

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 , <i>Senior Lecturer in the Discipline of Business Analytics</i>
JUNE 2020 – DEC 2022	The University of Sydney , <i>Lecturer (assistant professor equivalent) in the Discipline of Business Analytics</i>
SEPT 2019 – MAY 2020	University of Wisconsin-Madison , <i>Postdoctoral Research Associate</i>
JUNE 2018 – AUG 2018	Deutsche Bank , <i>Quantitative Associate Summer Intern</i>
MAY 2017 – AUG 2017	IBM Research , <i>Research Intern</i>
DEC 2016 – MAR 2017	Predictive Analytics Group , <i>Data Science Intern</i>

EDUCATION

AUG 2014 – MAY 2019	Carnegie Mellon University <i>Doctor of Philosophy in Operations Research</i> DISSERTATION: Models and Efficient Algorithms for Convex Optimization under Uncertainty ADVISOR: Fatma Kiliç-Karzan
AUG 2014 – MAY 2016	Carnegie Mellon University <i>Master of Science in Operations Research</i> GPA: 4.12/4.0
FEB 2010 – DEC 2013	Australian National University <i>Bachelor of Philosophy (Honours)</i> MAJOR: Mathematics GRADE: 95/100 First Class Honours ADVISORS: Mark Reid and Dale Roberts

HONOURS AND AWARDS

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

An Online Convex Optimization-Based Framework for Convex Bilevel Optimization, L. Shen, N. Ho-Nguyen, F. Kiliç-Karzan, *Mathematical Programming Articles in Advance*, 2022, <https://doi.org/10.1007/s10107-022-01894-5>

Strong Formulations for Distributionally Robust Chance-Constrained Programs with Left-Hand Side Uncer-

tainty under Wasserstein Ambiguity, N. Ho-Nguyen, F. Kılınç-Karzan, S. Küçükyavuz, D. Lee, *INFORMS Journal on Optimization* Articles in Advance, 2022, <https://doi.org/10.1287/ijoo.2022.0083>

Adversarial Classification via Distributionally Robust Chance Constraints, N. Ho-Nguyen and S. Wright, *Mathematical Programming* Articles in Advance, 2022, <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* Articles in Advance, 2022, <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* Articles in Advance, 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. Küçükyavuz, D. Lee, *Mathematical Programming* Articles in Advance, 2021, <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>

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

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>

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

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

Adversarial Classification via Distributional Robustness with Wasserstein Ambiguity

- *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 EXPERIENCE (CURRENT POSITION)

- S1 2022 **BUSS4312/4932** Advanced Optimization for Business (honours-level course), The University of Sydney, Unit Coordinator (evaluation: 5/5 overall, four students)
QBUS2310 Management Science (undergraduate core course), The University of Sydney, Unit Coordinator (evaluation: 4.07/5 overall, 156 students)
QBUS1040 Foundations of Business Analytics (undergraduate core course), The University of Sydney, Unit Coordinator (evaluation: 3.97/5 overall, 148 students)
- S2 2021 **QBUS6820** Business Risk Management (masters-level course), The University of Sydney, Lecturer
- S1 2021 **BUSS4312/4932** Advanced Optimization for Business, Unit Coordinator (Evaluation: 4.86/5 overall, eight students)
QBUS1040 Foundations of Business Analytics (undergraduate core course), Lecturer
- S2 2020 **QBUS6820** Business Risk Management (masters-level course), Lecturer
QBUS1040 Foundations of Business Analytics (undergraduate core course), Lecturer

TEACHING EXPERIENCE (PREVIOUS)

FALL 2017 **Mathematical Models for Consulting 70-460** (Undergraduate elective), CMU, Coordinator

PROFESSIONAL SERVICE

Co-organiser:

- 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: Operations Research, SIAM Journal on Optimization, Mathematical Programming, IEEE Signal Processing Letters, Computational Optimization and Applications, Omega, Royal Society Proceedings A

REFERENCES

Fatma Kılınç-Karzan (fkilinc@andrew.cmu.edu)

Associate 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.