

EBRU K. BISH([Website](#)) (Rev: Nov. 2023)
Professor, Information Systems, Statistics, and Management Science
Culverhouse College of Business, The University of Alabama
ekbish@ua.edu

Summary

Dr. Bish's research interests fall in the areas of data science and decision making under uncertainty, with focus on public health policy and healthcare system design and management. Main research methodologies include operations research and data analytics, particularly stochastic modeling, robust, nonlinear, and data-driven optimization, and probabilistic risk modeling and prediction. Specific research interests include public health screening (with focus on donated blood screening for transfusion-transmittable diseases, newborn screening for genetic disorders, and population-level screening for infectious diseases); surveillance of infectious diseases and genetic disorders; safety of healthcare delivery (with focus on blood transfusion and ambulatory surgery settings); and inventory and operations management in manufacturing and service industries.

Dr. Bish is the recipient of the INFORMS Pierskalla Award for the Best Paper in Healthcare, INFORMS JFIG Best Paper Award, IIE Transactions Best Applications Paper Award; and her PhD advisees have received several awards for their dissertation work, including the INFORMS Seth Bonder Scholarship in Applied Operations Research in Health Services, IISE Pritsker Doctoral Dissertation Award, INFORMS Health Applications Society Student Paper Award, among others. Dr. Bish has published in leading operations research, bio-statistics, and medical journals, including *Operations Research*, *Management Science*, *M&SOM*, *INFORMS J. Computing*, *IISE Transactions*, *Naval Research Logistics*, *Biostatistics*, *Statistics in Medicine*, *Transfusion*, *PLoS ONE*, among others. Her research has been funded multiple times by the National Science Foundation, and by the Agency for Healthcare Research and Quality; and she has extensively collaborated with industry partners, with recent partners including the American Red Cross, New York State Laboratory of Public Health, North Carolina State Laboratory of Public Health, and the Carilion Clinic. She teaches courses on inventory, supply chain, and operations management, healthcare and public policy, and operations research. Dr. Bish has graduated fourteen PhD students, many of whom hold academic positions.

Academic Experience

Professor (2020-present): Information Systems, Statistics, and Management Science, Culverhouse College of Business, The University of Alabama.

Associate Professor (2006-2020): Industrial and Systems Engineering, Virginia Tech.

Assistant Professor (1999-2006): Industrial and Systems Engineering, Virginia Tech.

Research and Teaching Assistant (1994-1999): Industrial Engineering and Management Sciences, Northwestern University, Evanston, IL.

Education

PhD in Industrial Engineering and Management Sciences, Northwestern University, Evanston, IL (Advisor: David Simchi-Levi), **1999**.

MS in Industrial Engineering, Bogazici University, Istanbul, Turkey.

BS in Industrial Engineering, Bogazici University, Istanbul, Turkey.

Honors and Awards

- **INFORMS Pierskalla Award** for the Best Paper in Healthcare:
 - Runner-up (awarded in 2021) for the paper, *Novel Pooling strategies for genetic testing, with application to newborn screening*, **Management Science** (First published on line, March 2022).
 - Runner-up (awarded in 2017) for the paper, *Optimal risk-based group testing strategies, with equity considerations*, **Management Science**, 65(9):3949-4450, 2019.
 - Finalist (awarded in 2015) for the paper, *Robust post-donation blood screening under prevalence rate uncertainty*, **Operations Research**, 66(1):1-17, 2018.
 - Winner (awarded in 2011) for the paper, *Optimal selection of screening assays for infectious agents in donated blood*, **IIE Transactions on Healthcare Systems Engineering**, 1(2):67-90, 2011.
- **IIE (IISE) Transactions Best Application Paper Award** (Focus Issue: Operations Engineering and Analytics):
 - Honorable Mention (awarded in 2021) for the paper, *Optimal data-driven policies for disease screening under noisy biomarker measurement*, **IISE Transactions**, 52:2, 166-180, 2020.
 - Winner (awarded in 2020) for the paper, *Adaptive risk-based pooling in public health screening*, **IISE Transactions**, 50(9):753-766, 2018.
 - Winner (awarded in 2016) for the paper, *Going beyond “same-for-all” testing of infectious agents in donated blood*, **IIE Transactions**, 46(11):1147-1168, 2014.
- **INFORMS JFIG Best Paper Award**:
 - Winner (awarded in 2004) for the paper, *Optimal investment strategies for flexible resources, considering pricing and correlated demands*, **Operations Research**, 52(6), 954-964, 2004.
- Frank Batten Young Scholar, College of William and Mary, School of Business Administration, 2002
- Third place for Best Paper Award, POMS Conference, Sevilla, Spain, 2000

Advisee Honors and Awards

- Hussein El Hajj (**Assistant Professor**, School of Business, Santa Clara University, CA)
 - Winner, 2022 IISE Pritsker Doctoral Dissertation Award
 - Finalist, 2020 INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services
 - Second place, 2019 INFORMS Health Applications Society Student Paper Competition
 - Outstanding Ph.D. Student, Grado Department of Industrial and Systems Engineering, Virginia Tech, 2021.

- Hrayer Aprahamian (**Assistant Professor**, Industrial Engineering, Texas A&M)
 - Winner, 2019 IISE Pritsker Doctoral Dissertation Award
 - Winner, 2018 Paul E. Torgersen Graduate Research Award
 - Finalist, 2017 INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services
- Alba Rojas-Cordova (position upon graduation: **Assistant Professor**, Engineering Management, Information, and Systems, SMU)
 - 2016 INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services
 - Winner, 2016 INFORMS Minority Poster Competition
- Hadi El-Amine (**Assistant Professor**, Systems Engineering and Operations Research, George Mason University)
 - Second place, 2017 IISE Pritsker Doctoral Dissertation Award
 - 2015 INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services
 - Finalist, 2014 W-INFORMS Student Excellence Award
- Nevin Mutlu (**Assistant Professor**, Industrial Engineering & Innovation Sciences, Eindhoven University of Technology)
 - Marie Skłodowska-Curie Actions Individual Fellowship, 2018-2020
- Seong-Jong Hong, Weiping Chen: Finalists, SCALE Doctoral Dissertation Proposal Competition (respectively in 2003 and 2007), University of Florida Supply Chain and Logistics Engineering Center
- Xiaomei Zhu: Winner, 2003 IIE MS Thesis Award (Graduate Research Award)

Publications (advisees denoted with *)

Journal Publications (Chronical Order)

Public policy and health systems related research

Operations Research/Management Science journals

1. Bish, DR, EK Bish, and H El-Hajj*, *Disease bundling or specimen bundling? Cost- and capacity-efficient strategies for multidisease testing with genetic assays*. **Manufacturing & Service Operations Management**. First published online, August 8, 2023.
2. El-Hajj*, H, DR Bish, EK Bish, and D Kay, *Novel pooling strategies for genetic testing, with application to newborn screening*. **Management Science**, 68(11):7994-8014, 2022.
Runner-up, 2021 INFORMS Pierskalla Award for the Best Paper in Healthcare
3. El-Hajj*, H, DR Bish, and EK Bish, *Optimal genetic screening for cystic fibrosis*. **Operations Research**, 70(1):265-287, 2021.
Second place, 2019 INFORMS HAS Student Paper Competition

4. El-Hajj*, H, DR Bish, EK Bish, and H Aprahamian*, *Screening multi-dimensional heterogeneous populations for infectious diseases under scarce testing resources, with application to COVID-19*. **Naval Research Logistics**, 69(1):3-20, 2022.
5. Nguyen*, N, EK Bish, and DR Bish, *Optimal pooled testing design for prevalence estimation*. **OMEGA**, 105:102504, Published: July 2, 2021.
6. El-Hajj*, H, DR Bish, and EK Bish, *Equity in genetic newborn screening*, **Naval Research Logistics**, 68(1): 44-64, 2021 (Special issue on healthcare operations).
7. Aprahamian*, H, DR Bish, and EK Bish, *Optimal group testing: Structural properties and robust solutions, with application to public health screening*. **INFORMS Journal on Computing**, 32(4):895-911, 2020.
8. Sadeghzadeh*, S, DR Bish, and EK Bish, *Optimal data-driven policies for disease screening under noisy biomarker measurement*. **IISE Transactions**, 52(2):166-180, 2020.
Honorable Mention, 2021 IISE Transactions Best Applications Paper Award
Featured in the January 2020 issue of IISE's Industrial and Systems Engineer magazine
9. Aprahamian*, H, EK Bish, and DR Bish, *Static risk-based group testing schemes under imperfectly observable risk*. **Stochastic Systems**, 10(4):361-390, 2020.
10. Aprahamian*, H, DR Bish, and EK Bish, *Optimal risk-based group testing*. **Management Science**, 65(9):3949-4450, 2019.
Runner-up, 2017 INFORMS Pierskalla Award for the Best Paper in Healthcare
11. El-Amine*, H, EK Bish, and DR Bish, *Robust post-donation blood screening under prevalence rate uncertainty*. **Operations Research**, 66(1):1-17, 2018.
Finalist, 2015 INFORMS Pierskalla Award for the Best Paper in Healthcare
Featured in INFORMS Journal Highlights, October 2017
12. Aprahamian*, H, EK Bish, and DR Bish, *Adaptive risk-based pooling in public health screening*, **IISE Transactions** 50(9):753-766, 2018.
Winner, 2020 IISE Transactions Best Applications Paper Award
Featured in the August 2018 issue of IISE's Industrial and Systems Engineer magazine
13. El-Amine*, H, EK Bish, and DR Bish, *Optimal pooling strategies for Nucleic Acid Testing of donated blood considering viral load growth curves and donor characteristics*, **IISE Transactions on Healthcare Systems Engineering** 7(1):15-29, 2017.
14. Bish, DR, EK Bish, SR Xie*, and SL Stramer, *Going beyond "same-for-all" testing of infectious agents in donated blood*, **IIE Transactions** 46(11):1147-1168, 2014.
Winner, 2016 IIE Transactions Best Applications Paper Award
Featured in the October 2014 issue of IIE's Industrial Engineer magazine
15. Slonim, AD, EK Bish, and RS Xie*, *Red blood cell transfusion safety: Probabilistic risk assessment and cost/ benefits of risk reduction strategies*, **Annals of Operations Research**, 221 (1), 377-406, 2014.
16. Xie*, SR, DR Bish, EK Bish, AD Slonim, and SL Stramer, *Safety and waste considerations in donated blood screening*, **European Journal of Operational Research** 217(3):619-632, 2012.

17. Bish, DR, EK Bish, SR Xie*, and AD Slonim, *Optimal selection of screening assays for infectious agents in donated blood*, **IIE Transactions on Healthcare Systems Engineering** 1(2):67-90, 2011.
Winner, 2011 INFORMS Pierskalla Award for the Best Paper in Healthcare

Biostatistics, healthcare, and general science journals

18. Rabil*, MJ, S Tunc, DR Bish, and EK Bish. *Benefits of integrated screening and vaccination for infection control*. **PLoS ONE**, 17(4): e0267388, Published: April 21, 2022.
19. Rabil*, MJ, S Tunc, DR Bish, and EK Bish. *Effective screening strategies for safe opening of universities under Omicron and Delta variants of COVID-19*. **Scientific Reports** (published by **Nature**), 12, 21309, Published: December 9, 2022.
20. Bish, DR, EK Bish, H El-Hajj*, and H Aprahamian*, *A robust pooled testing approach to expand COVID-19 screening capacity*. **PLoS ONE**, 16(2): e0246285, Published: February 8, 2021.
21. Nguyen*, N, H Aprahamian*, EK Bish, and DR Bish, *A methodology for deriving the sensitivity of pooled testing, based on viral load progression and pooling dilution*. **Journal of Translational Medicine** 17:252, 2019.
22. Nguyen*, N, EK Bish, and H Aprahamian*, *Sequential prevalence estimation with pooling and continuous test outcomes*, **Statistics in Medicine**, 37(15), 2391-2426, 2018.
23. Aprahamian*, H, DR Bish, and EK Bish, *Residual risk and waste in donated blood with pooled Nucleic Acid Testing*, **Statistics in Medicine** 35(28):5283-5301, 2016.
24. Bish, EK, ED Moritz, H El-Amine*, DR Bish, and SL Stramer, *Cost effectiveness of Babesia microti antibody and nucleic acid blood donation screening using results from prospective investigational studies*, **Transfusion** 55(9):2256-2271, 2015.
25. Bish, EK, H El-Amine*, LA Steighner, and AD Slonim, *A socio-technical, probabilistic risk assessment model for surgical site infections in ambulatory surgery centers*, **Infection Control & Hospital Epidemiology**, 35(S3), S133-S141, 2014.
26. Bish, EK, NA Fard*, LA Steighner, KK Hall, and AD Slonim, *Proactive risk assessment of surgical site infections in ambulatory surgery centers*, **Journal of Patient Safety**, 13(2), 69-75, 2017.
27. Bish, EK, PK Ragavan*, DR Bish, AD Slonim, and SL Stramer, *A probabilistic method for the estimation of residual risk in donated blood*, **Biostatistics** 15(4):620-635, 2014.
28. Slonim, AD, EK Bish, and LA Steighner, *Using socio-technical probabilistic risk assessment to assess risk and improve patient safety and reliability in healthcare systems*, **Advances in the Prevention and Control of HAIs**, 241-252, 2014.

Operations management related research

29. Mutlu*, N and EK Bish, *Optimal demand shaping for a dual-channel retailer under growing e-commerce adoption*, **IIE Transactions**, 51(1), 92-106, 2019.

30. Bish, EK and W Chen*, *The optimal resource portfolio under consumer choice and demand risk for vertically differentiated products*, **J of Oper Res Society**, 67(1), 87-97, 2016.
31. Maddah*, B, EK Bish, and H Tarhini*, *Newsvendor pricing and assortment under Poisson decomposition*, **IIE Transactions**, 46(6), 567-584, 2014.
32. Bish, EK, X Zeng*, J Liu*, and DR Bish, *Comparative statics analysis of multi-product newsvendor networks under responsive pricing*, **Operations Research** 60(5):1111-1124, 2012.
33. Bish, DR, EK Bish, J Liu*, and L Liao*, *Revenue management with aircraft re-assignment flexibility*, **Naval Research Logistics** 58(2):136-152, 2011.
34. Bish, EK, J Liu*, and DR Bish, *A note on resource flexibility with responsive pricing*, **Naval Research Logistics** 57(2):119-126, 2010.
35. Bish, EK and R Suwandechochai*, *Optimal capacity for substitutable products under operational postponement*, **European Journal of Operational Research**, 207(2), 775-783, 2010.
36. Maddah, B* and EK Bish, *Locational tying of complementary retail items*, **Naval Research Logistics**, 56(5), 421-438, 2009.
37. Bish, EK, J Liu*, and R Suwandechochai*, *Optimal capacity, product substitution, linear demand models, and uncertainty*, **The Engineering Economist**, 54(2), 109-151, 2009.
38. Bish, EK, KY Lin, and SJ Hong*, *Allocation of flexible and indivisible resources with decision postponement and demand learning*, **European Journal of Operational Research**, 187(2), 429-441, 2008.
39. Maddah, B* and EK Bish, *Joint pricing, variety, and inventory decisions for a retailer's product line*, **Naval Research Logistics**, 54(3), 315-330, 2007.
40. Bish, EK and SJ Hong*, *Coordinating the resource investment decision for a two-market, price-setting firm*, **International Journal of Production Economics**, 101(1), 63-88, 2006.
41. Sherali, HD, EK Bish, and X Zhu*, *Airline fleet assignment concepts, models, and algorithms*, **European Journal of Operational Research**, 172(1), 1-30, 2006.
42. Bish, EK, A Muriel, and S Biller, *Managing flexible capacity in a make-to-order environment*, **Management Science**, 51(2), 167-180, 2005.
43. Sherali, HD, EK Bish, and X Zhu*, *Polyhedral analysis and algorithms for a demand driven re-fleetting model for aircraft assignment*, **Transportation Science**, 39(3), 349-366, 2005.
44. Bish, EK and Q Wang*, *Optimal investment strategies for flexible resources, considering pricing and correlated demands*, **Operations Research**, 52(6), 954-964, 2004.
Winner, 2004 INFORMS JFIG Best Paper Award
45. Bish, EK, R Suwandechochai*, and DR Bish, *Strategies for managing the flexible capacity in the airline industry*, **Naval Research Logistics** 51(5):654-685, 2004.

46. Bish, EK, *A multiple-crane-constrained scheduling problem in a container terminal*, **European Journal of Operational Research**, 144(1), 83-107, 2003.
47. Bish, EK, T Leong, C Li, JW Ng, and D Simchi-Levi, *Analysis of a new scheduling and location problem*, **Naval Research Logistics**, 48(5), 363-385, 2001.
48. Bish, EK, FY Chen, T Leong, BL Nelson, JW Ng, and D Simchi-Levi, *Dispatching vehicles in a mega container terminal*, **OR Spectrum**, 27, 491-506, 2005.
49. Ellis, KP, Y Lu, and EK Bish, *Scheduling of wafer test processes in semiconductor manufacturing*, **International Journal of Production Research**, 42(2), 215-242, 2004.

Book Chapters (Peer-reviewed)

1. Rojas-Cordova*, A, EK Bish, and N Hosseinichimeh, *Decision making in sequential adaptive clinical trials, with implications for drug misclassification and resource allocation*, in **Women in Industrial and Systems Engineering: Key Advances and Perspectives on Emerging Topics**, Ed. A Smith, Springer, Chapter 14, 2019.
2. Bish, EK, H El-Amine*, DR Bish, SL Stramer, and AD Slonim. *Optimal selection of assays for detecting infectious agents in donated blood*, in **Decision Analytics and Optimization in Disease Prevention and Treatment**, Eds. N Kong and S Zhang, Wiley, Chapter 5, 2018.
3. Maddah*, B, EK Bish, and B Munreo, *Pricing, variety, and inventory decisions for product lines of substitutable items*, in **Planning Production and Inventories in the Extended Enterprise**, Eds. K Kempf, P Keskinocak, and R Uzsoy, Springer, 367-391, 2011.
4. Bish, DR, EK Bish, and B Maddah*. *Revenue management and capacity planning*, in **Logistics Engineering Handbook**, Ed. GD Taylor, Chapter 19, CRC Press, 2008.
5. Bish, EK, FY Chen, T Leong, BL Nelson, JW Ng, and D Simchi-Levi. *Dispatching vehicles in a mega container terminal*, in **Container Terminals and Cargo Systems**, Eds. JKH Kim and H-O Gunther, Springer, 179-194, 2007.
6. Bish, EK, *Optimal investment strategies for flexible resources, considering pricing*, in **Supply Chain Optimization**, Eds. J Geunes and PM Pardalos, Kluwer Academic Publishers, Springer Series in Applied Optimization, 123-144, 2005.
7. Biller, S, EK Bish, and A Muriel, *Impact of manufacturing flexibility on supply chain performance in the automotive industry*, in **Supply Chain Structures: Coordination, Information, and Optimization**, Eds. JS Song and DD Yao, Kluwer Academic Publishers, 73-118, 2002.

Letter (Peer-reviewed): Bish, EK, ED Moritz, H El-Amine*, DR Bish, and SL Stramer, *Letter to the Editor: Cost effectiveness of Babesia microti blood donation intervention based on real-time prospective screening in endemic areas of the United States*, **Transfusion**, 56(3):775-777, 2016.

Report Prepared for Federal Agency: Slonim AD, EK Bish, LA Steighner, X Zeng*, and R Crossno. Proactive risk assessment of surgical site infections in ambulatory surgery centers. Final Report (Prepared by the American Institutes of Research under Contract No. 290-06-00019i-12). Rockville: AHRQ Publication; March 2012.

Federal Grants

National Science Foundation (CMMI)

NSF # 1761842, Role: Co-PI (50%), Period: 6/15/2018 - 5/31/2023, Funding Level: \$479,489

GOALI: Pooled Screening Design for Disease Biomarkers

with Dr. Douglas Bish (Univ of Alabama) and Dr. Scott Zimmerman (North Carolina State Laboratory of Public Health, industry co-PI)

National Science Foundation (CMMI)

NSF #1129688, Role: PI (50%), Period: 8/15/2011 - 8/14/2015, Funding Level: \$340,000

Optimal Blood Screening Strategies for Infectious Agents: Mathematical Models and Decision Support Tools

with Dr. Douglas Bish (Virginia Tech), Dr. Susan Stramer (American Red Cross), and Dr. Anthony Slonim (Renown Health/Carilion Clinic)

[Featured on NSF's Science, Engineering & Education Innovation site](#)

Agency for Healthcare Research and Quality (AHRQ)

Task Order #25, Role: Co-PI, Period: 8/30/2010 - 12/31/2011, Funding Level: \$98,141

Proactive Risk Assessment in Ambulatory Surgery Centers

with Dr. Anthony Slonim (Renown Health/Carilion Clinic) and Dr. Laura Steighner (American Institutes for Research)

National Science Foundation (CMMI)

NSF # 0245643, Role: Co-PI (50%), Period: 9/15/2003 - 8/31/2007, Funding Level: \$347,803

GOALI: Demand Driven Fleet Management Analysis, Models, and Algorithms for the Airline Industry

with Dr. Hanif Sherali (Virginia Tech), Douglas Bish (United Airlines, industry co-PI), and Krishnan Saranathan (United Airlines, industry co-PI)

National Science Foundation (CMMI)

NSF # 0100122, Role: PI (100%), Period: 6/15/2001 - 12/31/2005, Funding Level: \$158,964

GOALI: Capacity and Flexibility Investment Decisions in a Make-to-Order

Environment, and Supplemental REU Grant, Period: 9/1/2001 to 5/31/2005

with Stephan Biller (General Motors, industry co-PI)

Teaching and Advising

PhD Advisees (Graduated)

Hussein El-Hajj (2021, Co-chair with Dr. Douglas Bish).

Dissertation title: *Robust and equitable public health screening strategies, with application to genetic and infectious diseases.*

Position: **Assistant Professor** (tenure-track), School of Business, Santa Clara Univ, CA.

- Winner, 2022 IISE Pritsker Doctoral Dissertation Award
- Runner-up, 2021 INFORMS Pierskalla Award for the Best Paper in Healthcare
- Second place, 2019 INFORMS Health Applications Society Student Paper Competition
- Finalist, 2020 INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services
- Outstanding Ph.D. Student, Grado Department of Industrial and Systems Engineering, Virginia Tech, 2021

Saloumeh Seyedehsaloumeh (2019, Co-chair with Dr. Douglas Bish).

Dissertation title: *Optimal data-driven methods for subject classification in public health screening.*

Position upon graduation: **Assistant Professor** (tenure-track), School of Management, Binghamton Univ, NY.

- Honorable Mention, 2021 IISE Transactions Best Applications Paper Award

Ngoc Nguyen (2019, Chair).

Dissertation title: *Efficient prevalence estimation for emerging and seasonal diseases under limited resources.*

Position: **Healthcare Data Scientist**, University of Maryland Medical System, MD.

Hrayer Aprahamian (2018, Co-chair with Dr. Douglas Bish).

Dissertation title: *Optimal risk-based pooled testing in public health screening.*

Position: **Assistant Professor** (tenure-track), Department of Industrial Engineering, Texas A&M, TX.

- Winner, 2020 IISE Transactions Best Applications Paper Award
- Winner, 2019 IISE Pritsker Doctoral Dissertation Award
- Winner, 2018 Paul E. Torgersen Graduate Research Award
- Runner-up, 2017 INFORMS Pierskalla Award for the Best Paper in Healthcare
- Finalist, 2017 INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services

Alba Rojas-Cordova (2017, Co-chair with Dr. Hosseinichimeh).

Dissertation title: *Resource allocation decision-making in sequential adaptive clinical trials.*

Position upon graduation: **Assistant Professor** (tenure-track), Department of Engineering Management, Information, and Systems, Lyle School of Engineering, SMU, TX.

- 2016 INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services
- Winner, 2016 INFORMS Minority Poster Competition

Hadi El-Amine (2016, Co-chair with Dr. Douglas Bish).

Dissertation title: *Optimal blood screening tests with robust performance under prevalence uncertainty.*

Position: **Associate Professor**, Department of Systems Engineering and Operations Research, George Mason University, VA.

- Second-place, 2017 IISE Pritsker Doctoral Dissertation Award
- Finalist, 2015 INFORMS Pierskalla Award for the Best Paper in Healthcare
- 2015 INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services
- Finalist, 2014 W-INFORMS Student Excellence Award

Nevin Mutlu (2016, Chair).

Dissertation title: *Optimal demand shaping strategies for dual-channel retailers in the face of evolving consumer behavior.*

Position: **Associate Professor**, Department of Industrial Engineering & Innovation Sciences, Eindhoven University of Technology, The Netherlands.

- Marie Skłodowska-Curie Actions Individual Fellowship, 2018-2020

Xin Zeng (2012, Chair).

Dissertation title: *Comparative statics analysis of some operations management problems.*

Position: **Senior Statistician/Data Scientist**, Apple, San Francisco Bay Area, CA.

Ryan Shiguang Xie (2011, Co-chair with Dr. Douglas Bish).

Dissertation title: *Optimal allocation of resources for screening of donated blood.*

Position: **Analytic Science–Senior Scientist**, FICO, San Francisco Bay Area, CA.

- Winner, 2011 INFORMS Pierskalla Award for the Best Paper in Healthcare
- Winner, 2016 Best Applications Paper in the IIE Transactions Focused Issue on Operations Engineering and Analytics

Juqi Liu (2009, Co-chair with Dr. Douglas Bish).

Dissertation title: *Managing uncertainty in capacity investment, revenue management, and supply chain coordination.*

Position: **Team Lead Manager**, Unity Technologies, San Francisco Bay Area, CA.

Weiping Chen (2007, Chair).

Dissertation title: *Firm's optimal resource portfolio under consumer choice, and supply and demand risks.*

Position: **Director**, Discover Financial Services, Riverwoods, IL.

- Finalist, 2007 SCALE Doctoral Dissertation Proposal Competition, University of Florida Supply Chain and Logistics Engineering Center

Bacel Maddah (2005, Chair).

Dissertation title: *Pricing, variety, and inventory decisions in retail operations management.*

Position: **Professor and Chair**, Department of Industrial Engineering and Management, Faculty of Engineering and Architecture, American University of Beirut, Lebanon.

Rawee Suwandechochai (2005, Chair).

Dissertation title: *Capacity investment, flexibility, and product substitution/complementarity under demand uncertainty.*

Position: **Lecturer**, Department of Mathematics, College of Science, Mahidol University, Thailand.

Seong-Jong Hong (2004, Chair).

Dissertation title: *Analysis of the benefits of resource flexibility, considering different flexibility structures.*

Position: **Project Engineer**, Samsung Electronics Co. Ltd., South Korea.

- Finalist, 2003 SCALE Doctoral Dissertation Proposal Competition, University of Florida Supply Chain and Logistics Engineering Center

MS Advisees (with Thesis) (Graduated)

Qiong Wang (2002). Thesis title: *Optimal investment strategies for flexible resources, considering pricing and correlated demands.*

Rawee Suwandechochai (2002). Thesis title: *Analysis of decision postponement strategies for aircraft assignment under uncertainty.*

Greg Beskow (2002). Thesis title: *Rescheduling of airline pilot training activities following disruptions.*

Xiaomei Zhu (2001). Thesis title: *A demand driven re-fleeting approach for aircraft assignment under uncertainty.*

- First place, 2003 IIE M.S. Thesis Award (Graduate Research Award)

Courses Developed and Taught

Graduate Level

Developed and Taught

- *ISE 6984: Healthcare and Public Policy Operations Research*: Principles, models, and methods to optimize public policy and design healthcare systems under limited resources. Course focuses on current and future challenges in healthcare systems, outlines the role Operations Research methodologies can play to address those problems, and draws upon recent journal papers and reports
- *ISE 6444: Inventory and Operations Management*: Advanced course on inventory and operations management, with emphasis on new developments and research results. Course focuses on analytical methods, including stochastic and deterministic optimization, dynamic programming, probability theory, and stochastic processes for inventory and operations planning and management
- *ISE 5984: Economic Decision Analysis*: Focus on mathematical models in supply chain management. Central themes include balancing supply and demand in the supply chain under demand uncertainty and competition, and focusing on a system-wide optimization that requires collaboration and coordination among the entities (i.e., retailers, manufacturers, and suppliers). Course draws upon various disciplines, including operations research, management science, and industrial organization

Taught

- *OM 523: Inventory Management*
- *ISE 5414: Random Process*
- *ISE 5034: Probability for IEs*

Undergraduate Level

Developed and Taught

- *ISE 4434: Supply Chain and Operations Engineering*: Mathematical models, algorithms, and tools to support the design/redesign and management of supply chain systems and processes that create goods or services, under uncertainty and with emphasis on resiliency, reliability, efficiency, and effectiveness. Impact of new developments on supply chain engineering, including rapid growth of the internet and e-commerce and emerging need to build sustainable and environmentally-friendly supply chains, with substantial focus on not-for-profit supply chains

Taught

- *OM 321: Production Planning and Control*
- *ISE 4424: Logistics Engineering*
- *ISE 3414: Probabilistic Operations Research*
- *ISE 2404: Deterministic Operations Research*

Service

Professional Service

- Cluster Chair, 2023 INFORMS Healthcare Conference
- Organizing Committee Member and TutORials Co-Chair, 2023 INFORMS Annual Meeting
 - Co-Editor, 2023 INFORMS TutORials Volume
- Member, INFORMS Diversity, Equity, and Inclusion Committee (DEIC), 2023
- Co-chair, INFORMS Diversity, Equity, and Inclusion (DEI) Best Student Paper Award, 2022: Served as the co-chair for the inaugural award
- Co-chair, INFORMS Health Applications Society Best Student Paper Award, 2021
- Advisory Board for Seminar Series, INFORMS Health Applications Society, 2021
- Vice-president, President, and Past-president, INFORMS Health Applications Society, 2018, 2019, 2020, respectively
 - Provided leadership to the society
 - Established a new endowment (Sanjay and Panna Mehrotra Research Excellence Award)
 - Started new initiatives, including a task force to establish strategic partnerships between the society and academic journals, the student liaison program, and the Distinguished Scholar lecture series

- INFORMS Subdivisions Council, 2019-2020
- Advisory Committee to INFORMS VP of Sections/Societies, 2019-2020
- Co-chair, INFORMS Pierskalla Best Paper Award Committee, 2012
- Committee Member, INFORMS Health Applications Society Best Student Paper Award (2023), INFORMS PSOR Best Paper Award (2023), POMS College of Healthcare Operations Management Best Paper Award Committee (2021), INFORMS Nicholson Student Paper Competition Committee (2005-2007, 2017-2019), IIE Pritsker Doctoral Dissertation Award Committee (2014-2016), INFORMS JFIG Prize Committee (2014-2015, 2021), IIE Transactions Best Paper Award Committee (in logistics and supply chain management) (multiple times)
- Cluster Chair, INFORMS Annual Conference, 2018
 - Organized over eighty healthcare and public policy focused conference sessions, and five distinguished scholar lectures within the Health Applications Society Cluster
- Session Chair, many INFORMS Annual Conferences
- Editorial Board
 - Department Editor, *Health Care Management Science* (2020-present)
 - Co-editor, *Naval Research Logistics*, Special Issue on “Developing Pandemic Preparedness Using Artificial Intelligence, Data Analytics, and Operations Research” (with Sanjay Mehrotra and Tinglong Dai as co-editors), 2022-2023
 - Editorial Board: *Production and Operations Management* (Senior Editor for the Special Issue on “Diversity, Equity, and Inclusion in Operations and Supply Chain Management,” 2022-2023), *IIE Transactions* (2021-present), *INFORMS Service Science* (2016-present), *Naval Research Logistics* (2019-present), *Omega* (2012-2017)
- Proposal reviewer, National Science Foundation (many times); Trans-Atlantic Platform (T-AP) for Social Sciences and Humanities: Recovery, Renewal and Resilience in a Post-Pandemic World; Research Grants Council of Hong Kong.

Internal Service (University of Alabama)

Departmental Service

- Coordinator: OM MS Program (2021-)
- Member:
 - OM PhD Admissions Committee (2020-2022)
 - Hiring Committee (2023)
- Faculty Mentor for untenured faculty

University Service

- Member:
 - Culverhouse College of Business, Promotion & Tenure Committee (2022)
 - Culverhouse College of Business, Research & Scholarship Committee (2020-2022)

Internal Service (Virginia Tech)

Departmental Service

- Chair:
 - Diversity & Inclusion Committee (2019-2020)
 - Faculty Search Committee (multiple years)
 - Undergraduate Curriculum Revision Committee
 - Undergraduate Program Committee
- Member:
 - Strategic Planning Committee (2019-2020)
 - Faculty Search Committee (multiple years)
 - Undergraduate Curriculum Revision Committee (multiple years)
 - Graduate Admissions Committee (multiple years)
 - Undergraduate Program Committee (multiple years)
 - Awards Committee
- Faculty Mentor for untenured faculty

University Service

- Member:
 - College of Engineering Diversity Committee (2019-2020)
 - Data & Decision Destination Area Research Subcommittee (2018-2020)
 - Faculty Search Committee, Dept. of Population Health Sciences (2019)
 - Faculty Search Committee, Dept. of Economics