Department of Industrial and Systems Engineering
Biannual Report: 7/2021-7/2023
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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 & Profess (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


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)


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


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, IIESE, INFORMS, Winter Simulation Conference and others.

Ahmed Aziz Ezzat, PhD
Assistant Professor
[https://sites.rutgers.edu/azizezzat/](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.


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.


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)


Publication Track Record: In total, 55 peer-reviewed journal articles published in journals including IEEE-TASE, JMSE, IJPR 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), IIESE 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 IIESE 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 Tnish.

Funded Research Track Record: Research funded by the NSF, DoE, ONR-MURI, DoD, New Jersey Board of Public Utility, US FHWA, 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


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

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 Markers, 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 Price.

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.


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](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


**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

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**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


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.


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.


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).


**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/](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**


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


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.


ACTIVE RESEARCH FUNDING (CONTINUED)


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 IIESE 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.


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


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.

Pham, H.
Distinguished Speaker Series, “Recent Challenges in Reliability Engineering and Model Selection,” Distinguished Speaker Series on Quality, Reliability, Availability, Maintainability and Safety (QRAMS), 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


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


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. 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


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. 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.


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.


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. Torkamani, 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.


INVITED PRESENTATIONS, LECTURES, AND SEMINARS

M. Baykal-Gürsoy


D. Coit

- “Electric Power Generation Expansion Planning: Optimization Models to Consider Climate Change and Health Damages,” Mamara University, Istanbul, Turkiye, 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
- “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


A. Aziz Ezzat

- “Predictive & Prescriptive Analytics for Offshore Wind Energy,” School of Data Science, City University of Hong Kong, October, 2023.
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.

F. Yousefian

BOOKS AND BOOK CHAPTERS


BOOKS AND BOOK CHAPTERS (CONTINUED)


PHD THESIS COMPLETED

M. Baykal-Gürsoy


E. Elsayed

A. Ezzat

H. Pham

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

PATENTS


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