

Ming Yang Ong

Algorithms, Optimization and Machine Learning

Education

- 2016–2017 **Masters of Engineering in Computer Science**, *Massachusetts Institute of Technology*, Cambridge, Massachusetts.
Research Assistant, Laboratory for Information and Decision Systems
- 2012–2016 **Double Bachelors of Science in Computer Science and Mathematics**, *Massachusetts Institute of Technology*, Cambridge, Massachusetts.
- Extracurriculars
 - Student Information and Processing Board
 - MIT Singapore Students Society
 - Research
 - Investigating quadratic unconstrained binary optimization problems on graphs with bounded treewidth
- 2004–2009 **Graduated High School**, *Hwa Chong Institution*, Singapore.
- Extracurriculars
 - Astronomy Club
 - Olympiad stuff (2009 40th IPhO Silver, 2008 IV APAO Bronze, 2008 2nd IOAA HM)

Masters thesis

- title *Understanding Generalization*
- supervisor Pablo A Parrilo
- abstract An important goal in machine learning is to understand how to design models that can generalize. This thesis follows a venerable line of research aimed at understanding generalization through the lens of stability– the study of how variations on the inputs of a system can cause its outputs to change. We explore stability and generalization in two different directions. In the first direction we look at proving stability using a proof technique provided by Hardt et al. We apply this technique to stochastic gradient descent with momentum and investigate the resulting stability bounds under some assumptions. In the second direction, we explore the effectiveness of stability in obtaining generalization bounds under the violation of some model assumptions.

Experience

Vocational

- 2017–present **Software Engineer**, *Facebook*, Menlo Park, California.
- 2017 **Software Engineering Intern**, *Madeforgoods*, Shanghai, China.
Large scale data processing

- 2016 **Software Engineering Intern**, *Cisco Meraki*, San Francisco, California.
Backend, query planning and optimization
- 2015 **Infrastructure Engineering Intern**, *WalmartLabs*, Sunnyvale, California.
Cloud infrastructure management, compliance and administration
- 2014 **Software Engineering Intern**, *Markforged*, Boston, Massachusetts.
Full stack engineering

Miscellaneous

2010–2012 **Infantry**, *Singapore Armed Forces*, Singapore.

Languages

English *Native*
Mandarin Chinese *Working Proficiency*

Some Relevant Coursework

6.438	Algorithms for Inference	6.252	Nonlinear Optimization
18.433	Combinatorial Optimization	18.404	Theory of Computation
6.867	Machine Learning	18.434	Seminar in Theoretical Computer Science

Interests

Academic Algorithms and optimization methods for machine learning
Vocational Data pipeline for machine learning