# Ioannis Mitliagkas
# Curriculum Vitae


**Contact Information**

Department of Computer Science
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**Academic appointments**

**Stanford University** Started September 2015

Postdoctoral Research Fellow, Departments of Statistics and Computer Science

Supervised by: Assistant Prof. Lester Mackey, Assistant Prof. Christopher Ré

**Research Interests**

Statistical machine learning, optimization, high-dimensional statistics, MCMC methods, large-scale and distributed learning systems.

**Education**

**The University of Texas at Austin**

PhD, ECE department. Awarded in August 2015

**Advised by:** Prof. Constantine Caramanis and Prof. Sriram Vishwanath

**Thesis topic:** Resource-Constrained, Scalable Learning

**Technical University of Crete**, Chania, Greece

MSc., ECE department. 2008 - 2010

Successfully defended thesis in the summer of 2010.

**Advisor:** Professor Nikos D. Sidiropoulos

**Area of Study:** Optimization Problems in Wireless Telecommunications

**Technical University of Crete**, Chania, Greece

Diploma, Electronic and Computer Engineering (5 year degree), 2002 - 2008

**Advisor:** Professor Nikos D. Sidiropoulos

**Thesis topic:** Convex Approximation-based Joint Power and Admission Control for Cognitive Underlay Networks

**GPA: 9.01/10, second in class.**

**Scholarships, Awards**

Gerondelis Foundation Inc.: Graduate Scholarship, 2014

The University of Texas at Austin: Microelectronics and Computer Development (MCD) Fellowship, 2009-2011

Technical University of Crete: Undergraduate excellence award, 2008

State Scholarships Foundation (Greece): Undergraduate excellence award, 2005

Technical Chamber of Greece: Undergraduate excellence award, 2005

## Research and Teaching

**The University of Texas at Austin** **Spring 2012**
*Teaching Assistant—Information Theory*

**The University of Texas at Austin** **2009-2015**
*Research Assistant*

**Technical University of Crete** **Fall 2008**
*Teaching Assistant—Telecommunication Networks*

**Technical University of Crete** **May 2007 to August 2008**
*Undergraduate Research Assistant*

## Publications

I. Mitliagkas, C. Zhang, S. Hadjis, C. Ré Asynchrony begets Momentum, with an Application to Deep Learning. *Allerton Conference on Communication, Control, and Computing, 2016, arXiv:1605.09774* .

B. He, C. De Sa, I. Mitliagkas, C. Ré Scan Order in Gibbs Sampling: Models in Which it Matters and Bounds on How Much. Accepted, Neural Information Processing Systems (NIPS) 2016.

S. Hadjis, C. Zhang, I. Mitliagkas, C. Ré Omnivore: An Optimizer for Multi-device Deep Learning on CPUs and GPUs. submitted, arXiv:1606.04487.

J. Zhang, C. De Sa, I. Mitliagkas, C. Ré Parallel SGD: When does averaging help? *Optimization Methods for the Next Generation of Machine Learning Workshop, ICML 2016, New York City*.

I. Mitliagkas, M. Borokhovich, A. Dimakis, C. Caramanis FrogWild! – Fast PageRank Approximations on Graph Engines. *VLDB*, 2015 – Preliminary version appeared at *NIPS 2014* Workshop.

D. Papailiopoulos, I. Mitliagkas, A. Dimakis, C. Caramanis. Finding dense subgraphs through low-rank approximations. *International Conference on Machine Learning, 2014 (Vol. 14, pp. 1890-1898)*.

I. Mitliagkas, C. Caramanis, P. Jain. Memory-limited Streaming PCA. Appeared in *Neural Information Processing Systems (NIPS), 2013*.

I. Mitliagkas, A. Gopalan, C. Caramanis, S. Vishwanath. User Rankings from Comparisons: Learning Permutations in High Dimensions. *Allerton Conference on Communication, Control, and Computing, 2011*.

I. Mitliagkas, N. D. Sidiropoulos, and A. Swami. Joint Power and Admission Control for Ad-hoc and Cognitive Underlay Networks: Convex Approximation and Distributed Implementation. *IEEE Transactions on Wireless Communications, 2011*.

I. Mitliagkas, S. Vishwanath. Strong Information-Theoretic Limits for Source/Model Recovery. Appeared in *Allerton Conference on Communication, Control, and Computing, 2010*.

I. Mitliagkas, N. D. Sidiropoulos, and A. Swami. Distributed Joint Power and Admission Control for Ad-hoc and Cognitive Underlay Networks. *ICASSP 2010*.

I. Mitliagkas, N. D. Sidiropoulos, and A. Swami. Convex Approximation-based Joint Power and Admission Control for Cognitive Underlay Networks. *International Wireless Communications and Mobile Computing Conference, 2008. IWCMC'08. IEEE*.

## Recent Invited Talks

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| SystemX Stanford Alliance Fall Conference | November 2016 |
| Microsoft Research, New England | October 2016 |
| Allerton Conference | September 2016 |
| Google | August 2016 |
| MIT Lincoln Labs | August 2016 |
| NVIDIA | July 2016 |

## Professional Service

Reviewer for a number of journals and conferences including NIPS, ICML, COLT, Transactions on Information Theory, ISIT, ICASSP, Transactions on Wireless Comm.

## Technical Skills

**Languages**: C, C++, Java, Python, Julia, Matlab, Scala.

**Distributed programming**: Worked on Caffe, TensorFlow, MapReduce, Spark, GraphLab, Amazon EC2 infrastructure. Hacked the engine of GraphLab to improve its random algorithms support. Implemented asynchronous training capability on IntelCaffe.

**Parallel programming**: Lock-free multi-threaded programming in C, multi-process programming in Python.

**Other**: Some experience in reverse software engineering and network vulnerability detection tools. Hardware design and programming: VHDL, assembly language programming (x86, MIPS, AVR).

## Graduate Course Highlights

Algorithms: Techniques and Theory (CS department), Convex Analysis, Information Theory, Randomized Algorithms (CS department), Systems Theory, Topics in Network Sciences, Analysis and Design of Communication Networks, Theory of Probability (Math Department).

## References


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|---|---|
| Christopher Ré, Stanford University | chrismre@cs.stanford.edu |
| Lester Mackey, MSR New England/Stanford University | lmackey@stanford.edu |
| Constantine Caramanis, UT Austin | constantine@utexas.edu |
| Alex Dimakis, UT Austin | dimakis@austin.utexas.edu |
| Sriram Vishwanath, UT Austin | sriram@austin.utexas.edu |
| Nikos D. Sidiropoulos, University of Minnesota | nikos@ece.umn.edu |