

Hamsa Bastani

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Operations, Information & Decisions (OID) Group
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Academic Position

Assistant Professor, Wharton School, University of Pennsylvania

Operations, Information & Decisions (*primary*), 2018 – present

Statistics and Data Science (*secondary*), 2022 – present

- *Affiliate*, Analytics at Wharton, Warren Center for Networks & Data Sciences, Penn Research in Machine Learning, and Wharton AI for Business
- *Faculty Board*, Wharton Customer Analytics
- *Senior Fellow*, Leonard Davis Institute for Health Economics

Herman Goldstine Postdoctoral Fellow, IBM Research

Math for AI, 2017-2018

Education

Stanford University

Ph.D. in Electrical Engineering, 2012-2017

Harvard University

A.M. in Physics, 2011-2012

A.B. *summa cum laude* in Physics and Mathematics, 2008-2012

Journal Papers

Efficient and Targeted COVID-19 Border Testing via Reinforcement

Learning, H. Bastani*, K. Drakopoulos*, V. Gupta*, J. Vlachogiannis, C. Hadjicristodoulou, P. Lagiou, G. Magiorkinis, D. Paraskevis and S. Tsiodras
Nature, Research Article (2021)

(* equal first authorship)

- *1st Place*, Pierskalla Award for Best Paper in Healthcare (2021)

- *2nd Place*, Public Sector in Operations Best Paper Award (2021)

Interpretable OR for High-Stakes Decisions: Designing the Greek

COVID-19 Testing System, H. Bastani*, K. Drakopoulos*, V. Gupta*, J. Vlachogiannis, C. Hadjicristodoulou, P. Lagiou, G. Magiorkinis, D. Paraskevis and S. Tsiodras

INFORMS Journal on Applied Analytics (Forthcoming)

(* equal first authorship)

- *1st Place*, Wagner Prize for Excellence in Operations Research Practice (2021)

Adaptive Clinical Trial Designs with Surrogates: When Should We Bother? A. Anderer, H. Bastani and J. Silberholz

Management Science (2022)

- *1st Place*, Pierskalla Award for Best Paper in Healthcare (2019)

- *1st Place*, MSOM Student Paper Competition (Anderer, 2020)

- *Finalist*, Public Sector in Operations Best Paper Award (2020)

Meta Dynamic Pricing: Transfer Learning Across Experiments

H. Bastani, D. Simchi-Levi and R. Zhu
Management Science (2022)

Learning Personalized Product Recommendations with Customer Disengagement, H. Bastani, P. Harsha, G. Perakis and D. Singhvi
M&SOM (Articles in Advance)

- *2nd Place*, Service Science Best Paper Award (2019)
- *Hon. Mention*, POMS Best Student Paper in Supply Chain (Singhvi, 2019)

AI for Climate Change Adaptation, S. Cheong, K. Sankaran and H. Bastani
WIRES Data Mining and Knowledge Discovery, Perspectives (Articles in Advance)

Predicting with Proxies: Transfer Learning in High Dimension
H. Bastani
Management Science (2021)

Mostly Exploration-Free Algorithms for Contextual Bandits
H. Bastani, M. Bayati and K. Khosravi
Management Science (2021)

Online Decision-Making with High-Dimensional Covariates
H. Bastani and M. Bayati
Operations Research (2020)

- *1st Place*, Pierskalla Award for Best Paper in Healthcare (2016)
- *1st Place*, George Nicholson Student Paper Competition (2016)
- *1st Place*, MSOM Student Paper Competition (2016)
- *1st Place*, IBM Service Science Best Student Paper Award (2016)

Evidence of Upcoding in Pay-for-Performance Programs
H. Bastani, J. Goh and M. Bayati
Management Science (2019)

- *1st Place*, Health Applications Society Best Student Paper Award (2015)

Multiplex coherent anti-Stokes Raman scattering (MCARS) for chemically sensitive, label-free flow cytometry
C. Camp, S. Yegnanarayanan, A. Eftekhari, H. Sridhar and A. Adibi
Optics Express (2009)

Working
Papers

Improving Human Decision-Making with Machine Learning
H. Bastani, O. Bastani and W. Sinchaisri

- *1st Place*, Behavioral OM Best Working Paper Award (2021)
- *2nd Place*, TIMES Working Paper Award (2021)
- *2nd Place*, POMS Behavioral OM Junior Scholar Paper Award (Sinchaisri, 2021)

Unmasking Human Trafficking Risk in Commercial Sex Supply Chains with Machine Learning, P. Ramchandani, H. Bastani and E. Wyatt

- *1st Place*, Service Science Best Student Paper Award (Ramchandani, 2021)
- *2nd Place*, POMS Sustainable OM Best Student Paper Award (Ramchandani, 2022)
- *Finalist*, Public Sector in Operations Best Paper Award (2021)

- *People's Choice Award*, Early-Career Sustainable OM Workshop (2022)

Learning Across Bandits in High Dimension via Robust Statistics

K. Xu and H. Bastani

Major Revision, Management Science

Group-Sparse Matrix Factorization for Transfer Learning of Word Embeddings, K. Xu, X. Zhao, H. Bastani and O. Bastani

- Preliminary version in ICML 2021

Safely Bridging Offline and Online Reinforcement Learning

W. Xu, Y. Ma, K. Xu, H. Bastani and O. Bastani

Robust Generalization of Quadratic Neural Networks via Function Identification, K. Xu, H. Bastani and O. Bastani

Responsible Sourcing: The First Step is the Hardest

P. Ramchandani, H. Bastani and K. Moon

- *People's Choice Award*, Early-Career Sustainable OM Workshop (2020)

Are Bans Effective under Limited Monitoring? Evidence from High Seas Management, H. Bastani and J. F. de Zegher

- *People's Choice Award*, Early-Career Sustainable OM Workshop (2019)

Refereed
Conference
Papers

Group-Sparse Matrix Factorization for Transfer Learning of Word Embeddings, K. Xu, X. Zhao, H. Bastani and O. Bastani

ICML (2021)

Exploring the Causal Relationships between Initial Opioid Prescriptions and Outcomes, J. Zhang, V. Iyengar, D. Wei, B. Vinzamuri, H. Bastani,

A. Macalalad, A. Fischer, G. Yuen-Reed, A. Mojsilović, and K. Varshney

AMIA Workshop on Data Mining for Medical Informatics (2017)

Interpretability via Model Extraction

O. Bastani, C. Kim and H. Bastani

FATML Workshop on Fairness, Accountability, and Transparency (2017)

- *Finalist*, Pierskalla Award for Best Paper in Healthcare (2018)

Analysis of Medicare Pay-for-Performance Contracts

H. Bastani, M. Bayati, M. Braverman, R. Gummadi and R. Johari

EC Workshop on Mechanism Design for Social Good (2017)

Creating Optical Vortex Modes with a Single Cylinder Lens

H. Sridhar, M. Cohen and J. Noe

Proceedings of *SPIE* (2010)

Book
Chapters

Reinforcement Learning for Public Health: Targeted COVID-19 Screening

H. Bastani, K. Drakopoulos and V. Gupta

AI for Social Impact (Forthcoming)
Online; edited by F. Fang, M. Tambe and B. Wilder

Proceed with Care: Integrating Predictive Analytics with Patient Decision-Making, H. Bastani and P. Shi
AI for Healthcare: Interdisciplinary Partnerships for Analytics
Cambridge University Press; edited by S. Suen, E. Enns and D. Scheinker

Applied Machine Learning in Operations Management
H. Bastani, D. J. Zhang and H. Zhang
Innovative Technology at the Interface of Finance and Operations
Springer Series; edited by V. Babich, J. Birge, G. Hilary

Students

Arielle Anderer, Wharton OID PhD
- Advisor
Tsai-Hsuan (Angel) Chung, Wharton OID PhD
- Advisor
Pia Ramchandani, Wharton OID PhD
- Advisor
Kan Xu, Penn Economics PhD
- Advisor
Wichinpong Sinchaisri, Wharton OID PhD (advisor: G. Allon), grad. in 2021
- Thesis committee member, co-author
- *Initial Placement*: Assistant Professor at UC Berkeley Haas
Ruihao Zhu, MIT IDSS PhD (advisor: D. Simchi-Levi), grad. in 2021
- Thesis committee member, co-author
- *Initial Placement*: Assistant Professor at Purdue Krannert
Divya Singhvi, MIT ORC PhD (advisor: G. Perakis), grad. in 2020
- Co-authored job market paper
- *Initial Placement*: Assistant Professor at NYU Stern
Khashayar Khosravi, Stanford EE PhD (advisor: M. Bayati), grad. in 2019
- Co-authored job market paper
- *Initial Placement*: Postdoctoral fellow at Google
Wanqiao Xu, University of Michigan Math UG, grad. in 2021
- Advised undergraduate thesis
- *Initial Placement*: Stanford MS&E PhD

Teaching

Wharton School, University of Pennsylvania
OIDD 321: Introduction to Management Science (Undergrad), 2018 – present
- Recipient of Wharton Teaching Excellence Award in 2019, 2020 & 2021

OIDD 941: Recent Advances in Data-Driven Decision-Making (Ph.D.), 2021 – present
- Designed new course on bandits, reinforcement learning and transfer learning

Invited Talks

2022: Duke Fuqua Decision Sciences; HBS TOM; MIT OR/Stats; Stanford MS&E; Berkeley-UCSF Computational Precision Health; Virtual Quant Marketing Seminar Series; USC Marshall DSO; JHU Carey OM; IMSI, University of Chicago; MIT AI Health Policy Forum; Harvard CRCS AI for Social Impact Seminar; NYC Operations Day; CCC/INFORMS/ACM Artificial Intelligence/Operations Research Visioning Workshop; LMU Munich AI Seminar; UMD Social Impact Analytics Workshop; Singapore Mgmt University; WALE Workshop; Information & Learning Workshop; Northeastern OR & Social Justice Lab; UC Berkeley Simons Institute; Sustainable OM SIG; Future of Data-Centric AI

2021: MIT ORC; Berkeley Haas IOTM; NUS IORA; UNC OM; LBS OM; INSEAD TOM; Wharton Statistics; CMU Tepper OM; SMU Cox ITOM; WPI CS Colloquium; University of Minnesota Carlson SCO; University of Alberta AI Seminar; Philadelphia INFORMS Chapter; Lyft Marketplace Labs; Keynote Speaker for KDD Workshop on RL/MAB; Information & Learning Workshop; Chicago Booth Summer Institute in Machine Learning in Economics; COVID-19 Panelist, SIAM Conf on Data Mining; Loyola University Chicago Health Informatics Series; Boston Digital Leadership Forum; Rutgers Post-Pandemic SC & Health Mgmt Conf

2020: Yale School of Management; Chicago Booth OM; U of Maryland DO&IT; Purdue Krannert; Cornell Johnson OTIM; Utah Ops Conference; Facebook Adaptive Experimentation Workshop; Simons Institute for the Theory of Computing; Keynote Speaker for KDD Workshop on Applied Data Science for Healthcare; Invited Speaker for NeurIPS Workshop on Consequential Decision-Making; INFORMS Health Applications Society Tutorial; Wharton Analytics Webinar

2019: NYU Stern OM; MIT IDSS Data Science Lab; UC Irvine Operations & Decision Technologies; UC Irvine Algorithms, Combinatorics & Optimization Center; UT Dallas Naveen Jindal OM; Wharton OID; Wharton Empirical Workshop; Information & Learning Workshop, IESE; ISOM Workshop, Emory; Healthcare SIG; CUHK Shenzhen Healthcare & Service Operations Workshop

2018: IMA Data-Driven Supply Chain Mgmt (Applied) Workshop; IMA Data-Driven Supply Chain Mgmt (Theory) Workshop; Penn Warren Center for Network & Data Sciences; IBM Research Math for AI; IDinsight; MIT ORC IAP Seminar on OR for Social Impact

2017: UCLA Anderson; Duke Fuqua; USC Marshall; Northwestern IEMS; Yale School of Management; Harvard Business School; Columbia IEOR / DRO; Ross School of Business; INSEAD; Chicago Booth OM; Kellogg OM; Purdue Krannert IS; MIT IDSS Data Science Lab; U of Cambridge, Judge Business School; IBM Research Applied Probability Seminar; Cornell Tech; Stanford-Berkeley Health Economics Workshop

2016: Cornell ORIE; Wharton OID; Indiana Kelley; London Business School; Pittsburgh Katz; MIT Sloan OM; Stanford GSB OIT; Stanford Biostatistics Workshop; Stanford Medical School Med-X Conference; Healthcare SIG

Awards

People's Choice Award, Early-Career Sustainable OM Workshop, 2022
Wharton Teaching Excellence Award, 2021
1st Place, Wagner Prize for Excellence in Operations Research Practice, 2021
1st Place, Pierskalla Award for Best Paper in Healthcare, 2021
2nd Place, Public Sector in Operations Best Paper Award, 2021
1st Place, Behavioral OM Best Working Paper Award, 2021
2nd Place, TIMES Working Paper Award, 2021
Wharton Teaching Excellence Award, 2020
Finalist, Public Sector in Operations Best Paper Award, 2020
People's Choice Award, Early-Career Sustainable OM Workshop, 2020
1st Place, Pierskalla Award for Best Paper in Healthcare, 2019
2nd Place, Service Science Best Paper Award, 2019
People's Choice Award, Early-Career Sustainable OM Workshop, 2019
Wharton Teaching Excellence Award, 2019
Finalist, Pierskalla Award for Best Paper in Healthcare, 2018
1st Place, Pierskalla Award for Best Paper in Healthcare, 2016
1st Place, George Nicholson Student Paper Competition, 2016
1st Place, MSOM Student Paper Competition, 2016
1st Place, IBM Service Science Best Student Paper Award, 2016
1st Place, Health Applications Society Best Student Paper Award, 2015
National Science Foundation Fellow, 2012-2017
Stanford Department Fellowship in Electrical Engineering, 2012-2013
Finalist, Intel Science Talent Search, 2008

Service

Associate Editor for *Operations Research* (2022-)
Associate Editor for *M&SOM* (2021-)
Associate Editor for *Operations Research Letters* (2022-)
Area Chair for *NeurIPS* (2021-)
Guest Associate Editor (special issue) for *Naval Research Logistics* (2022)

Ad-Hoc Reviewer for Management Science, Operations Research, M&SOM, POM, JRSS Series B, Annals of Statistics, JASA, JMLR, Nature, Lancet, and Statistics in Medicine

Senior Program Committee, Algorithmic Learning Theory (ALT), 2023
Co-Organizer, EAAMO Doctoral Consortium, 2022
Co-Organizer, Early-Career Sustainable OM Workshop, 2022
Wharton Faculty IT Steering Committee, 2022-2023
Board Member, INFORMS Revenue Mgmt & Pricing Section, 2021-
Area Chair, EAAMO Conference, 2021
Program Committee, EC Workshop on Design of Online Platforms, 2021
Co-Chair, George Nicholson Student Paper Competition, 2020
Co-Chair, Pierskalla Award for Best Paper in Healthcare, 2020
Program Committee, EC Conference, 2020
Program Committee, AAAI Conference on Artificial Intelligence, 2020
Program Committee, EC Mechanism Design for Social Good Workshop, 2018-2020
Wharton Dean's Advisory Council, 2019-2020
Area Chair, Mechanism Design for Social Good Workshop, 2019
Meritorious Service Award for *Management Science*, 2018

Co-Chair, Pierskalla Award for Best Paper in Healthcare, 2017

Various years: Speaker for Penn Women in Data Science Conf; Women in Simulation at Winter Simulation Conf; Women in OR/MS Panel at INFORMS; CMU YinzOR Student Conference

Various years: Judge for George Nicholson Student Paper Competition, Revenue Management & Pricing Conference, PSOR Best Paper Award, RM&P Best Student Paper Award, Healthcare Applications Society Student Paper Competition, MSOM Student Paper Competition, MSOM Healthcare SIG, MSOM Sustainability SIG, MSOM Service SIG, MSOM Supply Chain SIG, POMS Best Healthcare OM Paper Competition, Elwood S. Buffa Doctoral Dissertation Award, Service Science Best Paper Award

External
Consulting

Macro-Eyes

Technical Advisor, Mar 2022 – present

Meta/Facebook Core Data Science

Contractor, Aug 2021 – Aug 2022