

Amit Daniely – Curriculum Vitae

CONTACT INFORMATION *Phone:* +972-54-762-8220
E-mail: amit.daniely@mail.huji.ac.il

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PERSONAL DATA *Born:* August 25, 1985, Jerusalem, Israel

RESEARCH INTERESTS Learning Theory (mainly).

EMPLOYMENT

- Senior Lecturer (Assistant Professor), The Rachel and Selim Benin School of Computer Science and Engineering, The Hebrew University of Jerusalem, 2017-now.
- Research Scientist (part time), Google Tel-Aviv, 2017-now.
- Research Scientist, Google Mountain View, 2015-2017.

EDUCATION **The Hebrew University of Jerusalem**, Jerusalem, Israel

- B.Sc., Mathematics and Computer Science, October 2009 (Magna Cum Laude).
- M.Sc., Mathematics, October 2010 (Summa Cum Laude). Advisor: Prof. Nati Linial.
- Ph.D., Mathematics, October 2015. Advisors: Prof. Nati Linial and Prof. Shai Shalev-Shwartz.

LONG TERM VISITS

- Research intern, Microsoft Research (Herzliya, Israel), 2015.
- Research intern, Google (Mountain View, CA), 2014. Hosts: Sami Bengio and Yoram Singer.

AWARDS

- Best Student Paper Award, COLT, 2011
- Klein Prize, 2012
- Adams Doctoral Fellowship, 2012 (declined)
- Google European Doctoral Fellowship, 2012
- Perlman Prize, 2013
- Outstanding TA list at HUJI, 2013
- Best Student Paper Award, COLT, 2014
- Outstanding TA list at HUJI, 2014
- Rothschild Postdoctoral Fellowship, 2015 (declined)

PAPERS

1. Amit Daniely and Nati Linial. Tight Products and Graph Expansion. *Journal of Graph Theory*, 2010.
2. Amit Daniely, Sivan Sabato, Shai Ben-David and Shai Shalev-Shwartz. Multiclass Learnability and the ERM principle. *COLT*, 2011 (*best student paper*).
3. Amit Daniely, Sivan Sabato and Shai Shalev-Shwartz. Multiclass Learning Approaches: A Theoretical Comparison with Implications. *NIPS*, 2012 (*spotlight presentation*).
4. Yonatan Bilu, Amit Daniely, N. Linial, and M. Saks. On the practically interesting instances of MAXCUT. *STACS*, 2013.
5. Amit Daniely, Tom Halbertal. The price of bandit information in multiclass online classification. *COLT*, 2013.
6. Amit Daniely, Nati Linial and Shai Shalev-Shwartz. More data speeds up training time in learning halfspaces over sparse vectors. *NIPS*, 2013 (*spotlight presentation*).
7. Amit Daniely, Nati Linial and Shai Shalev-Shwartz. From average case complexity to improper learning complexity. *STOC*, 2014.
8. Amit Daniely, Nati Linial and Shai Shalev-Shwartz. The complexity of learning halfspaces using generalized linear methods. *COLT*, 2014 (*best student paper*).
9. Amit Daniely and Shai Shalev-Shwartz. Optimal Learners for Multiclass Problems. *COLT*, 2014.
10. Maria-Florina Balcan, Amit Daniely, Ruta Mehta, Ruth Uner and Vijay V. Vazirani. Learning Economic Parameters from Revealed Preferences. *WINE*, 2014.
11. Amit Daniely, Michael Schapira and Gal Shahaf. Inapproximability of Truthful Mechanisms via Generalizations of the VC Dimension. *STOC*, 2015 (*invited to SICOMP*).
12. Amit Daniely. A PTAS for Agnostically Learning Halfspaces. *COLT*, 2015.
13. Amit Daniely, Alon Gonen and Shai Shalev-Shwartz. Strongly Adaptive Online Learning. *ICML*, 2015.
14. Amit Daniely. Complexity theoretic limitations of learning halfspaces. *STOC*, 2016.
15. Amit Daniely and Shai Shalev-Shwartz. Complexity theoretic limitations on learning DNF's. *COLT* 2016.
16. Amit Daniely, Roy Frostig and Yoram Singer. Toward Deeper Understanding of Neural Networks: The Power of Initialization and a Dual View on Expressivity. *NIPS*, 2016.
17. Amit Daniely, Nevena Lazic, Yoram Singer and Kunal Talwar. Sketching and Neural Networks. *ICLR Workshop*, 2016.
18. Amit Daniely. Depth Separation Neural Networks. *COLT*, 2017.
19. Amit Daniely. SGD Learns the Conjugate Kernel Class of the Network. *NIPS*, 2017.

PREPRINTS

1. Amit Daniely, Nati Linial, and Mike Saks. Clustering is difficult only when it does not matter.
2. Galit Bary-Weisberg, Amit Daniely and Shai Shalev-Shwartz. Distribution Free Learning with Local Queries.
3. Amit Daniely, Roy Frostig, Vineet Gupta and Yoram Singer. Random Features for Compositional Kernels.

BOOK CHAPTERS

1. Multiclass learnability. A chapter in “Understanding machine learning: From Theory to Algorithms” by Shai Shalev-Shwartz and Shai Ben-David.

TUTORIALS AND
INVITED TALKS

- Israel CS Theory Day, The Open University of Israel, 2014
- Hardness of Learning Tutorial, STOC 2016
- Cryptography and its Interactions: Learning Theory, Coding Theory, and Data Structures, DIMCAS, 2016

TALKS

1. Combinatorics Seminar, The Hebrew University of Jerusalem, 2010
2. Beyond Worst Case Analysis Workshop, Stanford, 2011
3. CS Theory Seminar, The Hebrew University of Jerusalem, 2011
4. Machine Learning Seminar, The Hebrew University of Jerusalem, 2011
5. Machine Learning Seminar, Technion, 2012
6. CS Theory Seminar, The Hebrew University of Jerusalem, 2013
7. Machine Learning Seminar, The Hebrew University of Jerusalem, 2013
8. Machine Learning Seminar, Technion, 2013
9. Mathematics Colloquium, The Hebrew University, 2013
10. CS Theory Seminar, Weizmann institute of science, 2014
11. Combinatorics Seminar, The Hebrew University of Jerusalem, 2014
12. Algorithms Seminar, Tel-Aviv University, 2014
13. Machine Learning Seminar, The Hebrew University of Jerusalem, 2014
14. Machine Learning Seminar, Technion, 2014
15. CS Theory Seminar, The Hebrew University of Jerusalem, May 2014
16. Math of ML, CRM Barcelona, 2014
17. CS Theory Seminar, Microsoft Research Silicon Valley, 2014
18. CS Theory Seminar, Technion, 2014
19. CS Colloquium, Ben-Gurion University, 2014
20. Online Algorithms and Learning Workshop, Lorentz Center (Leiden, Holland), 2014
21. CS Theory Seminar, The Hebrew University of Jerusalem, December 2014
22. CS Colloquium, Bar-Ilan University, 2014
23. CS Colloquium, The Hebrew University of Jerusalem, 2014
24. Machine Learning Seminar, IBM Research Tel-Aviv, 2015
25. CS Theory Seminar, Tel-Aviv University, 2015
26. CS Theory Seminar, Stanford University, 2016
27. ML Seminar, Stanford University, 2016
28. CS Theory Seminar, Berkeley, 2016
29. CS Theory Seminar, Princeton, 2016
30. ML Seminar, Google Mountain-View, 2016
31. ML Seminar, Berkeley, 2016
32. Algorithms Seminar, Tel-Aviv University, 2016
33. ML Seminar, Weizmann institute of science, 2016
34. ML Seminar, The Hebrew University of Jerusalem, 2016
35. Applied Math Seminar, UC Davis, 2016
36. Google Tel-Aviv, 2016

37. CS Theory Seminar, Harvard, 2016
38. ML Seminar, Simons Institute, 2017
39. TOCA-SV, Google Mountain-View, 2017
40. IBM Research, Almaden, 2017
41. OpenAI, San-Fransisco, 2017
42. Stochastics and Statistics Seminar, MIT, 2017

TEACHING

- *Lecturer (The Hebrew University 2014-2015)*: Introduction to Machine Learning
- *Teaching Assistant (The Hebrew University 2010-2014)*: Fundamental Concepts in Analysis (1) (a graduate course in Functional Analysis), Advanced Infinitesimal Calculus (2), Infinitesimal Calculus (1), Fundamental Concepts in Analysis (2) (a graduate course in Spectral Theory), Advanced Infinitesimal Calculus (1), Fundamental Concepts in Differential Analysis (a graduate course in Distributions, Fourier Transform and Sobolev Spaces), Algebraic structures (2) (a course in Galois theory)
- *Grader (The Hebrew University 2009-2010)*: Probability Theory (1), Ordinary Differential Equations.

INDUSTRIAL
EXPERIENCE

- Software engineer, Proficiency (Jerusalem, Israel), 2008.

SERVICE

- *Refereeing*: COLT, ICML, NIPS, JMLR, FOCS, STOC, SODA, ITCS, CCC, Israel Journal of Mathematics, Random Structures and Algorithms, Graphs and Combinatorics, SICOMP, Theoretical Computer Science, IEEE Trans. Inf. Theory, Machine Learning, JACM, CACM, ISF.
- *Program Committee Member*: COLT 2016, COLT 2017, COLT 2018