

Nam Ho-Nguyen

Research on quantitative decision-making using tools from optimization, statistics and machine learning.

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EXPERIENCE

JAN 2023 – PRESENT	The University of Sydney, Senior Lecturer in the Discipline of Business Analytics
JUNE 2020 – DEC 2022	The University of Sydney, Lecturer in the Discipline of Business Analytics
SEPT 2019 – MAY 2020	University of Wisconsin-Madison, Postdoctoral Research Associate
JUNE 2018 – AUG 2018	Deutsche Bank, Quantitative Associate Summer Intern
MAY 2017 – AUG 2017	IBM Research, Research Intern
DEC 2016 – MAR 2017	Predictive Analytics Group, Data Science Intern

EDUCATION

AUG 2014 – MAY 2019	Carnegie Mellon University <i>Doctor of Philosophy in Operations Research</i>
AUG 2014 – MAY 2016	Carnegie Mellon University <i>Master of Science in Operations Research</i>
FEB 2010 – DEC 2013	Australian National University <i>Bachelor of Philosophy (Honours 1st Class)</i> MAJOR: Mathematics

HONOURS AND AWARDS

AUGUST 2024	Discovery Early Career Researcher Award (\$470,491 AUD, grant no. DE250101001) from the Australian Research Council
NOVEMBER 2022	Excellence in Research Award for Early Career Researchers
OCTOBER 2022	INFORMS Optimization Society Young Researchers' Prize 2022
JULY 2021	Freda and Len Lansbury Early-Career Researcher Award
MAY 2019	Gerald L. Thompson Doctoral Dissertation Award in Management Science
AUG 2018	Honourable mention in the INFORMS Optimization Society Best Student Paper Prize 2018
JUNE 2017	MIP Workshop Student Funding Award
MAY 2017	SIAM Student Travel Award
AUG 2014 – MAY 2019	William Larimer Mellon Fellowship
MAY 2016 – AUG 2016	Dean's Doctoral Research Grant
DEC 2013	Hanna Neumann Prize for Mathematics IV Honours
FEB 2013 – OCT 2013	Boyapati Computer Science & Mathematical Honours Scholarship
DEC 2012	Boyapati Computer Science & Mathematical Prize

PUBLICATIONS

JOURNAL PAPERS

A Projection-Free Method for Solving Convex Bilevel Optimization Problems, K.-H. Giang-Tran, N. Ho-Nguyen, and D. Lee, *Mathematical Programming* Articles in Advance, 2024, <https://doi.org/10.1007/s10107-024-02157-1>

- Finalist and Honourable Mention, INFORMS Undergraduate Operations Research Prize 2024 for Khanh-Hung Giang Tran

An Online Convex Optimization-Based Framework for Convex Bilevel Optimization, L. Shen, N. Ho-Nguyen, F. Kılınç-Karzan, *Mathematical Programming* 198:1519–1582, 2023, <https://doi.org/10.1007/s10107-022-01894-5>

Strong Formulations for Distributionally Robust Chance-Constrained Programs with Left-Hand Side Uncertainty under Wasserstein Ambiguity, N. Ho-Nguyen, F. Kılınç-Karzan, S. Küçükyavuz, D. Lee, *INFORMS Journal on*

Optimization 5(2):211-232, 2023, <https://doi.org/10.1287/ijoo.2022.0083>

Adversarial Classification via Distributional Robustness with Wasserstein Ambiguity, N. Ho-Nguyen and S. Wright, *Mathematical Programming* 198:1411-1447, 2023, <https://doi.org/10.1007/s10107-022-01796-6>

Coordinate Descent Without Coordinates: Tangent Subspace Descent on Riemannian Manifolds, D. H. Gutman and N. Ho-Nguyen, *Mathematics of Operations Research* 48(1):127-159, 2023, <https://doi.org/10.1287/moor.2022.1253>

- Winner of the INFORMS Optimization Society Young Researchers' Prize 2022

Risk Guarantees for End-to-End Prediction and Optimization Processes, N. Ho-Nguyen and F. Kılınç-Karzan, *Management Science* 68(12):8680-8698, 2022, <https://doi.org/10.1287/mnsc.2022.4321>

Distributionally Robust Chance-Constrained Programs with Right-Hand Side Uncertainty under Wasserstein Ambiguity, N. Ho-Nguyen, F. Kılınç-Karzan, S. Küçükayavuz, D. Lee, *Mathematical Programming* 196:641-672, 2022, <https://doi.org/10.1007/s10107-020-01605-y>

Cyclic coordinate descent in the Hölder smooth setting, D. H. Gutman and N. Ho-Nguyen, *Operations Research Letters* 50(5):458-462, 2022, <https://doi.org/10.1016/j.orl.2022.06.002>

Political Districting without Geography, J. G. Benadè, N. Ho-Nguyen and J. N. Hooker, *Operations Research Perspectives* 9, 2022, <https://doi.org/10.1016/j.orp.2022.100227>

Dynamic Data-Driven Estimation of Nonparametric Choice Models, N. Ho-Nguyen and F. Kılınç-Karzan, *Operations Research* 69(4):1228-1239, 2021, <https://doi.org/10.1287/opre.2020.2077>

Exploiting Problem Structure in Optimization under Uncertainty via Online Convex Optimization, N. Ho-Nguyen and F. Kılınç-Karzan, *Mathematical Programming* 177(1-2):113-147, 2019, <https://doi.org/10.1007/s10107-018-1262-8>

Online First-Order Framework for Robust Convex Optimization, N. Ho-Nguyen and F. Kılınç-Karzan, *Operations Research* 66(6):1670-1692, 2018, <https://doi.org/10.1287/opre.2018.1764>

- Honourable mention in the INFORMS Optimization Society Best Student Paper Prize 2018

Primal-Dual Algorithms for Convex Optimization via Regret Minimization, N. Ho-Nguyen and F. Kılınç-Karzan, *IEEE Control Systems Letters* 2(2):284-289, 2018, <https://doi.org/10.1109/LCSYS.2018.2831721>

Jointly accepted at the Conference for Decision and Control, 2018

A Second-Order Cone Based Approach for Solving the Trust-Region Subproblem and its Variants, N. Ho-Nguyen and F. Kılınç-Karzan, *SIAM Journal on Optimization* 27(3):1485-1512, 2017, <https://doi.org/10.1137/16M1065197>

PREPRINTS

Mistake, Manipulation and Margin Guarantees in Online Strategic Classification, L. Shen, N. Ho-Nguyen, K.-H. Giang-Tran, and F. Kılınç-Karzan, *March 2024*. Preprint <https://arxiv.org/abs/2403.18176>.

Non-smooth and Hölder-smooth Submodular Maximization, D. Lee, N. Ho-Nguyen and D. Lee, *October 2022*. Preprint <https://arxiv.org/abs/2210.06061>.

Two-Stage Stochastic and Robust Optimization for Non-Adaptive Group Testing, N. Ho-Nguyen, *October 2020*. Preprint <https://hdl.handle.net/2123/23695>.

WORKSHOP PROCEEDINGS

Performance Evaluation of Iterative Methods for Solving Robust Convex Quadratic Problems, C. Kroer, N. Ho-Nguyen, G. Lu and F. Kılınç-Karzan, *Optimization for Machine Learning workshop at NeurIPS*, 2017

IN PREPARATION

Black-Box Combinatorial Optimization with Monotonic Structure, N. Ho-Nguyen, G. Nannicini and A. Megahed

Optimal Allocation Algorithms for Smart Order Routing with Cardinality and Integrality Constraints, N. Ho-Nguyen, M. Sotiropoulos

PRESENTATIONS

A Projection-Free Method for Solving Convex Bilevel Optimization Problems

- *ISMP*, July 2024

Mistake, Manipulation and Margin Guarantees in Online Strategic Classification

- *University of Sydney Business Analytics Seminar*, May 2024
- *University of Sydney Computer Science Seminar*, April 2024
- *Macquarie University Maths & Stats Seminar*, March 2024

Adversarial Classification via Distributional Robustness with Wasserstein Ambiguity

- *UC Berkeley IEOR Seminar*, September 2023
- *KAIST ISyE Seminar*, August 2023
- *University of New South Wales Applied Mathematics Seminar*, October 2022
- *University of Melbourne Operations Research Seminar*, September 2022
- *ICASM Operational Research and Applied Statistics Workshop*, August 2022
- *International Conference on Continuous Optimization*, July 2022
- *Sydney Optimization Workshop*, June 2022
- *Workshop on the Intersections of Computation and Optimisation*, November 2021

Risk Guarantees for End-to-End Prediction and Optimization Processes

- *OPTIMA ARC Training Centre Seminar*, September 2022
- *INFORMS Annual Meeting 2019*, October 2019
- *Google Research Cambridge MA*, May 2019
- *The University of Sydney Business School*, March 2019

Coordinate Descent Without Coordinates: Tangent Subspace Descent on Riemannian Manifolds

- *MoCaO Variational Analysis and Optimization Webinar*, February 2021

Distributionally Robust Chance-Constrained Programs under Wasserstein Ambiguity

- *Australian Mathematical Society Annual Meeting*, December 2020
- *Workshop on Metric Bounds, Transversality and Optimization*, December 2020
- *The University of Sydney Business School*, August 2020

A Dynamic Primal-Dual Framework for Convex Optimization Problems under Uncertainty,

- *The University of Sydney Business School*, August 2019
- *International Conference on Continuous Optimization*, August 2019
- *IBM Research Yorktown Heights*, October 2018

Primal-Dual Algorithms for Convex Optimization via Regret Minimization, *Conference on Decision and Control*, December 2018

Black-Box Combinatorial Optimization with Monotonic Structure, *INFORMS Annual Meeting*, November 2018

Exploiting Problem Structure in Optimization under Uncertainty via Online Convex Optimization,

- *MOPTA*, August 2018
- *Minisymposium on Optimizing Big Data: Acceleration, Randomization, and Parallelism*, *SIAM Conference on Optimization*, May 2017

First-Order Framework for Robust Convex Optimization,

- *International Symposium on Mathematical Programming*, July 2018
- *International Conference on Continuous Optimization*, August 2016
- *INFORMS International Conference*, June 2016
- *INFORMS Annual Meeting*, November 2015

Solving Uncertain Programs via Online Convex Optimization (poster),

- *Bridging Mathematical Optimization, Information Theory, and Data Science Workshop*, May 2018
- *NemFest*, May 2018

Dynamic Data-Driven Estimation of Non-Parametric Choice Models,

- *INFORMS Annual Meeting*, October 2017
- (poster) *MIP Workshop*, June 2017

A Second-Order Cone Based Approach to Solving the Trust-Region Subproblem,

- *INFORMS Annual Meeting*, November 2016
- *INFORMS Optimization Society Conference*, March 2016

TEACHING

- **BUSS4312/4932** Advanced Optimization for Business (honours-level course), The University of Sydney
- **QBUS2310** Management Science (undergraduate core course), The University of Sydney
- **QBUS1040** Foundations of Business Analytics (undergraduate core course), The University of Sydney
- **QBUS6820** Prescriptive Analytics: From Data to Decisions (masters-level course), The University of Sydney
- **70-460** Mathematical Models for Consulting (undergraduate elective), Carnegie Mellon University

PROFESSIONAL SERVICE

Co-organiser:

- Workshop on Metric Bounds, Optimisation and Transversality 2024, 2023, 2021
- INFORMS Optimization Society Conference 2024, Global Optimization Cluster Chair
- AustMS Annual Meeting Optimisation Session 2022
- Sydney Optimisation Workshop 2022
- Workshop on Metric Bounds, Optimisation and Transversality 2021

INFORMS CMU Student Chapter: Vice President 2016–2017, Secretary 2017–2018

Paper reviewer: Management Science, Operations Research, SIAM Journal on Optimization, Mathematical Programming, Mathematics of Operations Research, INFORMS Journal on Computing, INFORMS Journal on Optimization, IEEE Signal Processing Letters, Computational Optimization and Applications, Omega, Royal Society Proceedings A

REFERENCES

Fatma Kılınç-Karzan (fkilinc@andrew.cmu.edu)
Professor of Operations Research, Carnegie Mellon University
Relationship: PhD advisor and co-author.

Simge Küçükyavuz (simge@northwestern.edu)
Professor of Industrial Engineering & Management Sciences, Northwestern University
Relationship: Co-author.

Stephen Wright (swright@cs.wisc.edu)
George B. Dantzig Professor of Computer Science, University of Wisconsin–Madison
Relationship: Postdoctoral advisor and co-author.