

## Bolong (Harvey) Cheng

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CONTACT INFORMATION	100 Bush Street Suite 510 San Francisco, C.A. 94104, U.S.A.	Email: <a href="mailto:harvey@sigopt.com">harvey@sigopt.com</a> Web: <a href="https://bolongcheng.github.io">bolongcheng.github.io</a> Phone: (713) 517-5143
EXPERTISE	Computational Stochastic Optimization, Optimal Learning, Approximate Dynamic Programming, Machine Learning	
EDUCATION	<b>Princeton University</b> Ph.D. in Electrical Engineering (06/2017) <ul style="list-style-type: none"><li>• Dissertation: Local Approximation and Hierarchical Methods for Stochastic Optimization</li><li>• Advisor: Warren B. Powell</li></ul> <b>University of Texas at Austin</b> B.S. in Electrical Engineering (05/2011) <ul style="list-style-type: none"><li>• High honors in Electrical Engineering.</li></ul>	
SKILLS	Programming: Java, MATLAB, Python, R, C/C++ Languages: Mandarin Chinese (Native), French (Intermediate)	
WORK/RESEARCH EXPERIENCE	<b>Research Engineer, SigOpt</b> (06/2017 – Present) Developed and implemented a Bayesian optimization strategy for high dimension and high parallelism applications.  <b>Research Engineer Intern, SigOpt</b> (01/2017 – 04/2017) Developed and implemented Bayesian optimization strategies for high dimension and high parallelism applications.  <b>Research Intern, Siemens</b> (06/2016 – 09/2016) Developed a control policy for the reconfiguration of a ship's cooling system. Modeled the problem in a stochastic setting, and created a centralized optimization benchmark using two-stage stochastic programming. Started an implementation of the decentralized version of the optimization problem using Alternating Direction Methods of Multipliers.  <b>Research Assistant, Princeton University</b> (05/2012 – Present) Developed an optimal learning algorithm using a local parametric model. Modeling the Pennsylvania-Jersey-Maryland (PJM) Interconnection frequency regulation market, solving a storage problem that co-optimizes both the energy market and the frequency regulation market using a multi-scale dynamic program and low-rank approximation of the value functions.  <b>Teaching Assistant, Princeton University</b> (08/2013 – 12/2013, 01/2016 – 05/2016)  Teaching assistant for Artificial Intelligence, an undergraduate course that covers topics such as search, logic, probabilistic reasoning, Markov decision process, and machine learning. Teaching assistant for Optimal Learning, an undergraduate course that focuses on sequential learning problems with expensive and noisy measurements. The course	

covers topics over formulating learning problem, Bayesian data analysis, quantifying uncertainty and the value of information.

**Tutor, UT Austin** (08/2008 – 12/2010)

Tutored physics and electromagnetic engineering for the electrical engineering department. Helped fellow students understanding the key concepts in these two foundation courses.

**Undergraduate Research Assistant, UT Austin** (06/2010 – 08/2010)

Implemented a simulation model of a wireless communication system and tested out the blind interference alignment technique.

PUBLICATIONS &  
PRESENTATIONS

- Publications:
  - B. Cheng et al. *A Low-rank Value Function Approximation Algorithm for the Co-optimization of Battery Storage*, IEEE Transactions on Smart Grid (2017).
  - B. Cheng and W.B. Powell *Co-optimizing Battery Storage for the Frequency Regulation and Energy Arbitrage Using Multi-Scale Dynamic Programming*, IEEE Transactions on Smart Grid (2016).
  - B. Cheng et al. *Optimal Learning with a Local Parametric Belief*, The Journal of Global Optimization (2015).
  - B. Cheng et al. *The Knowledge Gradient Algorithm Using Locally Parametric Approximations*, Proceedings of the 2013 Winter Simulation Conference.
- Conference Talks: INFORMS Annual Meeting (2013, 2014, 2015), INFORMS Optimization Society Conference (2016), Winter Simulation Conference (2013), Modeling and Optimization: Theory and Applications (2014, 2015).

ACTIVITIES

Participant, Princeton University hackathon (HackPrinceton)	2013, 2014
Participant, Science Action Video Competition	2013
Treasurer, Graduate Engineering Council	2011 - Now
Member, Eta Kappa Nu, Electrical Engineering Honors Society	2009-2011
Historian, Tau Beta Pi, The Engineering Honors Society	2009-2011
Volunteer, Explore UT	2008-2011
Volunteer, ACORN in New Orleans	2006

HONORS AND  
AWARDS

Best Facebook App, HackPrinceton	2013
Intramural 3v3 Basketball Champion	2013
Engineering Scholar , University of Texas at Austin	2008 - 2010
University Scholar, University of Texas at Austin	2008 - 2010
Recipient, Edward Morgan & Rebecca Brown Case Endowed Presidential Scholarship	2010