 INFORMS Poster Prize.



Tuğrul Özel, PhD

Professor

Director of Manufacturing and Automation Research Laboratory (MARLAB)

<http://coewww.rutgers.edu/marl/ozel/>

Research Focus: Conducts research on developing modeling and optimization frameworks for advanced manufacturing, additive manufacturing, precision machining, laser processing, automation and control, process sensing and monitoring, process optimization, physics-based simulations, physics-informed machine learning, and digital twin.

Research Keywords: Manufacturing, laser processing, automation, AI manufacturing, digital twin, machine learning.

Research Funding and Awards: Industry funding from 3M Electronics and Energy Structured Surfaces Research and Development.

Research Funding Track Record: National Science Foundation (3 awards), NASA Space Grant Consortium, Dept of Commerce-National Institute for Standards and Technology, TTRF/Taiho Kogyo Research Foundation, and several grants and contacts from industry.

Professional Associations and Leadership: ASME, ASPE, ASTM International, former CIRP, and former SME. Editor-in-chief of International Journal of Mechatronics and Manufacturing Systems; Associate Editor for Journal of Manufacturing Science and Engineering, Editorial Board Member for Production Engineering; Journal of Materials Processing and Manufacturing; International Journal of Manufacturing Research.

Journal Publications: Organized and published three journal special issues, published seven peer reviewed journal articles in journals including Journal Manufacturing Science and Engineering, Journal of Manufacturing and Materials Processing, International Journal of Advanced Manufacturing Technology.

Publication Track Record: Four co-edited research books, more than one-hundred (100) published journal papers in journals including Journal of Manufacturing Science and Engineering, International Journal of Advanced Manufacturing, International Journal of Machine Tools and Manufacture, CIRP Annals, CIRP Journal of Manufacturing Science and Technology, Journal of Materials Processing Technology, Additive Manufacturing, Optics & Laser Technology, Lasers in Manufacturing and Materials Processing. <http://coewww.rutgers.edu/marl/ozel/publications.htm>

Peer-reviewed Conferences: Over 75 peer-reviewed conference papers in ASME-IMECE-, ASME-MSEC, NAMRC, CIRP Conferences.



Hoang Pham, PhD

Distinguished Professor

Associate Director, Rutgers Center for Information Assurance

<https://ise.rutgers.edu/hoang-pham>

Research Focus: Reliability modeling of degraded systems; statistical reliability theory, software reliability; statistical inferences; maintenance theory, mathematical modeling of the immune system, and fault-tolerant computing.

Research Keywords: Reliability, software reliability, maintenance theory, immune system modeling

Research Funding Track Record: National Science Foundation, FAA, NJ Schools Development Authority, and industry including Cisco and Lockheed-Martin.

Awards and Recognitions: 2009 IEEE Reliability Society Engineer of the Year, IEEE fellow, IISE fellow.

Professional Associations: IEEE and IISE

Publications: Author of one (1) book, published six (6) edited books including the Springer Handbook of Engineering Statistics (2nd edition), and twenty-two (22) journal articles in IEEE Transactions on Computational Social Systems, International Journal of Production Research, Journal of Energy Storage, Annals of OR, etc.

Publication Track Record: Author or co-author of six (6) books including Statistical Reliability Engineering (Springer, 2022); edited seventeen (17) books including Springer Handbook of Engineering Statistics, 2nd edition, 2023; and published more than two-hundred-ten (210) journal articles.

Peer-reviewed Conferences: Published two (2) conference papers including the International Conference on Reliability and Quality in Design



Randy Reagan, PhD

Assistant Teaching Professor

Research Focus: Resource assignment in short life technology intensive new product development.

Research Keywords: New Product Development, Technology Products, Resource Assignment, Project Management, Time-to-Market Active Research: Participating in an initiative funded by the Rutgers University Correction Health Care (UCHC) program to apply Industrial and Systems Engineering methodologies to improve processes in health care services.

Professional Associations and Leadership: IISE, ASME, ASQ, SME, PMI, AEE

Publication Track Record: 19 Peer Reviewed Conference Publications in Telecommunications and Optical Communications.

Patents Published: 91 patents, optical communications.

Major Recognition: 2023 Professor of the Year, Rutgers ISE Department, Rutgers School of Engineering Governing Council, 2022 OFC Conference Spotlight on New Technology Award - MXT Plus Hydraulic Wrench (team award), 2022 OFC Conference Spotlight on New Technology Award - Connect App (team award).



Elin M. Wicks, PhD
Assistant Teaching Professor
 Undergraduate Director

Research Focus: Engineering Economics, engineering education.

Research Keywords: Engineering economics, multi-criteria decision making, engineering education, social network analysis.

Active Research: Participating in a project funded by the Rutgers Research Council with the goal of analyzing the nature of the social network of students in a large, multi-disciplinary class with the long-term goal of identifying interventions and pedagogical innovations that promote the success of students from minoritized and marginalized groups.

Professional Associations: IISE, ASEE, SWE

Publications: Author and continuing contributing co-author of *Engineering Economy*, a textbook now in its 17th edition.



Zhimin Xi, PhD
Assistant Teaching Professor
<https://ise.rutgers.edu/zhimin-xi>

Research Focus: Design of reliable engineering systems under various uncertainties

Research Keywords: Design under uncertainty, autonomous systems, energy storage system, additive manufacturing

Active Research Funding and Awards: The current research is funded by the National Science Foundation I-Corps Program and supported by Rutgers TechAdvance. The project develops affordable and reliable autonomous wheelchairs using the collision-free dynamic window approach for moving obstacles.

Funded Research Track Record: 25 projects in total have been funded, with a total PI share of \$1,614,571 from sources including DARPA's Young Faculty Award, NSF on Electrified Vehicles, and DOE on batteries, among others.

Professional Associations and Leadership: Associate Editor of IEEE Robotics and Automation Letters, ASME - Journal of Mechanical Design, Executive Committee of 2023 ASME – Design Automation Conference.

Journal Publications: Author of one book chapter, seven journal articles in Reliability Engineering and System Safety, Applied Energy, Journal of Autonomous Vehicles and Systems, Transactions of the ASME, etc.

Publication Track Record: In total, published 41 peer-reviewed journal articles in Reliability Engineering and System Safety, Journal of Mechanical Design, Transactions of the ASME, Applied Energy, IEEE Transactions on Vehicular Technology, and Journal of Energy Storage, etc.

Peer-reviewed Conferences: The total peer-reviewed conference proceedings is 49. Typical conferences attended are: ASME International Design Engineering Technical Conference & Computers and Information in Engineering Conference (IDETC/CIE), IISE Annual Conference, SME North American Manufacturing Research Conference (NAMRC), INFORMS, and RAMS.

Patents Published: Two patents related to autonomous robots: i) "Reactive Collision Avoidance for Autonomous Vehicles Considering Physical Constraints" - US patent pending, PCT filed on 4/28/2022; and ii) "Collision-free Dynamic Window Approach for Moving Obstacles" - PCT filed on 10/29/2022.

Social and Cultural Impacts: Engaged with 100+ wheelchair users, understanding and addressing unique social and mobility needs to enhance their daily life experiences.

Major Recognition, Awards and Honors: Defense TechConnect 2022 Urban Air Mobility Challenge finalists, and ASME 2021 Design Automation Young Investigator Award.



Farzad Yousefian, PhD

Assistant Professor

Director of Mathematical Optimization Research Group

Research Focus: The Mathematical Optimization Research Group at Rutgers advances mathematical models and algorithms of optimization and game theory in addressing computational problems arising from machine learning and multi-agent systems.

Research Keywords: Distributed optimization in multi-agent networks, stochastic and large-scale optimization, hierarchical optimization, variational inequalities, computational game theory.

Active Research Funding and Awards: His current research is being funded by the NSF on multi-agent optimization over networks, by the ONR on hierarchical decision-making problems, and by the DOE on federated machine learning.

Research Funding Track Record: NSF, ONR, and DOE.

Professional Associations and Leadership: Member of Society for Industrial and Applied Mathematics (SIAM), Institute of Electrical and Electronics Engineers (IEEE), Institute for Operations Research and the Management Sciences (INFORMS), and Mathematical Optimization Society (MOS).

Journal Publications: Published in Mathematical Programming, Mathematics of Operations Research, SIAM Journal on Optimization, IEEE Transactions on Automatic Control, and IEEE Access.

Publication Track Record: More than 25 papers in top peer-reviewed journals and conference proceedings in optimization and control, such as SIAM Journal on Optimization, Mathematical Programming, Mathematics of Operations Research, IEEE Transactions on Automatic Control, and Automatica.
<https://sites.rutgers.edu/farzad-yousefian/publications/>

Peer-reviewed Conferences: Conference on Neural Information Processing Systems (NeurIPS), American Control Conference (ACC), IEEE Conference on Decision and Control (CDC), Winter Simulation Conference (WSC).

Major Recognition: NSF CAREER Award, 2022 Mathematical Programming Meritorious Service Award, Best Theoretical Paper Award at WSC 2013.

ACTIVE RESEARCH FUNDING

Baykal-Gürsoy, M., PI, “*Protection Against Lone Wolf Attacks on Soft Targets using Games and Game Theory*,” National Science Foundation, (with Pernille Hemmer and Predrag Spasojevic), \$325,000 (8/01/2019 – 7/31/2023).

Coit, D., PI, “*Reliability and Resilience of Electrical Power Generation and Distribution to Facilitate Renewable Energy Sources: Collaboration between Rutgers and Tecnológico de Monterrey, Mexico*” Rutgers Global Grant, Project Duration: 2021 to 5/2024.

Elsayed, E. A., Co-PI (with F. Roberts, PI and Egan, D., Kantor, P. and Guo, W.), “*Threat Assessment for the ICT Supply Chain + COE Initiative on COVID-19 Supply Chain*,” Department of Homeland Security, \$303,756 (8/2020 – 6/2021).

Ezzat, A., PI, “*GOALI: Collaborative Research: Generation versus Degradation: Striking the optimal balance for wind farm profitability via digitization, predictive and prescriptive analytics*,” National Science Foundation, \$450K + \$16K REU, 2021 – 2025. In collaboration with Murat Yildirim (Wayne State).

Ezzat, A., Co-PI, “*Scale Bridging in Ductile Fracture via Kernel-based Machine Learning*,” National Science Foundation, \$577K, 2022 – 2025. In collaboration with Ryan Sills (Rutgers).

Ezzat, A., PI, “*AI for Good: Unlocking Wind/Whale Co-Existence*,” Office of the Chancellor-Provost Office, \$50,000, 2023 – 2025. In collaboration with Josh Kohut and Travis Miles (Rutgers).

Ezzat, A., PI, “*AIRU-WRF: AI-Powered Physics-Based Tool for Offshore Wind Forecasting and Grid Integration*,” National Offshore Wind Research & Development Consortium and Department of Energy, \$361,000, 2023 – 2025. In collaboration with Travis Miles and Scott Glenn (Rutgers), Leo Jiang and Tom Ortmeyer (Clarkson), Curtiss Foxx and Noah Myrent (EPRI).

Ezzat, A., PI, Rutgers Global Grants, “*Towards Reliable Wind Power with Machine Learning: A Collaboration Between Rutgers and Cairo Universities*,” \$8K (In collaboration with Dr. Mohamad Hassan from Cairo University), 2022 – 2024.

Ezzat, A., PI, New Jersey Offshore Wind Institute, \$30K (fellowship to support 1 PhD student working on offshore wind energy forecasting), 2022-2023.

Ezzat, A., PI, “*Advanced Analytics for On-Board Diagnostics and Prognostics*,” New Jersey Economic Development Authority (NJ-EDA) ~\$45K, 2021 – 2023.

Ezzat, A., PI, “*Forecasting in Unknown Territory: Towards Physically Motivated Learning for Local Wind Fields*,” IIF and SAS Corporation, \$10K, 2020 – 2022.

Guo, W., PI, “*IoT-enabled Smart Food Supply Chain: Strengthening Food Security by Data-driven Optimization, Simulation, and Interactive Decision-Making Tools*,” Qatar National Research Foundation, \$500,000 (with M. Kharbachi – Qatar University) 11/2021 – 10/2024.

Guo, W., PI, “*Digital Twin of Metal Additive Manufacturing for High-Quality Components*,” Funded by Rutgers Global International Collaborative Research Grant, \$8,000, 7/2020 – 6/2022.

Guo, W., Co-PI (with H. Wang, PI), “*Excellence in Research: Concurrent Robust Decision-Making for Reconfigurable Supply Chain Network and Subassembly Planning in Factory-in-a-box Manufacturing*,” National Science Foundation, \$316,000, 9/2019 – 8/2022.

Jafari, M.A., (PI), “*Transition to Zero-carbon Community; Scientific Framework for Integrated Economic, Social and Technology*,” Qatar National Research Foundation, \$575,000 5/2021 – 5/ 2024.

Jafari, M.A., (PI), “*Clean Hydrogen and Off-shore Wind Integration Study*,” funded by Atlantic Shores/Shell Co., \$350,000, 12/2021 – 12/2023.

Jeong, M.K., PI, “*Patent Mining for New Technology Development*,” Electronics and Telecommunications Research Institute, \$12,000, 8/1/2022 – 7/31/2023.

Jeong, M.K., PI, “*A Study on Application Case of Overseas Multi-type Data-based Digital Transformation Support Model and Artificial Intelligence Methodologies for Domestic Industrial Issues*,” Korea Institute of Science and Technology Information, \$51,000 (RU cost-share: \$15,000), 3/1/2022 – 10/30/2022.

ACTIVE RESEARCH FUNDING (CONTINUED)

Özel, T., PI, “Advancing material and simulation models for 3M cutting process,” 3M Electronics and Energy Structured Surfaces Research and Development, \$230,000, 10/2017-10/2021.

Yousefian, F. (PI) - “Advancing Mathematical Models and Algorithms for Decentralized Optimization in Complex Multi-agent Networks,” National Science Foundation (CAREER, Faculty Early Career Development Program), \$500,000, 3/1/2020 - 2/28/2025.

Yousefian, F. (PI) - “Randomized Federated Learning for Nonsmooth, Nonconvex, and Hierarchical Optimization,” Department of Energy, \$400,000 (\$214,250 for Rutgers and \$185,750 for Co-PI Shanbhag at Penn State), 9/1/2022 - 8/31/2024.

Yousefian, F. (PI) - “Collaborative Proposal: Hierarchical Programs Under Uncertainty: Risk, Discreteness, and Distributed Resolution,” Office of Naval Research, \$625,000 (\$300,000 for Rutgers and \$325,000 for PI Shanbhag at Penn State), 10/1/2022 to 9/30/2025.

Xi, Z., PI, “Collision-free dynamic window approach for moving obstacles,” Rutgers TechAdvance, \$56,600, 06/2023-05/2024.

Xi, Z., PI, “Affordable and Reliable Autonomous Wheelchairs,” NSF I-Corps Program, \$50,000, 01/23-12/23 and \$3,000, 08/22-10/22.

Xi, Z., PI, “Rutgers I-Corps Prototyping Funding,” \$5,000, 01/22-03/22.

MAJOR AWARDS, RECOGNITIONS AND HONORS

Coit, D., Jean d’Alembert Fellowship from the Universite Paris-Saclay, Paris, France, 2023

Coit, D., 2023 IISE Fellow

Coit, D., Honorary Chair, 3rd International Conference on System Reliability and Safety Engineering (SRSE), 2022. (China)

Elsayed, E., Recipient of the Industrial Engineering and Operations Management (IEOM) Distinguished Educator Award, Sep 2022.

Elsayed, E., Recipient of the INFORMS (Institute for Operations Research and Management Science) Fellow Award, 2022.

Ezzat, A., IISE Data Analytics Teaching Award from the Division of Data Analytics & Information Systems (DAIS) at the Institute of Industrial & Systems Engineers.

Pham, H., Panda Speaker of Tamkang Clement and Carried Chair Lecture Series, “Recent Trends in Reliability and Statistical Machine Learning,” Tamkang University, February 26, 2019, Taipei, Taiwan; Book of Collected Papers in the Tamkang University 70th Anniversary book, October 2020.

Xi, Z., ASME – Design Automation Young Investigator Award, August 2021.

Xi, Z., A. Walter Tyson Assistant Professorship Award, \$12,500, Rutgers University, 2022.

Xi, Z., Rutgers Provost’s Teaching Fellows, \$2,000, 2021.

Yousefian, F. A recipient of the 2022 Mathematical Programming Meritorious Service Award, March 2023.

KEYNOTE AND PLANARY ADDRESSES

Coit, D.

Keynote Speaker, International Conference on Modelling in Industrial Maintenance and Reliability (MIMAR), 2023. (United Kingdom)

Plenary Speaker, European Network for Business & Industrial Statistics (ENBIS) Spring Meeting, 2022. (France)

Elsayed, E.

Keynote Speaker, "Quantitative Assessments of Interruptions of Systems Operations," The 3rd Asia Pacific Conference on Industrial Engineering and Operations Management, Johor Bahru, Malaysia September 13-15, 2022.

Distinguished Speaker Series on Quality, Reliability, Availability, Maintainability and Safety (GRAMS) "Frontiers in Reliability Engineering Research and Applications," IIT Kharagpur, Kharagpur-721 302 (West Bengal) India, July 9, 2022.

Pham, H.

Keynote Speaker, "Do Mathematical Reliability Models of Systems With Time Delays Matter?", The 10th Asia-Pacific International Symposium on Advanced Reliability and Maintenance (APARM 2022), Taiwan, 2022.

Distinguished Speaker Series, "Recent Challenges in Reliability Engineering and Model Selection," Distinguished Speaker Series on Quality, Reliability, Availability, Maintainability and Safety (GRAMS), 2022. (Virtual)

Keynote Speaker, "Recent Challenges in Reliability Prediction and Model Selection," The 11th International Conference on Quality, Reliability, Risk, Maintenance, and Safety Engineering & The 4th International Conference on Reliability Systems Engineering, QR2MSE & ICRSE, China, 2021. (Virtual)

Özel, T.

Keynote Speaker, "Digital twin development for simulation of machining and metal additive manufacturing processes," The 3rd International Conference on Industry 4.0 and Smart Manufacturing, Hagenberg Campus, Linz Area, Austria on Thursday, November 18, 2021.

JOURNAL PAPERS

A. Yolmeh, **M. Baykal-Gürsoy**, V. Bier, "A Decomposable Resource Allocation Model with Generalized Overarching Protections," *Annals of Operations Research*, 320 (1), 493-507, 2023.

Z. Xu, **M. Baykal-Gürsoy**, "Power Allocation for Cooperative Jamming Against a Strategic Eavesdropper over Parallel Channels," *IEEE Trans. On Information Forensics and Security*, 18, 846-858, 2022.

A. Altay, **M. Baykal-Gürsoy**, "Imperfect Rail Track Inspection Scheduling with Zero-Inflated Miss Rates," *Transportation Research Part C*, [Volume 138](#), May 2022, 103608.

P.C. Lopes Gerum, **M. Baykal-Gürsoy**, "How Incidents Impact Congestion on Roadways: A Queuing Network Approach," *European Journal of Transportation and Logistics*, [Volume 11](#), 2022, 100067.

M. Baykal-Gürsoy, A. R. Benton, P.C. Lopes Gerum, M. Figueroa-Cardia, "How Random Incidents affect the Travel-Time Distributions," *IEEE Transactions on Intelligent Transportation*. Vol. 23:8, pp. 13000-13010, 2022. Published online 2021 <https://ieeexplore.ieee.org/abstract/document/9580501>

A. Altay, **M. Baykal-Gürsoy**, P. Hemmer, "Behavior Associations in Lone Actor Terrorists," *Terrorism and Political Violence*, Vol. 34:7, pp. 1386-1414, 2022. Published online 2020: <https://doi.org/10.1080/09546553.2020.1787384>

T. Li, W. Fang, **M. Baykal-Gürsoy**, "Two-Period Inventory Management with Financing under Uncertainty," *International Journal of Production Economics*, Vol. 232, pp. 107915, 2021. <https://doi.org/10.1016/j.ijpe.2020.107915>

G. Xing, Z Duan, W. Yan, **M. Baykal-Gürsoy**, Evaluation of "innovation chain+ supply chain" fusion driven by blockchain technology under typical scenario, *International Journal of Production Economics*, Volume 232, February 2021, 107915.

- A. Yolmeh, **M. Baykal-Gürsoy**, "Weighted Network Search Games with Multiple Hidden Objects and Multiple Search Teams," *European Journal of Operational Research*, Vol. 289 (1), 338-349, 2021 – Corrigendum to 'Weighted Network Search Games with Multiple Hidden Objects and Multiple Search Teams' [*European Journal of Operational Research*, Volume 289, Issues 1, 16 February 2021, Pages 338-349]
- C. Zhang, Y-F Li, **D. Coit**, (2023) "Deep Reinforcement Learning for Dynamic Opportunistic Maintenance of Multi-component Systems with Load Sharing," *IEEE Transactions on Reliability*, (in print).
- X. Zhu, J. W., **D. Coit**, (2023) "Joint optimization of spare part supply and opportunistic condition-based maintenance for onshore wind farms considering maintenance route," *IEEE Transactions on Engineering Management* (in print).
- J. Zhou, W. Zheng, D. Wang, **D. Coit**, (2023) "A Resilient Network Recovery Framework against Cascading Failures with Deep Graph Learning," *Journal of Risk & Reliability* (in print)
- S. Gan, H. Hu, **D. Coit**, (2023) "Maintenance Optimization Considering the Mutual Dependence of the Environment and System with Decreasing Effects of Imperfect Maintenance," *Reliability Engineering & System Safety*, vol. 235
- Z. Li, J. Zhou, H. Nassif, **D. Coit**, Jinwoo Bae, (2023) "Fusing physics-inferred information from stochastic model with machine learning approaches for degradation prediction," *Reliability Engineering & System Safety*, vol. 232
- S. Selçuklu, **D. Coit**, F. Felder, (2023) "Electricity generation portfolio planning and policy implications of Turkish power system considering cost, emission, and uncertainty," *Energy Policy*, vol. 173
- S. Petchrompo, **D. Coit**, A. Brintrup, A. Wannakrairot, A. Parlikad, (2022) "A review of Pareto pruning methods for multi-objective optimization," *Computers & Industrial Engineering*, vol. 167
- N. Yousefi, S. Tsianikas, **D. Coit**, (2022) "Dynamic Maintenance Model for a Repairable Multi-component System Using Deep Reinforcement Learning," *Quality Engineering*, vol. 34, no. 1
- S. Chaochaicharoekul, **D. Coit**, N. Wattanapongsakorn, (2022) "Multi-objective Trip Planning with Solution Ranking Based on User Preference and Restaurant Selection," *IEEE Access*, vol 10
- P. Papadopoulos, **D. Coit**, A. Ezzat, (2022) "Seizing Opportunity: Maintenance Optimization in Offshore Wind Farms Considering Accessibility, Production and Crew Dispatch," *IEEE Transactions on Sustainable Energy*, vol. 13, no. 1
- Y. Shu, Q. Feng, E. Kao, **D. Coit**, H. Liu, (2021) "Markov Additive Processes for Degradation with Jumps under Dynamic Environments," *Naval Research Logistics*, vol. 68, no. 7
- S. Gan, N. Yousefi, **D. Coit**, (2021) "Optimal Control-limit Maintenance Policy for a Production System with Multiple Process States," *Computers & Industrial Engineering*, vol. 148
- E. A. Elsayed**, "Reliability, Maintainability, Safety, and Resilience," *Springer Handbook of Automation*, Springer, 2022, S. Nof, Editor.
- J. Baek, M. K. Jeong, **E. A Elsayed**, "Monitoring variations in multimode surface topography" *International Journal of Production Research*,. Volume 61, No. 4, 1129-1145, 2023.
- M. Alqahtani, J. Myong, **E. A Elsayed**, "Generalized Spatially Weighted Autocorrelation Approach for Monitoring and Diagnosing Faults in 3D Topographic Surfaces" *International Journal of Production Research*, vol. 61, No. 2, 541-558, 2023.
- Y. Chen, **E. A Elsayed**, Z. Huang, "Systems Resilience Assessments: A Review, Framework and Metrics," *International Journal of Production Research*, Vol. 60, No. 2, 595-622, 2022.
- P. Papadopoulos, **D. Coit**, **A. Ezzat**, "Seizing opportunity: maintenance optimization in offshore wind farms considering accessibility, production, and crew dispatch." *IEEE Transactions on Sustainable Energy* 13, no. 1 (2021): 111-121.
- A. Ezzat**, S. Liu, D. S. Hochbaum, Y. Ding, "A graph-theoretic approach for spatial filtering and its impact on mixed-type spatial pattern recognition in wafer bin maps." *IEEE Transactions on Semiconductor Manufacturing* 34, no. 2 (2021): 194-206.
- B. Golparvar, P. Papadopoulos, **A. Ezzat**, R. Wang, "A Surrogate-model-based Approach for Estimating the First and Second-order Moments of Offshore Wind Power," *Applied Energy*, 299, 117286, 2021.

- A. Kotb, **A. Ezzat**, M. Ali, A. Elwany, H. A. Nasr-El-Din, "A Calibrated Computational Fluid Dynamics Model for Simulating the Rotating Disk Apparatus." *SPE Journal* 26, no. 06 (2021): 4022-4036.
- P. Papadopoulos, D. Coit, **A. Ezzat**, "STOCHOS: Stochastic opportunistic maintenance scheduling for offshore wind farms." *IIEE Transactions* (2022): 1-15.
- P. Nasery, **A. Ezzat**, "Yaw-adjusted wind power curve modeling: A local regression approach." *Renewable Energy* 202 (2023): 1368-1376.
- P. Papadopoulos, D. Coit, **A. Ezzat**, (2023) "STOCHOS: Stochastic Opportunistic Maintenance Scheduling For Offshore Wind Farms," *IIEE Transactions* (in print).
- P. Papadopoulos, F. Fallahi, M. Yildirim, **A. Ezzat**, "Joint Optimization of Production and Maintenance in Offshore Wind Farms: Balancing the Short-and Long-Term Needs of Wind Energy Operation," *IEEE Transactions on Sustainable Energy*, Accepted, 2023.
- W. Guo**, V. Gawade, B. Zhang, Y.B. Guo (2023), "Explainable AI for Layer-wise Emission Prediction in Laser Fusion," *CIRP Annals - Manufacturing Technology*, 72 (1), in-print. DOI: 10.1016/j.cirp.2023.03.009.
- M. Chen, R. Furness, R. Gupta, S. Puchala, **W. Guo** (2023), "Hierarchical RNN-based Framework for Throughput Prediction in Automotive Production Systems," *International Journal of Production Research*, in-print. DOI: 10.1080/00207543.2023.2199438.
- X. Huang, B. Liu, S. Guo, **W. Guo**, K. Liao; G. Hu, W. Shi, M. Kuss, M. Duryee, D. Anderson, Y. Lu, B. Duan (2022), "SERS Spectroscopy with Machine Learning to Analyze Human Plasma derived sEVs for Coronary Artery Disease Diagnosis and Prognosis," *Bioengineering & Translational Medicine*, e10420. DOI: 10.1002/btm2.10420.
- S. Guo, **W. Guo**, L. Bian, Y.B. Guo (2023), "A Deep-Learning-Based Surrogate Model for Thermal Signature Prediction in Laser Metal Deposition," *IEEE Transactions on Automation Science and Engineering*, 20 (1), pp. 482-494. DOI: 10.1109/TASE.2021.3116040.
- Nwodu, J. Pasha, Z. Jiang, **W. Guo**, M. Dulebenets, H. Wang, K. Minor (2022), "Co-Optimization of Supply Chain Reconfiguration and Assembly Process Planning for Factory-in-a-Box Manufacturing," *ASME Transactions, Journal of Manufacturing Science and Engineering*, 144 (10), pp. 101006 (13 pages). DOI: 10.1115/1.4054519.
- S. Guo, D. Wang, Z. Feng, **W. Guo** (2022), "UIR-Net: Object Detection in Infrared Imaging of Thermomechanical Processes in Automotive Manufacturing," *IEEE Transactions on Automation Science and Engineering*, 19 (4), pp. 3276-3287. DOI: 10.1109/TASE.2021.3116040.
- J. Meng, Y. Liu, R. Bucknall, **W. Guo**, Z. Ji (2022), "Anisotropic GPMP2: A Fast Continuous-time Gaussian Processes Based Motion Planner for Unmanned Surface Vehicles in Environments with Ocean Currents," *IEEE Transactions on Automation Science and Engineering*, 19 (4), pp. 3914-3931. DOI: 10.1109/TASE.2021.3139163.
- Y. Wang, **W. Guo**, X. Yue (2022), "Tensor Decomposition to Compress Convolutional Layers in Deep Learning," *IIEE Transactions*, 54 (5), pp. 481-495. DOI: 10.1080/24725854.2021.1894514. [Featured in ISE Magazine, April 2022.]
- E. McGowan, V. Gawade, **W. Guo** (2022), "A Physics-Informed Convolutional Neural Network with Custom Loss Functions for Porosity Prediction in Laser Metal Deposition," *Sensors*, 22 (2), 494. DOI: 10.3390/s22020494.
- S. Guo, M. Agarwal, C. Cooper, Q. Tian, R. X. Gao, **W. Guo**, Y.B. Guo (2022), "Machine Learning for Metal Additive Manufacturing: Towards a Physics-Informed Data-Driven Paradigm," *Journal of Manufacturing Systems*, 62, pp. 145-163. DOI: 10.1016/j.jmsy.2021.11.003.
- Z. Gao, H. Khan, J. Li, **W. Guo** (2022), "Sensor Fusion and On-Line Monitoring of Friction Stir Blind Riveting for Lightweight Materials Manufacturing," *ASME Transactions, Journal of Manufacturing Science and Engineering*, 144 (6), pp. 061009 (11 pages). DOI: 10.1115/1.4052907.
- S. Guo, D. Wang, J. Chen, Z. Feng, **W. Guo** (2022), "Predicting Nugget Size of Resistance Spot Welds Using Infrared Thermal Videos with Image Segmentation and Convolutional Neural Network," *ASME Transactions, Journal of Manufacturing Science and Engineering*, 144 (2), pp. 021009 (9 pages). DOI: 10.1115/1.4051829.
- V. Gawade, V. Singh, **W. Guo** (2022), "Leveraging Simulated and Empirical Data-driven Insight to Supervised-learning for Porosity Prediction in Laser Metal Deposition," *Journal of Manufacturing Systems*, 62, pp. 875-885. DOI: 10.1016/j.jmsy.2021.07.013.
- H. Devaraj, Q. Tian, **W. Guo**, R. Malhotra (2021), "Multiscale Modeling of Sintering-Driven Conductivity in Large Nanowire Ensembles," *ACS Applied Materials & Interfaces*, 13 (47), pp. 56645-56654. DOI: 10.1021/acsami.1c16581.

- X. Xu, M. Rodgers, **W. Guo** (2021), "A Hub-and-spoke Design for Ultra-cold COVID-19 Vaccine Distribution," *Vaccine*, 39 (41), pp. 6127-6136. DOI: 10.1016/j.vaccine.2021.08.069.
- S. Guo, M. Chen, A. Abolhassani, R. Kalamdani, **W. Guo** (2021), "Identifying Manufacturing Operational Conditions by Physics-based Feature Extraction and Ensemble Clustering," *Journal of Manufacturing Systems*, 60, pp. 162-175. DOI: 10.1016/j.jmsy.2021.05.005.
- K. Mahani, F. Angizeh, **M. A. Jafari**, "EV Parking Lots for Flexible Energy Sourcing," *IEEE Access*, vol. 11, pp. 38770-38782, 2023.
- F. Angizeh, A. Ghofrani, **M. A. Jafari**, "Higher Granular Sectoral Demand Forecast Under Data Scarcity: An Integrated Physics-Based Top-Down and Bottom-Up Approach," *IEEE Systems Journal*, vol. 16, no. 2, pp. 2923-2933, 2022.
- F. Angizeh, A. Ghofrani, E. Zaidan, **M. A. Jafari**, "Adaptable Scheduling of Smart Building Communities with Thermal Mapping and Demand Flexibility," *Applied Energy* 310, 118445, 2022.
- F. Angizeh, A. Ghofrani, E. Zaidan, **M. A. Jafari**, "Resilience-Oriented Behind-the-Meter Energy Storage System Evaluation for Mission-Critical Facilities," *IEEE Access*, 9, pp. 80854-80865, 2021.
- S. D. Nazemi, **M. A. Jafari**, E. Zaidan, "An Incentive-Based Optimization Approach for Load Scheduling Problem in Smart Building Communities," *Buildings*, 11(6), p.237, 2021.
- S. Jiang, Y. Zhang, R. Liu, **M. A. Jafari**, M. Kharbachi, "Data-Driven Optimization for Dynamic Shortest Path Problem Considering Traffic Safety," *IEEE Trans. on Intelligent Transportation Systems*, Volume: 23, 10, October 2022
- H. Doukas, E. Spiliotis, **M. A. Jafari**, S. Giarola, A. Nikas, "Low-cost emissions cuts in container shipping: Thinking inside the box," *Transportation Research Part D: Transport and Environment*, Vol. 94, 2021.
- S. Jiang, Y. Huang, **M. A. Jafari**, M. Jalayer, "A distributed multi-agent reinforcement learning with graph decomposition approach for large-scale adaptive traffic signal control," *IEEE Trans. on Intelligent Transportation Systems*, Vol. 23, 9, 2021.
- J. Baek, **M. K. Jeong**, E. A. Elsayed (2023), "Monitoring Variations in Multimode Surface Topography," *International Journal of Production Research*, 61, 1129-1145.
- M. Alqahtani, **M. K. Jeong**, E. A. Elsayed (2023), "Generalized Spatially Weighted Autocorrelation Approach for Monitoring and Diagnosing Faults in 3D Topographic Surfaces," *International Journal of Production Research*, 61, 541-558.
- J. Choi, Y. Son, **M. K. Jeong**, (2022), "Restricted Relevance Vector Machine for Missing Data and Application to Virtual Metrology," *IEEE Transactions on Automation Science and Engineering*, 19, 3172-3183
- J. Choi, A. Tosyali, B. Kim, H. Lee, **M. K. Jeong** (2022), "A Novel Method for Identifying Competitors Using a Financial Transaction Network," *IEEE Tran. on Engineering Management*, 69(4), 845-860.
- J. Baek, **M. K. Jeong**, E. A. Elsayed (2022), "Residual-Based Surface Segmentation for Monitoring Topographic Variations," *IEEE Transactions on Automation Science and Engineering*, 19, 280-294.
- J. Choi, Y. Son, **M. K. Jeong** (2022), "Restricted Relevance Vector Machine for Missing Data and Application to Virtual Metrology," *IEEE Transactions on Automation Science and Engineering*, 19, 3172-3183.
- J. Choi, A. Tosyali, B. Kim, H. Lee, **M. K. Jeong** (2022), "A Novel Method for Identifying Competitors Using a Financial Transaction Network," *IEEE Tran. on Engineering Management*, 69(4), 845-860.
- J. Choi, B.H. Kim, C. Han, H. Hahn, H. Park, J. Yoo, **M. K. Jeong** (2021), "Methodology for Assessing the Contribution of Knowledge Services during the New Product Development Process to Business Performance," *Expert Systems with Applications*, 167, 1-17.
- M. Alqahtani, **M. K. Jeong**, E. A. Elsayed (2021), "Generalized Spatially Weighted Autocorrelation Approach for Monitoring and Diagnosing Faults in 3D Topographic Surfaces," *International Journal of Production Research*, 59(1), 1-18.
- J. Choi, B.H. Kim, C. Han, H. Hahn, H. Park, J. Yoo, **M. K. Jeong** (2021), "Methodology for Assessing the Contribution of Knowledge Services during the New Product Development Process to Business Performance," *Expert Systems with Applications*, 167, 1-17.

- Tosyali, J. Choi, B. Kim, H. Lee, **M. K. Jeong** (2021), "A Dynamic Graph-Based Approach to Ranking Firms for Identifying Key Players Using Inter-Firm Transactions," *Annals of Operations Research*, 303, 5-27.
- J. Baek, T. Alhindi, Y. S. Jeong, **M. K. Jeong**, S. Seo, J. Kang, W. Shim, Y. Heo (2021), "Real-Time Fire Detection System Based on Dynamic Time Warping of Multichannel Sensor Networks," *Fire Safety Journal*, 123, 1-12.
- Y. S. Kim, Jeong, **M. K. Jeong** (2021), "A New Multivariate Kernel Density Estimation Method for Uncertain Data Classification," *Annals of Operations Research*, 303, 413-431.
- G. Gazzola, **M. K. Jeong** (2021), "Support Vector Regression for Polyhedral and Missing Data," *Annals of Operations Research*, 303, 483-506.
- B. Tavakkol, **M. K. Jeong**, S. Albin (2021), "Validity Indices for Clusters of Uncertain Data Objects," *Annals of Operations Research*, 303, 321-357.
- M. Alqahtani, **M. K. Jeong**, E. A. Elsayed (2021), "Spatially Weighted Graph Theory-Based Approach for Monitoring Faults in 3D Topographic Surfaces," *International Journal of Production Research*, 59, 6382-6389.
- J. Baek, T. Alhindi, Y. S. Jeong, **M. K. Jeong**, S. Seo, J. Kang, W. Shim, Y. Heo (2021), "Real-Time Fire Detection Algorithm Based on Support Vector Machine with Dynamic Time Warping Kernel Function," *Fire Technology*, 57, 2929-2953.
- J. Baek, T. Alhindi, Y. S. Jeong, **M. K. Jeong**, S. Seo, J. Kang, Y. Heo (2021), "Intelligent Multi-Sensor Detection System for Monitoring Indoor Building Fires," *IEEE Sensors Journal*, 21, 27982-27991.
- T. Özel**, H. Shokri, R. Loizeau (2023), "A Review on Wire-Fed Directed Energy Deposition Based Metal Additive Manufacturing" *Journal of Manufacturing and Materials Processing*, (2023) Vol. 7 No. 1.
- T. Özel** (2022), "A review on process models and controller design in proton-exchange membrane fuel cells," *International Journal of Mechatronics and Manufacturing Systems*, Vol. 15, No. 1, pp. 1-19.
- K. Jarosz, E. Ukar, A. Krödel, **T. Özel** (2022), "Laser ablation and processing of polycrystalline cubic boron nitride cutting tool material," *International Journal of Advanced Manufacturing Technology*, Vol. 118, pp. 785-800.
- K. Jarosz, **T. Özel** (2022), "Machine learning approaches towards digital twin development for machining systems," *International Journal of Mechatronics and Manufacturing Systems*, Vol. 15, No. 2&3, pp. 127-148.
- S. Melkote, S.Y. Liang, **T. Özel**, I.S. Jawahir, D.A. Stephenson, B. Wang (2022), "A review of advances in modeling of conventional machining processes: from Merchant to the present" *Journal Manufacturing Science and Engineering*, Vol. 144, No 11, 110801.
- L. Yang, **T. Özel** (2021), "Physics-based simulation models for digital twin development in laser powder bed fusion," *International Journal of Mechatronics and Manufacturing Systems*, Vol. 14, Issue 2, pp. 143-163.
- K.V. Patel, K. Jarosz, **T. Özel** (2021), "Physics-Based Simulations of Chip Flow over Micro-Textured Cutting Tool in Orthogonal Cutting of Alloy Steel," *Journal of Manufacturing and Materials Processing*, Vol. 5, Issue 3, p. 65 (1-16).
- T. Özel**, "Artificial Intelligence in Advanced Manufacturing," *International Journal of Mechatronics and Manufacturing Systems*, (2022) Vol.15 No. 2/3.
- F. Ituarte, **T. Özel**, "Progress in Sensing, Monitoring, Control and Digital Twin in Metal Additive Manufacturing," *International Journal of Mechatronics and Manufacturing Systems*, (2021) Vol.14 No. 2.
- T. Özel**, "Progress in Digital Twin Integration for Smart Machining," *Journal of Manufacturing and Materials Processing*, (2021) Vol.5 No.3.
- R. Wang, M. Zhu, X. Zhang, **H. Pham**, "Lithium-ion battery remaining useful life prediction using a two-phase degradation model with a dynamic change point," *Journal of Energy Storage*, vol. 59, 2023
- H. Pham**, "A Multi-Stage Early Stress Detection Model with Time Delay Subject to a Person's Stress", *Axioms*, vol. 12, issue 1, 92, January 2023

- D. H. Lee, I. H. Chang, **H. Pham**, "Software Reliability Growth Model with Dependent Failures and Uncertain Operating Environments", *Applied Sciences*, 2022, 12(23), 12383; <https://doi.org/10.3390/app122312383>
- R. Sharma, A. K Shrivastava, **H. Pham**, "Software Security Evaluation Using Multilevel Vulnerability Discovery Modeling", *Quality Engineering*, vol 35, no. 2, 2023, 341-352
- M. Park and **H. Pham**, "Condition-based Maintenance for a Degradation-shock Dependence System under Warranty", *International Journal of Production Research*, vol 61, no. 15, 2023, 5212-5227
- H. Pham**, "Analyzing the Relationship Between the Vitamin D Deficiency and COVID-19 Mortality Rate and Modeling the Time-Delay Interactions Between Body's Immune Healthy Cells, Infected Cells, and Virus Particles with the Effect of Vitamin D Levels", *Mathematical Biosciences and Engineering*, 2022, vol. 19, issue 9
- H. Zhang, **H. Pham**, "Unknown Inputs on Weighted Voting Systems with Feedforward-Feedback Control", *IEEE Trans. on Computational Social Systems*, vol. 10, no. 5, 2023, 2460-2466
- T. Lin, **H. Pham**, "Modeling Security Surveillance Systems with State Dependent Inspection-Maintenance Strategy", *IEEE Trans. on Computational Social Systems*, vol. 10, no. 5, 2023, 2467-2478
- H. Pham**, "Mathematical Modeling the Time-Delay Interactions between Tumor Viruses and the Immune System with the Effects of Chemotherapy and Autoimmune Diseases", *Mathematics*, 2022, 10(5), 756
- M. A. Jamali, **H. Pham**, "Opportunistic Maintenance Model for Load Sharing k-out-of-n Systems with Perfect PM and Minimal Repairs", *Quality Engineering*, vol. 34, no. 2, 2022, 205-214
- A. K. Shrivastava, R. Sharma, **H. Pham**, "Software reliability and cost models with warranty and life cycle", *Journal Proceedings of the Institution of Mechanical Engineers, Part O: Journal of Risk and Reliability*, vol. 237, no. 1, 2023, 166-179
- Y.S. Kim, K. Y. Song, **H. Pham**, I. H. Chang, "A Software Reliability Model with Dependent Failure and Optimal Release Time", *Symmetry*, February 2022
- M. Zhu, **H. Pham**, "A Generalized Multiple Environmental Factors Software Reliability Model with Stochastic Fault Detection Process", *Annals of Operations Research*, vol. 311, p. 525-546, 2022
- Q. Li, **H. Pham**, "Software Reliability Modeling Incorporating Fault Detection and Fault Correction Processes with Testing Coverage and Fault Amount Dependency", *Mathematics*, 2022, 10, 60.
- T. Lin, **H. Pham**, "A two-stage intervened decision system with multi-state decision units and dynamic system configuration", *Annals of Operations Research*, vol. 4, no. 1, 2022
- V. Kumar, **H. Pham**, P. K. Pandey, A. Goel, "Driving to Safety: Real Time Danger Spot and Drowsiness Monitoring System", *Soft Computing*, 2021, 25(23): 14479-14497
- H. Pham**, "A Dynamic Model of Multiple Time-Delay Interactions Between the Virus Cells and Body's Immune System with Autoimmune Diseases", *Axioms*, 10(3), 2021
- J-Y. Chiang, T-R. Tsai, **H. Pham**, K. Yu, "A new multivariate control chart for monitoring the quality of a process with the aid of auxiliary information", *Journal of Statistical Computation and Simulation*, 2021 August <https://doi.org/10.1080/00949655.2021.1969571>
- Q. Li, **H. Pham**, "Modeling Software Fault-Detection and Fault-Correction Processes by Considering the Dependencies between Fault Amounts", *Applied Sciences*, 2021, 11(15), 6998. <https://doi.org/10.3390/app11156998>
- H. Zhang, **H. Pham**, "Dynamic Process in Threshold Weighted Indecisive-Voting System", *IEEE Trans. on Computational Social Systems*, vol. 9, no. 3, June 2022, p. 959-965
- M. Zhu, X. Huang, **H. Pham**, "A Random Field Environment-Based Multidimensional Time-Dependent Resilience Modeling of Complex Systems", *IEEE Trans. on Computational Social Systems*, vol. 8, no. 6, 2021, 1427-1437
- K. Y. Song, I.-H. Chang, **H. Pham**, "Analysis of Environmental Factors for Mobile Software Development Focused on Korean Companies", *Mobile Information Systems*, Volume 2021, Article ID 6689905, <https://doi.org/10.1155/2021/6689905>

- J. Bae, **Z. Xi**, Learning of physical health timestep using the LSTM network for remaining useful life prediction, *Reliability Engineering and System Safety*, 2022, 226:108717.
- L. Ren, **Z. Xi**, Bias-learning based model predictive controller design for reliable path tracking of autonomous vehicles under model and environment uncertainty, *Journal of Mechanical Design, Transactions of the ASME*, 2022, 144(9): 091706.
- Z. Xi**, E. Torkamani, Analytic velocity obstacle for efficient collision avoidance computation and a comparison study with sampling and optimization-based approaches, *Journal of Autonomous Vehicles and Systems, Transactions of the ASME*, 2022, 2(1): 011001.
- E. Torkamani, **Z. Xi**, Systematical Collision Avoidance Reliability Analysis and Characterization of Reliable System Operation for Autonomous Navigation Using the Dynamic Window Approach, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering*, 2022, 8(3): 031106.
- Z. Xi**, R. Wang, Y. Fu, C. Mi, Accurate and Reliable State of Charge Estimation of Lithium ion Batteries Using Time-Delayed Recurrent Neural Networks through the Identification of Overexcited Neurons, *Applied Energy*, v.305, 117962, 2022.
- Z. Xi**, Model Predictive Control of Melt Pool Size for the Laser Powder Bed Fusion Process Under Process Uncertainty, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems: Part B. Mechanical Engineering*, v.8(1): 011103, 2022.
- M. Dahmardeh, **Z. Xi**, Probabilistic State-of-Charge Estimation of Lithium-ion Batteries Considering Cell-to-Cell Variability Due to Manufacturing Tolerance, *Journal of Energy Storage*, v.43, 103204, 2021.
- J. Bae, **Z. Xi**, Learning of physical health timestep using the LSTM network for remaining useful life prediction, *Reliability Engineering and System Safety*, 2022, 226:108717.
- L. Ren, **Z. Xi**, Bias-learning based model predictive controller design for reliable path tracking of autonomous vehicles under model and environment uncertainty, *Journal of Mechanical Design, Transactions of the ASME*, 2022, 144(9): 091706.
- Z. Xi**, E. Torkamani, Analytic velocity obstacle for efficient collision avoidance computation and a comparison study with sampling and optimization-based approaches, *Journal of Autonomous Vehicles and Systems, Transactions of the ASME*, 2022, 2(1): 011001.
- E. Torkamani, **Z. Xi**, Systematical Collision Avoidance Reliability Analysis and Characterization of Reliable System Operation for Autonomous Navigation Using the Dynamic Window Approach, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering*, 2022, 8(3): 031106.
- Z. Xi**, R. Wang, Y. Fu, C. Mi, Accurate and Reliable State of Charge Estimation of Lithium-ion Batteries Using Time-Delayed Recurrent Neural Networks through the Identification of Overexcited Neurons, *Applied Energy*, v.305, 117962, 2022.
- Z. Xi**, Model Predictive Control of Melt Pool Size for the Laser Powder Bed Fusion Process Under Process Uncertainty, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems: Part B. Mechanical Engineering*, v.8(1): 011103, 2022.
- M. Dahmardeh, **Z. Xi**, Probabilistic State-of-Charge Estimation of Lithium-ion Batteries Considering Cell-to-Cell Variability Due to Manufacturing Tolerance, *Journal of Energy Storage*, v.43, 103204, 2021.
- Kaushik, H. D., Samadi, S., **Yousefian, F.**, "An Incremental Gradient Method for Optimization Problems with Variational Inequality Constraints," in *IEEE Transactions on Automatic Control*, doi: 10.1109/TAC.2023.3251851.
- Cui, S., Shanbhag, U. V., **Yousefian, F.**, "Complexity Guarantees for an Implicit Smoothing-Enabled Method for Stochastic MPECs," *Mathematical Programming*, Vol. 198, 1153-1225, 2023.
- A. Jalilzadeh, A. Nedic, U. V. Shanbhag, **Yousefian, F.**, "A variable sample-size stochastic quasi-Newton method for smooth and nonsmooth stochastic convex optimization," *Mathematics of Operations Research*, 47(1), 690-719, 2022.
- H. D. Kaushik, **Yousefian, F.**, "A Method with Convergence Rates for Optimization Problems with Variational Inequality Constraints," *SIAM Journal on Optimization*, 31(3), 2171-2198, 2021.

REFEREED CONFERENCE PAPERS

Z. Xu and **M. Baykal-Gürsoy**, “Cost-Efficient Network Protection Games Against Uncertain Types of Cyber-Attackers,” 2022 IEEE International Symposium on Technologies for Homeland Security (HST), November 14-15, 2022.

Z. Xu and **M. Baykal-Gürsoy**, “Efficient Network Protection Games Against Multiple Types of Strategic Attackers,” 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), June 6-11, 2021.

Z. Xu, **M. Baykal-Gürsoy**, and P. Spasojevic, “A Game-Theoretic Approach for Probabilistic Cooperative Jamming Strategies Over Parallel Wireless Channels,” 2021 IEEE Conference on Communications and Network Security (CNS), October 4-5, 2021.

Z. Xu and **M. Baykal-Gürsoy**, “A Friendly Interference Game in Wireless Secret Communication Networks,” NetGCoop, September 21-24, 2021. <https://hal.archives-ouvertes.fr/hal-02870629>

Z. Xu and **M. Baykal-Gürsoy**, “A Cooperative Jamming Game in Wireless Networks under Uncertainty,” 16th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2020), Washington D.C., Oct. Published as Chapter 14 in the Volume 335 of the Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering.

A. Miquela, D. Bagul, **A. Ezzat**, “Defect Detection in Solar Photovoltaic Systems Using Unmanned Aerial Vehicles and Machine Learning,” Proceedings of the 8th North American IEOM Conference, 2023.

F. Ye, T. Miles, **A. Ezzat**, “Ultra-Short-Term Probabilistic Wind Forecasting: Can Numerical Weather Predictions Help?,” Proceedings of the IEEE PES General Meeting, 2023.

T. Özel, H. Shokri, H. Hosseinzadeh (2022) “Physics-based microstructure modeling for grain tailoring and refinement in wire arc additively manufactured Ti64Al4v alloy,” Proceedings of the ASME 2022 International Mechanical Engineering Congress and Exposition IMECE2022, October 30 – November 3, 2022, Columbus, OH, USA.

S. Aniyambeth, D. Malekar, **T. Özel** (2022) “Physics-based filament adhesion modeling in fused filament fabrication,” Proceedings of the ASME 2022 International Mechanical Engineering Congress and Exposition IMECE2022, October 30 – November 3, 2022, Columbus, OH, USA.

T. Özel, D. Malekar, S. Aniyambeth, P. Li (2022) “Physics-informed machine learning for defect identification in fused filament fabrication additive manufacturing,” 16th CIRP Conference on Intelligent Computation in Manufacturing Engineering, CIRP ICME '22, 13 - 15 July 2022, Gulf of Naples, Italy.

J. Alencherry, N. Pradeep, R. Shrivastava, L. Joy, F. Imbriacco, **T. Özel** (2022) “Investigation of Hydrogel and Gelatin Bath Formulations for Extrusion-Based 3D Bioprinting using Deep Learning,” Procedia CIRP, Vol. 110 (2022) pp. 360-365. Doi.org/10.1016/j.procir.2022.06.064.

Y. Qiu, U. V. Shanbhag, and **F. Yousefian**, “Zeroth-Order Methods for Nonsmooth, Nonconvex, and Hierarchical Federated Optimization,” The 37th Annual Conference on Neural Information Processing Systems (NeurIPS 2023).

U. V. Shanbhag and **F. Yousefian**, “Zeroth-Order Randomized Block Methods for Constrained Minimization of Expectation-Valued Lipschitz Continuous Functions,” The Seventh Indian Control Conference (ICC), IIT Mumbai, India. December 20-22, 2021.

Xi, Z., Collision-free dynamic window approach for moving obstacles, Proceedings of the ASME 2022 International Design Engineering Technical Conference & Computers and Information in Engineering Conference, August 14-17, 2022, St. Louis, Missouri, USA.

Xi, Z., and E. Torkamani¹, Analytic velocity obstacle for efficient collision avoidance, Proceedings of the ASME 2022 International Design Engineering Technical Conference & Computers and Information in Engineering Conference, August 14-17, 2022, St. Louis, Missouri, USA.

Chen, Z., **Xi, Z.**, Reliability constrained optimal design of distributed generators in power system under load and wind turbine generation uncertainty, Proceedings of the ASME 2021 International Design Engineering Technical Conference & Computers and Information in Engineering Conference, August 17-20, Virtual Conference.

Ren, L., **Xi, Z.**, Design of path tracking controller for autonomous vehicles through bias learning of vehicle dynamic models under environmental uncertainty, Proceedings of the ASME 2021 International Design Engineering Technical Conference & Computers and Information in Engineering Conference, August 17-20, Virtual Conference.

INVITED PRESENTATIONS, LECTURES, AND SEMINARS

M. Baykal-Gürsoy

- “Unimodality of Mean-Variance Newsvendor Problem,” POMS Conference, Orlando, FL, May 21–25, 2023.

D. Coit

- “Electric Power Generation Expansion Planning: Optimization Models to Consider Climate Change and Health Damages,” Mamara University, Istanbul, Türkiye, May 2023
- “Combined Optimization of Reliability, Preventive Maintenance and Resilience using Stochastic Programming,” University of Oklahoma, Norman, OK, October 2022
- “Reliability Modeling for Systems of Dependent Degrading Components,” India Institute of Technology (IIT) Kharagpur, India (on-line presentation), November 2022
- “Reliability Modeling for Systems of Dependent Degrading Components: A State-of-the-Art Review,” Université Paris Saclay CentraleSupélec, Paris, France, June 2022
- “Electric Power Generation Expansion Planning: Optimization Models to Consider Climate Change and Health Damages,” Tecnológico de Monterrey, Monterrey, Mexico, March 2022
- “Reliability Applications for Machine Learning/Reinforcement Learning,” Tecnológico de Monterrey, Mexico City, Mexico, March 2022
- “Reliability Modeling for Systems of Dependent Degrading Components: A Review and Comparison of Available Models,” Tianjin University, Tianjin, China, February 2022

E. Elsayed

- Elsayed, E. A., “Reliability and Resilience Modeling,” Summer Institute on Quality, Reliability and Data Science, Special Symposium, City University of Hong Kong, May 21, 2023.
- Elsayed, E. A., “Reliability Modeling, Prediction, Testing and Challenges in New Frontiers,” Summer Institute on Quality, Reliability and Data Science, City University of Hong Kong, May 19, 2023.
- Distinguished Speaker Series on Quality, Reliability, Availability, Maintainability and Safety (GRAMS) “Frontiers in Reliability Engineering Research and Applications,” IIT Kharagpur, Kharagpur-721 302 (West Bengal) India, July 9, 2022.
- Elsayed, E. A., “Frontiers in Reliability Engineering Research and Applications,” School of Computing, Informatics and Decision Systems Engineering, Arizona State University, Tempe, AZ, February 11, 2022.

A. Aziz Ezzat

- “Predictive & Prescriptive Analytics for Offshore Wind Energy,” School of Data Science, City University of Hong Kong, October, 2023.
- “Predictive & Prescriptive Analytics for Offshore Wind Energy,” Department of Industrial & Systems Engineering, The Ohio State University, March 2023.
- “Predictive & Prescriptive Analytics for Renewable Energy,” German Research Center for Artificial Intelligence (DFKI), January 2023.
- “Enabling U.S. Offshore Wind Energy via Physics-Guided, Spatio-Temporal Data Science,” Virginia Tech, March 2022.
- “Enabling U.S. Offshore Wind Energy via Physics-Guided, Spatio-Temporal Data Science,” Department of Industrial & Systems Engineering, University of Washington, March 2022.
- “Data Science for Renewable Energy: Uncertainty, Quality, and Reliability Considerations,” Accenture, July 2022.
- “Predictive & Prescriptive Analytics for Offshore Wind Energy,” Systems and Industrial Engineering Department, University of Arizona, November 2022.
- Invited talk at the National Offshore Wind Research & Development Consortium (NOWRDC) Symposium in Boston, MA, December 2022.

INVITED PRESENTATIONS, LECTURES, AND SEMINARS (CONTINUED)

Z. Xi

- Data driven engineering design and its applications in additive manufacturing, lithium-ion battery, and autonomous vehicles, *Virginia Tech*, 11/03/2021.
- Model Calibration, Validation and Predictive Control for Metal 3D Printing, *University of Central Florida*, 10/15/2021.
- Panelist, PHM for Autonomous/Electric Vehicles and Batteries, *Prognostics and Health Management (PHM) Asian Pacific*, 9/9-9/11, 2021.
- Calibration and Validation Framework for Selective Laser Melting Process Based on Multi-fidelity Models and Limited Experiment Data, 2021 ASME-IDETC spotlight sessions, 8/17/2021.

F. Yousefian

- Invited Speaker, “Stochastic and Hierarchical Multi-Agent Optimization,” ISE Seminar Series at The Ohio State University, Columbus, OH, February 22, 2023.
- Invited Speaker, “Distributed Multi-Agent Optimization for Hierarchical Problems,” The SIP Seminar Series at Rutgers, Piscataway, NJ, November 2, 2022.

BOOKS AND BOOK CHAPTERS

Elsayed, E. A., “Reliability, Maintainability, Safety, and Resilience,” *Springer Handbook of Automation*, Springer, S. Nof, Editor, 2022.

Pham, H., *Statistical Reliability Engineering*, Springer, 2022.

Pham, H. (Editor), *Applications in Reliability and Statistical Computing*, Springer, 2023.

Pham, H. (Editor), *Springer Handbook of Engineering Statistics*, 2nd ed., Springer, 2023.

V. Kumar and H. Pham (Editors), *Predictive Analytics in System Reliability*, Springer, 2023.

M. Ram and H. Pham (Editors), *Reliability and Maintainability Assessment of Industrial Systems*, Springer, 2022.

G. Aggarwal, A. Tandon, H. Pham (Editors), *Optimization Models in Software Reliability*, Springer, 2022.

M. Ram and H. Pham (Editors), *Safety and Reliability Modeling and Its Applications* Elsevier, 2021.

Pham, H. “Basic Statistics” a chapter in the Springer Handbook of Engineering Statistics, 2nd Edition, Springer, 2023.

Pham, H. and J. Bai, “Warranty Policies: Analysis and Perspectives” a chapter in the Springer Handbook of Engineering Statistics, 2nd Edition, Springer, 2023.

Pham, H. and W. Li, “Statistical Maintenance Modeling”, a chapter in the Springer Handbook of Engineering Statistics, 2nd Edition, Springer, 2023.

Pham, H. and X. Teng, “Software Reliability Modeling and Prediction”, a chapter in the Springer Handbook of Engineering Statistics, 2nd Edition, Springer, 2023.

Maryam Arabzadeh Jamali and H. Pham, “Statistical Machine Learning”, a chapter in the Springer Handbook of Engineering Statistics, 2nd Edition, Springer, 2023.

Rachel Wesley and H. Pham, “Mental Health Studies: A Review”, a chapter in *Applications in Reliability and Statistical Computing*, Springer, 2023.

M. Zhu and H. Pham, “Software Reliability Modeling and Methods: A State of the Art Review”, in *Optimization Problems in Software Reliability*, A. G. Aggarwal, A. Tando and H. Pham (editors), Springer, 2022.

BOOKS AND BOOK CHAPTERS (CONTINUED)

V.Verma, A. G. Aggarwal and **H. Pham**, “Understanding Interactions among Software Development Attributes and Release Planning Problem through ISM and MAUT”, in Optimization Problems in Software Reliability, A. G. Aggarwal, A.Tando and H. Pham (editors), Springer, 2022.

M. Koç and **T. Özel**, Editors, “Modern Manufacturing Processes,” John Wiley and Sons, Inc., 2020.

D. Ulutan and **T. Özel**, “Hard Machining,” Chapter 13 (Pages: 309-321), in Modern Manufacturing Processes, (Ed.) M. Koç, **T. Özel**, John Wiley and Sons, Inc, (2020).

D. Teixidor, I. Ferrer, L. Ciales, and **T. Özel**, “Laser Machining,” Chapter 18 (Pages: 435-457), in Modern Manufacturing Processes, (Ed.) M. Koç, **T. Özel**, John Wiley and Sons, Inc, (2020).

A. Ghassemi, L. Soares, H. Wang, and **Xi, Z.**, A novel mathematical model for infrastructure planning of dynamic wireless power transfer systems for electric vehicles, *Handbook of Smart Energy Systems*, Springer Nature Switzerland AG, page 1-19, 2022.

PHD THESIS COMPLETED

M. Baykal-Gürsoy

A. Benton, “Asymptotic Variance-Sensitive Markov Decision Processes,” October 2022.

Z. Xu, “Optimization and Game Theoretic Approaches for Defensive Resource Allocation in Communication and Network Security,” May 2022.

A. Yolmeh, “Game Theory Applications in Security,” January 2021.

E. Elsayed

J. Baek, “Anomaly Detection and Process Diagnostic in Three-Dimensional Surface Topography,” co-advisor with M. K. Jeong, September 2022.

A. Ezzat

P. Papadopoulos, “Data-Driven Operations and Maintenance in Offshore Wind Farms,” December 2022.

H. Pham

T. Lin, “Performability Modeling and Cost-benefit Analysis for Decision-making Systems with Supervising Mechanisms,” May 2022

H. Zhang, “Indecisive Effect on Weighted Voting Systems,” May 2022

PATENTS

S. Seo, J. Kang, W. Shim, **M. K. Jeong** and J. Baek, The Fire Monitoring Apparatus and Control Method, Patent Claim No. 10-2020-0094765 (Korea), July 29, 2021.

S. Seo, J. Kang, W. Shim, **M. K. Jeong** and J. Baek, A Wavelet-based Real-time Automated Fire Detection System, International Patent, under review.

Xi, Z., Torkamani, E.A., Reactive Collision Avoidance for Autonomous Vehicles Considering Physical Constraints, US patent pending, PCT filed on 4/28/2022.

Xi, Z., Collision-free Dynamic Window Approach for Moving Obstacles, PCT filed on 10/29/2022.