Cong Han Lim

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Academic Appointments

Simons Institute for the Theory of Computing — **Berkeley, CA**
Research Fellow, Semester on Bridging Continuous and Discrete Optimization — Fall 2017

University of Wisconsin-Madison — **Madison, WI**
Postdoctoral Research Associate, Wisconsin Institute for Discovery — September 2016–August 2018
Advisors: Jeffrey Linderoth, James Luedtke, and Stephen Wright

Research Interests

Machine learning, discrete optimization, stochastic programming, mixed-integer nonlinear programming, separable nonconvex optimization, permutation and ranking problems, regularization

Education

University of Wisconsin-Madison — **Madison, WI**
Ph.D., Computer Sciences — 2010–2016
Advisor: Stephen Wright
Dissertation: Relaxations for Some Discrete Optimization Problems

University of Wisconsin-Madison — **Madison, WI**
M.S., Computer Sciences — 2010–2012

Univeristy of Chicago — **Chicago, IL**
B.S. (honors), Mathematics; B.S. (honors), Computer Science — 2006–2010

Publications

C.H. Lim, S.J. Wright. *k*-Support and Ordered Weighted Sparsity for Overlapping Groups: Hardness and Algorithms, *Neural Information Processing Systems (NIPS)*, 2017.

C.H. Lim, J. Linderoth, J. Luedtke. Valid Inequalities for Separable Concave Constraints with Indicator Variables, *Mathematical Programming*, 2017.

C.H. Lim, S.J. Wright. A Box-Constrained Approach for Hard Permutation Problems, *International Conference on Machine Learning (ICML)*, 2016.

C.H. Lim, S.J. Wright. Efficient Bregman Projection onto the Permutahedron and Related Polytopes, *Artificial Intelligence and Statistics (AISTATS)*, 2016.

C.H. Lim, J. Linderoth, J. Luedtke. Valid Inequalities for Separable Concave Constraints with Indicator Variables, *Integer Programming and Combinatorial Optimization (IPCO)*, 2016.

C.H. Lim, S.J. Wright. Beyond the Birkhoff Polytope: Convex Relaxations for Vector Permutation Problems, *Neural Information Processing Systems (NIPS)*, 2014.

Refereed Workshop Papers

C.H. Lim. A Note on Extended Formulations for Cardinality-based Sparsity, *NIPS Optimization for Machine Learning Workshop*, 2017.

Submitted and Working Papers

C.H. Lim, J. Linderoth, J. Luedtke, S.J. Wright. Subgradient Sampling Methods for the Lagrangian Dual in Stochastic Mixed-Integer Programming, *In preparation*.

C.H. Lim. Separable Nonconvex Isotonic Regression, *In preparation*.

J. Chen, C.H. Lim, P. Qian, J. Linderoth, S.J. Wright. Validating Sample Average Approximation Solutions with Negatively Dependent Batches, *In Submission, Preprint on Optimization Online*, 2015.

Invited Talks

Subgradient Methods for Stochastic Mixed-Integer Programs, *INFORMS Annual Meeting*, Houston, TX, October 2017

Optimization Problems Involving Permutations, *Mathematics Department Seminar, National University of Singapore*, Singapore, October 2016

Valid Inequalities for Separable Concave Constraints, *International Symposium on Mathematical Programming (ISMP)*, Pittsburgh, PA, July 2015

Honors and Awards

Simons Research Fellowship, Fall 2017, Simons Institute for the Theory of Computing

Computer Sciences Department Summer Fellowship 2011, University of Wisconsin-Madison

Dean's List 2006–2010, University of Chicago

Academic Service

Reviewer: Journals – Machine Learning, Mathematical Programming, SIAM Journal on Optimization. Conferences – ALT, SDM

Teaching Experience

University of Wisconsin-Madison **Madison, WI**

Computer Sciences Department

Teaching Assistant – Database Management Systems	Fall 2012
Volunteer – Scratch programming language for elementary school students	Fall 2012
Teaching Assistant – Numerical Methods	Spring 2012
Teaching Assistant – Algorithms	Fall 2011
Teaching Assistant – Algorithms (Honors)	Spring 2011
Teaching Assistant – Theory of Computation	Fall 2010

University of Chicago **Chicago, IL**

Mathematics Department and Computer Science Department

Grader – Linear Algebra, Introduction to Computer Systems — Academic Year 2009-2010
Course Assistant – Computer Science with Applications I — Fall 2009
Teaching Assistant – Calculus I-II — Summer 2009

Industry Experience

Technicolor SA — **Los Altos, CA**
Research Intern, Technicolor Research Bay Area — Summer 2015
Developed coding theory techniques for robust DNA storage.

Facebook — **Menlo Park, CA**
Software Engineering Intern, Ads Optimization Group — Summer 2012
Augmented pipeline for estimated click-through-rate prediction.

Other Work Experience

Ministry of Manpower (Singapore) — **Singapore**
Intern, Income Security Policy Department — Summer 2007
Analyzed effects of personal pension fund withdrawal for tertiary education.

6SIR Support Company, Singapore Armed Forces — **Singapore**
Personal Assistant to Officer-in-Commanding (Military Service) — August 2004 - June 2006
Awarded 'Outstanding' grade for overall performance during service.

Skills

Technical Skills: Python, Julia, MATLAB, C/C++, LaTeX, SAGE, Java, GAMS

Languages: English (native), Chinese (fluent – speaking Mandarin, writing)

References

Stephen Wright
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Jeffrey Linderoth
Department of Industrial and Systems Engineering, University of Wisconsin-Madison
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James Luedtke
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