

Nam Ho-Nguyen

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

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EXPERIENCE

JUNE 2020 – PRESENT	The University of Sydney , <i>Lecturer (assistant professor equivalent) in the Discipline of Business Analytics</i> ROLE: research and teaching operations research and quantitative decision-making
SEPT 2019 – MAY 2020	University of Wisconsin-Madison , <i>Postdoctoral Research Associate</i> ROLE: conducting research on robust machine learning and data-driven optimization
JUNE 2018 – AUG 2018	Deutsche Bank , <i>Quantitative Associate Summer Intern</i> ROLE: optimal algorithms for order routing problems on the electronic trading desk.
MAY 2017 – AUG 2017	IBM Research , <i>Research Intern</i> ROLE: optimization of black-box cost functions with monotonic structure.
DEC 2016 – MAR 2017	Predictive Analytics Group , <i>Data Science Intern</i> ROLE: involvement in analytics-based client projects.

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 Kılınç-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

PUBLICATIONS

JOURNAL PAPERS

Coordinate Descent Without Coordinates: Tangent Subspace Descent on Riemannian Manifolds, D. H. Gutman and N. Ho-Nguyen, Forthcoming in *Mathematics of Operations Research*, <https://arxiv.org/abs/1906.11809>

Risk Guarantees for End-to-End Prediction and Optimization Processes, N. Ho-Nguyen and F. Kılınç-Karzan, Forthcoming in *Management Science*, <https://arxiv.org/abs/2012.15046>

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>

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

Political Districting without Geography, J. G. Benadè, N. Ho-Nguyen, J. N. Hooker, *August 2021*, <https://arxiv.org/abs/2108.06381>

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

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, *July 2020*, <https://arxiv.org/abs/2007.06750>

Adversarial Classification via Distributionally Robust Chance Constraints, N. Ho-Nguyen, S. Wright, *May 2020*, <https://arxiv.org/abs/2005.13815>

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

HONOURS AND AWARDS

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

PRESENTATIONS

Adversarial Classification via Distributional Robustness with Wasserstein Ambiguity

- *Workshop on the Intersections of Computation and Optimisation*, November 2021

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

- *University of Sydney Business School, August 2020*

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

- *INFORMS Annual Meeting 2019, October 2019, Seattle WA*

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

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

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

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

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

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

First-Order Framework for Robust Convex Optimization,

- *International Symposium on Mathematical Programming, July 2018, Bordeaux, France*
- *International Conference on Continuous Optimization, August 2016, Tokyo, Japan*
- *INFORMS International Conference, June 2016, Waikoloa, HI*
- *INFORMS Annual Meeting, November 2015, Philadelphia, PA*

Solving Uncertain Programs via Online Convex Optimization (poster),

- *Bridging Mathematical Optimization, Information Theory, and Data Science Workshop, May 2018, Princeton, NJ*
- *NemFest, May 2018, Atlanta, GA*

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

- *INFORMS Annual Meeting, October 2017, Houston, TX*
- (poster) *MIP Workshop, June 2017, Montréal, Canada*

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

- *INFORMS Annual Meeting, November 2016, Nashville, TN*
- *INFORMS Optimization Society Conference, March 2016, Princeton, NJ*

TEACHING EXPERIENCE (CURRENT POSITION)

S2 2021	Business Risk Management QBUS6820 (masters-level course), The University of Sydney, Lecturer
S1 2021	Advanced Optimization for Business BUSS4312/4932 (honours-level course), The University of Sydney, Unit Coordinator (Evaluation: 4.86/5 overall satisfaction) Foundations of Business Analytics QBUS1040 (undergraduate core course), The University of Sydney, Lecturer
S2 2020	Foundations of Business Analytics QBUS1040 (undergraduate core course), The University of Sydney, Lecturer Business Risk Management QBUS6820 (masters-level course), The University of Sydney, Lecturer

TEACHING EXPERIENCE (PREVIOUS)

FALL 2017 Mathematical Models for Consulting 70-460 (Undergraduate elective), CMU, Main Instructor
FALL 2016 Applications of Operations Research 45-850 (MBA elective), CMU, Teaching Assistant
FALL 2016 Linear Programming 47-834 (PhD core course), CMU, Teaching Assistant
S1 2014 Mathematics and Applications 1 Honours MATH1115 (undergraduate core course), ANU, Teaching Assistant
S2 2013 Algebra 1 MATH2322 (undergraduate core course), ANU, Teaching Assistant
S1 2013 Mathematics and Applications 1 MATH1013 (undergraduate core course), ANU, Teaching Assistant
S2 2012 Algebra 1 MATH2322 (undergraduate core course), ANU, Teaching Assistant
S1 2012 Mathematics and Applications 1 MATH1013 (undergraduate core course), ANU, Teaching Assistant

PROFESSIONAL SERVICE

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

Volunteer at local organisation of ISMP Pittsburgh, 2015

COMPUTER SKILLS

Programming languages: Python, R, Julia, C++, MATLAB, Mathematica

Optimization software: CPLEX, Gurobi, Mosek, CVX, JuMP, Microsoft Excel Risk Solver Platform

LANGUAGES

English (native)

Vietnamese (fluent)

REFERENCES

Available on request.