Nikolaos (Nikos) Trichakis

Contact Information

MIT Sloan School of Management
E62-576, 100 Main Street
Cambridge, MA 02142 USA

Voice: +1 (617) 715-4215
E-mail: ntrichakis@mit.edu

Research Interests

Fairness and Ethics in Operations Management, Analytics, Optimization, Resource Allocation, Healthcare, Supply-chain Management, Revenue Management, Financing of Operations

Academic Appointments

Massachusetts Institute of Technology, Cambridge, Massachusetts USA

J.C. Penney Associate Professor of Management	**2023-**
Associate Professor of Operations Management (with tenure)	**2020-**
Associate Professor of Operations Management	**2018-2020**
Zenon Zannetos (1955) Career Development Associate Professor	**2018-2019**
Assistant Professor of Operations Management	**2016-2018**
Zenon Zannetos (1955) Career Development Assistant Professor	**2016-2018**

Sloan School of Management

Harvard Business School, Boston, Massachusetts USA
Assistant Professor of Business Administration **2011-2016**
Technology and Operations Management Unit

Education

Massachusetts Institute of Technology, Cambridge, Massachusetts USA
Sloan School of Management - Operations Research Center
Ph.D. in Operations Research, June 2011.
(advisors: Dimitris Bertsimas and Vivek F. Farias)

Stanford University, Stanford, California USA
Department of Electrical Engineering
M.S. in Electrical Engineering, specializing in Operations Research, May 2007.
(advisor: Stephen P. Boyd)

Imperial College, London, UK
Department of Electrical and Electronic Engineering
M.Sc. in Communications and Signal Processing, August 2004.

Aristotle University, Thessaloniki, GR
School of Engineering
Diploma in Electrical Engineering and Computer Science, August 2003.

PhD Thesis

"Fairness in Operations: From Theory to Practice," MIT, June 2011.

Journal Publications

1. "Reshaping National Organ Allocation Policy." *Operations Research*, forthcoming, 2023. T. P. Papalexopoulos, J. Alcorn, D. Bertsimas, R. R. Goff, D. E. Stewart, and N. Trichakis

2. "Applying Analytics to Design Lung Transplant Allocation Policy." *INFORMS Journal on Applied Analytics*, forthcoming, 2023. T. P. Papalexopoulos, J. Alcorn, D. Bertsimas, R. R. Goff, D. E. Stewart, and N. Trichakis

3. "Dynamic Project Expediting: A Stochastic Shortest-Path Approach." *Management Science*, forthcoming, 2023. L. Bertazzi, R. Mogre, and N. Trichakis

4. "Pareto Adaptive Robust Optimality via a Fourier-Motzkin Elimination Lens." *Mathematical Programming*, pp 1–54, 2023. D. Bertsimas, S. C. M. ten Eikelder, D. den Hertog, and N. Trichakis

5. "Joint Patient Selection and Scheduling under No-Shows: Theory and Application in Proton Therapy." *Production and Operations Management*, 32(2):547–563, 2023. S. Saghafian, N. Trichakis, R. Zhu, and H. A. Shih

6. "Forecasting COVID-19 and Analyzing the Effect of Government Interventions." *Operations Research*, 71(1):184–201, 2022. M. L. Li, H. T. Bouardi, O. S. Lami, T. A. Trikalinos, N. Trichakis, and D. Bertsimas

7. "Ethics-by-design: Efficient, Fair and Inclusive Resource Allocation using Machine Learning." *Journal of Law and the Biosciences*, 9(1), 2022. T. P. Papalexopoulos, D. Bertsimas, I. G. Cohen, R. R. Goff, D. E. Stewart, and N. Trichakis

8. "Platform Tokenization: Financing, Governance, and Moral Hazard." *Management Science*, 68(9):6411–6433, 2022. J. Chod, N. Trichakis, and S. A. Yang

9. "On the Learning Benefits of Resource Flexibility." *Management Science*, 67(10):6513–6528, 2021. J. Chod, M. Markakis, and N. Trichakis

10. "Monitoring With Limited Information." *Management Science*, 67(7):4233–4251, 2020. D. A. Iancu, N. Trichakis, and D. Y. Yoon

11. "Technical Note—On Revenue Management with Strategic Customers Choosing When and What to Buy." *Operations Research*, 69(1):175–187, 2020. Y. Chen and N. Trichakis

12. "On the Financing Benefits of Supply Chain Transparency and Blockchain Adoption." *Management Science*, 66(10):4378–4396, 2020. J. Chod, N. Trichakis, G. Tsoukalas, H. Aspegren, and M. Weber

13. "Balancing Efficiency and Fairness in Liver Transplant Access: Tradeoff Curves for the Assessment of Organ Distribution Policies." *Transplantation*, 104(5):981–987, 2020. D. Bertsimas, T. Papalexopoulos, N. Trichakis, Y. Wang, R. Hirose, and P. A. Vagefi

14. "The Rise and Fall of the Model for End-stage Liver Disease Score and the Need for an Optimized Machine Learning Approach for Liver Allocation." *Current Opinion in Organ Transplantation*, 25(2):122–125, 2020. P. A. Vagefi, D. Bertsimas, R. Hirose, and N. Trichakis

15. "Loyalty Program Liabilities and Point Values." *M&SOM*, 22(2):257–272, 2019. S. Y. Chun, D. A. Iancu, and N. Trichakis

16. "Data-driven Appointment Scheduling Under Uncertainty: The Case of an Infusion Unit in a Cancer Center." *Management Science*, 66(1):243–270, 2019. A. Mandelbaum, P. Momcilovic, N. Trichakis, S. Kadish, R. Leib, and C. A. Bunnell

17. "Supplier Diversification under Buyer Risk." *Management Science*, 65(7):3150–3173, 2019. J. Chod, N. Trichakis, and G. Tsoukalas

18. "On the Efficacy of Static Prices for Revenue Management in the Face of Strategic Customers." *Management Science*, 65(12):5535–5555, 2019. Y. Chen, V. F. Farias, and N. Trichakis

19. "Designing Response Supply Chain Against Bioattacks." *Operations Research*, 67(5):1246–1268, 2019. D. Simchi-Levi, N. Trichakis, and P. Y. Zhang

20. "Development and Validation of an Optimized Prediction of Mortality for Candidates Awaiting Liver Transplantation." *American Journal of Transplantation*, 19(4):1109–1118, 2019. D. Bertsimas, J. Kung, N. Trichakis, Y. Wang, R. Hirose, and P. A. Vagefi

21. "Robust Multiclass Queuing Theory for Wait Time Estimation in Resource Allocation Systems." *Management Science*, 65(1):152–187, 2018. C. Bandi, N. Trichakis, and P. Vayanos

22. "Dynamic Pricing under Debt: Spiraling Distortions and Efficiency Losses." *Management Science*, 64(10):4572–4589, 2017. O. Besbes, D. A. Iancu, and N. Trichakis

23. "Accept or Decline? An Analytics-Based Decision Tool for Kidney Offer Evaluation." *Transplantation*, 101(12):2898–2904, 2017. D. Bertsimas, J. Kung, N. Trichakis, D. Wojciechowski, and P. A. Vagefi

24. "Is Operating Flexibility Harmful Under Debt?" *Management Science*, 63(6):1730–1761, 2016. D. A. Iancu, N. Trichakis, and G. Tsoukalas

25. "Fairness and Efficiency in Multiportfolio Optimization." *Operations Research*, 62(6):1285–1301, 2014. D. A. Iancu and N. Trichakis

26. "Pareto Efficiency in Robust Optimization." *Management Science*, 60(1):130–147, 2013. D. A. Iancu and N. Trichakis

27. "Fairness, Efficiency and Flexibility in Organ Allocation for Kidney Transplantation." *Operations Research*, 61(1):73–87, 2013. D. Bertsimas, V. F. Farias, and N. Trichakis

28. "On the Efficiency-Fairness Trade-Off." *Management Science*, 58(12):2234–2250, 2012. D. Bertsimas, V. F. Farias, and N. Trichakis

29. "The Price of Fairness." *Operations Research*, 59(1):17–31, 2011. D. Bertsimas, V. F. Farias, and N. Trichakis

Peer-reviewed Conference Publications

30. "Quantifying the Electronic Medical Record Implementation to Stabilization Curve." *Journal of Clinical Oncology*, Vol. 35, No. 8, 2017 (with S. Kadish, A. Senderovich, R. Leib, A. Mandelbaum, P. Momcilovic, and C. A. Bunnell)

31. "Dynamic Network Utility Maximization with Delivery Contracts." *Proceedings IFAC World Congress*, pages 2907–2912, Seoul, July 2008. (with S. Boyd and A. Zymnis)

32. "An Interior-point Method for Large Scale Network Utility Maximization." *Proceedings of the Allerton Conference on Communication, Control, and Computing*, Monticello, IL, Sep. 26-28, 2007. (with S. Boyd, D. O'Neill and A. Zymnis)

Under Review (for journal publication)

33. "Product-Driven Questionnaire Design for Product Display Recommendations." Major Revision invited at *M&SOM*. (with J. Amar and C. Bandi)

34. "Preventing Opioid Overdose: From Prediction to Operationalization." Major Revision invited at *M&SOM*. (with J. O. Jonasson, N. Kaw, D. Sinha, A. Chen, J. Conte, A. Restaino and S. Volpe)

35. "On the Impact of Mass Screening for SARS-CoV-2 through Self-Testing in Greece." (with S. Gilmour, S. Sapounas, K. Drakopoulos, P. Jaillet and G. Magiorkinis)

36. "The Westward Wind: Targeted Broader Sharing for Liver Continuous Distribution." (with M. A. Mankowski, N. L. Wood, D. L. Segev, and S. E. Gentry)

Selected Honors

2023 Sanjay and Panna Mehrotra Research Excellence Award Winner

2023 INFORMS Pierskalla Award, Second Prize (for "Reshaping National Organ Allocation Policy.")

2023 Best OM Paper in Management Science, Finalists (for "On the Financing Benefits of Supply Chain Transparency and Blockchain Adoption.")

2023 M&SOM Interface of Finance, Operations, and Risk Management Best Paper Award, Finalists (for "Platform Tokenization: Financing, Governance, and Moral Hazard.")

2022 INFORMS Wagner Prize, Finalists (for "Applying Analytics to Design Lung Transplant Allocation Policy.")

2022 Best OM Paper in Management Science, Finalists (for "On the Financing Benefits of Supply Chain Transparency and Blockchain Adoption.")

2021 M&SOM Interface of Finance, Operations, and Risk Management Best Paper Award, First Prize (for "On the Financing Benefits of Supply Chain Transparency and Blockchain Adoption.")

2021 MIT Teaching with Digital Technology Award Winner

2020 INFORMS Koopman Prize Winner (for "Designing Response Supply Chain Against Bioattacks.")

2018 INFORMS Optimization Society Young Researchers Paper Prize, First Prize (for "Pareto Efficiency in Robust Optimization.")

2018 M&SOM Interface of Finance, Operations, and Risk Management Best Paper Award, First Prize (for "Is Operating Flexibility Harmful Under Debt?")

2018 INFORMS Technology, Innovation Management & Entrepreneurship Best Working Paper Award, Third Prize (for "On the Financing Benefits of Supply Chain Transparency and Blockchain Adoption.")

2018 POMS Best Paper Award, Humanitarian Operations & Crisis Management, Second Prize (for "Designing Response Supply Chain Against Bioattacks.")

2017 POMS College of Supply Chain Management Best Student Paper Competition, Second Prize (P. Y. Zhang for "Designing Response Supply Chain Against Bioattacks.")

2013 INFORMS Junior Faculty Paper Competition, First Prize (for "Pareto Efficiency in Robust Optimization.")

2012 INFORMS George B. Dantzig Dissertation Award, Third Prize

2011 INFORMS Pierskalla Award, finalist (for "Fairness, Efficiency and Flexibility in Organ

Allocation for Kidney Transplantation.")

2006 Scholarship from the Onassis Foundation for Graduate studies

2005 Fellowship Award for Graduate studies at Stanford University

2004 Podium finish in the World Finals of the Microsoft Corporation Imagine Cup Software Development Competition (3rd among 10,000 students worldwide)

2003 Scholarship from The Michael Arnaoutis Foundation for Graduate studies

Cases and Teaching Materials

"CREDEM: Banking on Cheese." Harvard Business School Case 615–046, March 2015. (with G. Tsoukalas and E. Moloney)

"CREDEM: Banking on Cheese." Harvard Business School Teaching Note 615–071, March 2015.

"Curtis LLP: A Case on Cases." Harvard Business School Case 616–049, June 2016.

"Financing Curtis LLP." Harvard Business School Case 616–050, June 2016.

"Infection Control at Massachusetts General Hospital." Harvard Business School Case 614-044, November 2014. (with R. Huckman)

"Infection Control at Massachusetts General Hospital." Harvard Business School Teaching Note 615–056, March 2015. (with R. Huckman)

"Lotus F1 Team." Harvard Business School Case 616-055, March 2016. (with S. Thomke, and J. Lenhardt, and D. Beyersdorfer)

MBA Teaching Experience

Massachusetts Institute of Technology, Cambridge, Massachusetts USA
Instructor

- 15.763 Supply-Chain Management, Spring 2023
- 15.763 Supply-Chain Management, Spring 2021
- 15.763 Supply-Chain Management, Spring 2020
- 15.761 Introduction to Operations Management, Spring 2023
- 15.761 Introduction to Operations Management, Spring 2021
- 15.761 Introduction to Operations Management, Spring 2020
- 15.761 Introduction to Operations Management, Fall 2018
- 15.761 Introduction to Operations Management, Fall 2017
- 15.761 Introduction to Operations Management, Spring 2017

Teaching Assistant

- 15.761 Introduction to Operations Management, Spring 2010
- 15.071 The Edge: Decision Methodologies for Managers, Spring 2008

Harvard Business School, Boston, Massachusetts USA
Instructor

- Understanding and Influencing Operations as an Investor, Winter 2016.
- Understanding and Influencing Operations as an Investor, Winter 2015.
- Technology and Operations Management, Sections C and E, Fall 2013.
- Technology and Operations Management, Section E, Fall 2012.
- Technology and Operations Management, Section D, Fall 2011.

Ph.D. Teaching Experience	**Massachusetts Institute of Technology**, Cambridge, Massachusetts USA Instructor • 15.764 Theory of Operations Management, Spring 2020 • 15.764 Theory of Operations Management, Spring 2017 Teaching Assistant • 15.764 Theory of Operations Management, Spring 2009 **Harvard Business School**, Boston, Massachusetts USA Instructor • SEAS 222 Stochastic Modeling, Winter 2016 • HBS 4480 Operations Management, Fall 2012 **Zaragoza Logistics Center**, Zaragoza, Spain Instructor • Robust Optimization, Summer Academy 2015
B.S./M.S. Teaching Experience	**Stanford University**, Stanford, California USA Teaching Assistant for B.S./M.S. level classes in Electrical Engineering • EE141 Engineering Electromagnetics, Fall 2006
Professional Experience	**Advanced Portfolio Technologies**, London, UK *Quantitative Software Developer* **2004-2005** Worked under the Research and Development groups, specializing in interest rate derivatives and fixed income
Selected Service	2019 INFORMS Healthcare Conference Committee, Chair Associate Editor at Management Science, M&SOM, INFORMS Service Science M&SOM Interface of Finance, Operations, and Risk Management SIG 2017 Organizing Committee, Chair M&SOM Healthcare Operations Management SIG 2015 Organizing Committee, Member M&SOM Meritorious Service Award 2016, 2018
Selected Media Recognition	'Parmesan: So funktioniert das Kreditgeschäft in Italien,' *Die Welt*, Germany, October 5, 2015 'Italian bank takes cheese as collateral for loans,' *Fox News*, July 6, 2015 'Delicious collateral: the Italian bank that loans money against cheese,' *ABC Public Radio*, Australia, August 24, 2015 'What Air Traffic Can Teach Us About Kidney Transplants,' *NPR's Planet Money*, May 30, 2012. 'Can Harvard and MIT Making Organ Transplants More Efficient?', *BusinessWeek*, December 2, 2011.
Invited Talks	MIT Schwarzman College of Computing, Social and Ethical Responsibilities of Computing Symposium 2023, Cambridge, MA

Healthcare Analytics: AI, Big Data and Digital Transformation, Queen's University, Kingston, ON

Desautels Faculty of Management McGill University, Operations Management Seminar Series, 2023, Montreal, QC

Carnegie Mellon University, Tepper School of Business, Operations Management Seminar Series 2022, Pittsburg, PA

The University of Chicago Booth School of Business, Operations/Management Science Workshops 2021, Chicago, IL

IEOR-DRO Fall 2021 Seminars, Columbia University, New York, NY

USC Center for AI in Society Lecture Series 2019, Viterbi School of Engineering and School of Social Work, Los Angeles, CA

UT Southwestern Medical Center, Abdominal Transplant Lecture Series 2019, Dallas, TX

Eurotransplant Annual Meeting 2019, Sassenheim-Leiden, The Netherlands

University of Maryland, Robert H. Smith School of Business, Operations Management Seminar Series 2019, College Park, MD

The University of Texas at Austin, McCombs School of Business Information, Risk, and Operations Management Seminar Series, 2019, Austin, TX

University of British Columbia Sauder School of Business Operations & Logistics Division Seminars, 2019, Vancouver, BC

INSEAD Decision Sciences Seminar Series 2019, Fontainebleau, France

University of Southern California, Marshall School of Business, Operations Management Seminar Series, 2018, Los Angeles, CA

Desautels Faculty of Management McGill University, Operations Management Seminar Series, 2018, Montreal, QC

University of Michigan's Ross School of Business, Technology & Operations Seminar Series 2018, Ann Arbor, MI

Stanford Graduate School of Business, Operations, Information & Technology Seminars 2017, Stanford, CA

INSEAD Technology and Operations Management Seminar Series 2017, Fontainebleau, France

MIT Operations Research Center Seminar Series 2017, Cambridge, MA

Duke University, The Fuqua School of Business, Decision Sciences Seminar 2017, Durham, NC

Northwestern University, Kellogg School of Management, MEDS Department Operations Seminar Speaker Series 2016, Evanston, IL

London Business School, Management Science and Operations Seminar Series 2016, London, United Kingdom

Boston University, Questrom School of Business, Operations & Technology Management Seminar Series 2015, Boston, MA

Carnegie Mellon University, Tepper School of Business, Operations Management Seminar Series 2015, Pittsburg, PA

University of Toronto, Rotman School of Management, Operations Management and Statistics Seminar Series 2015, Toronto, Canada

MIT Sloan School Operations Management Seminar Series 2015, Cambridge, MA

Harvard Business School, Technology and Operations Management Unit Seminar Series 2015, Boston, MA

MIT Sloan School Operations Management Seminar Series 2014, Cambridge, MA

Cornell University, Seminar Series 2014, Ithaca, NY

Washington University in St. Louis, Olin Business School, The Boeing Center for Technology, Information and Manufacturing Seminar Series, 2014

University of California Berkeley, Haas School of Business, OITM Seminar Series, 2014

The University of North Carolina at Chapel Hill, STOR Colloquium 2014

Georgia Institute of Technology, H. Milton Stewart School of Industrial and Systems Engineering Seminar Series 2011, Atlanta, GA

The University of Rochester, Simon Graduate School of Business, Operations Management and Information Systems Seminar Series 2011, Rochester, NY

University of Pennsylvania, The Wharton School, Operations and Information Management Department Seminars / Conferences 2011, Philadelphia, PA

University of Maryland, Robert H. Smith School of Business, Operations Management Seminar Series 2011, College Park, MD

Harvard Business School, Technology and Operations Management Unit Seminar Series 2011, Boston, MA

Columbia Business School, Decision, Risk, and Operations Division Seminar Series 2011, New York, NY

University of Minnesota, Industrial & Systems Engineering Seminar Series 2011, Minneapolis, MN

Stanford Graduate School of Business, Operations, Information & Technology Seminars 2011, Stanford, CA

MIT Engineering Systems Division Seminar Series 2011, Cambridge, MA

NYU Stern School of Business, Department of Information, Operations, and Management Sciences Seminar Series 2011, New York, NY

The University of Chicago Booth School of Business, Operations/Management Science Workshops 2011, Chicago, IL

MIT Sloan School Operations Management Seminar Series 2010, Cambridge, MA

Microsoft Imagine Cup Software Development Competition Finals 2004, São Paulo, Brazil

PhD Theses Supervised

Jonathan Amar
Theodore Papalexopoulos (w. Dimitris Bertsimas)
Patricio Foncea (w. Vivek Farias)
Samuel Gilmour (w. Patrick Jaillet)
Do Young Yoon (primary advisor: D. Iancu)
Peter Yun Zhang (primary advisor: D. Simchi-Levi)

Masters Theses Supervised

Timothy Scully
Amy Gobel
Lee Eleni Evangelakos
Kevin Edward Schell
Drew M Walker
Skyler Evan Stern
Bi Zan Valery Lorou
Jennifer Arlene Lill Collins
Nigel Min Feng Goh
Noa Ghersin
Paige Denise Youngerman
Neal Kaw
Harry Aaron Birnbaum
Jin Soo Lee
Stephanie Severe