

Alexandros G. Dimakis

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Education

University of California, Berkeley

September 2005-2008: Ph.D in Electrical engineering and Computer Sciences.
GPA:4.00/4.00

Minors: Statistics and Algorithms (Computer Science Division)

Advisors: Prof. Kannan Ramchandran, Prof. Martin Wainwright

University of California, Berkeley

September 2003-2005: MSc in Electrical engineering and Computer Sciences.
GPA:4.00/4.00

Advisors: Prof. Kannan Ramchandran

National Technical University of Athens

September 1998- June 2003: Diploma in Electrical and Computer Engineering
(5 year degree) *GPA:* 9.41/10 (Top 1%)

Graduation Thesis: Signal Processing with Self-Similar processes and applications to speech modeling.

Advisor: Prof. Petros Maragos

Awards and Honors

- 2008 Eli Jury Dissertation Award
- Microsoft Research Fellowship for 2007-2008
- Best Paper award in IEEE/ACM Symposium on Information Processing in Sensor Networks (IPSN '05). Sponsored by IEEE Signal Processing Society and ACM SIGBED.
- Best Student Paper Runner-up award in International Workshop on Multimedia Signal Processing. (MMSP) October 2007.
- UC Berkeley departmental fellowship for 2003-2005.
- Award from the Technical Chamber of Greece for top ranking among the students of Electrical and Computer Engineering. 2003
- Awards from the Greek National Foundation of Scholarships for ranking among the top 5 students in the ECE department. (Awarded multiple times).
- Gold medal in Greek National Olympiad in Informatics, 1995, Silver medal in 1994.

Work Experience

- California Institute of Technology, Center for the Mathematics of Information (CMI) Postdoctoral Scholar. September-July 2008.
- Microsoft Research Communication and Collaboration systems group, Mentor: Dr. Yunnan Wu and Dr. Phil Chou (Summer 2006)
Project: Coding for storage in data centers.
- Ecole Polytechnique Federale de Lausanne (EPFL) Audiovisual Communications Laboratory - LCAV School of Computer and Communication Sciences (Summer 2005).
Mentors: Prof. Martin Vetterli and Prof. Patrick Thiran.
Project: Gossip Algorithms for Distributed Signal Processing.

Teaching Experience

- Invited Class lecture for EE290Q: Organization and Management of Ad-hoc Sensor and Actuator Networks, Spring 2006. Prof. Jan Rabaey.
- Invited Class lecture for CS294: Sensor Networks, Fall 2005. Prof. David Culler.
- Graduate Student Instructor, EE120: Signals and Systems, Spring 2004. Prof. Michael Gastpar.

Invited Talks

- *Distributed information processing in sensor networks*
University of Southern California. May 2006.
- *Linear programming relaxations for decoding*
Allerton conference, September 2006.
- *Gossip along the way: Order-optimal consensus through randomized path averaging*
Allerton conference, September 2007.
SIAM conference on Optimization, May 2008.
- *Regenerating codes for Distributed Storage*
Allerton conference, September 2007.
University of Southern California, November 2007.
Texas A & M University, Computer Engineering seminar, November 2007.
Stanford University, WSL Group, December 2007.
- *Gossip algorithms for sensor networks*
Texas A & M University, Parasol seminar, November 2007.
University of Texas, Austin. WNCG Seminar, November 2007.

Publications

Journal Publications

Submitted

1. M. A. Khajehnejad A. G. Dimakis, W. Xu, B. Hassibi, “Sparse Recovery of Positive Signals with Minimal Expansion,” IEEE Journal of Selected Topics in Signal Processing, Compressed Sensing issue, *submitted for publication*.
2. A. G. Dimakis, P. B. Godfrey, Y. Wu, M. J. Wainwright and K. Ramchandran “Network Coding for Distributed Storage Systems”, IEEE Transactions on Information Theory, *submitted for publication*.
3. A. G. Dimakis, M.J. Wainwright, and K. Ramchandran. “Lower bounds for low-density binary linear codes: Max-XORSAT and effective rate-distortion”, IEEE Transactions on Information Theory, *submitted for publication*.
4. F. Benezit, A. G. Dimakis, P. Thiran, and M. Vetterli. “Gossip along the way: Order-optimal consensus through randomized path averaging”. IEEE Transactions on Information Theory, *submitted for publication*.
5. C. Daskalakis, A. G. Dimakis and E. Mossel, “Connectivity and Equilibrium in Random Games”, Annals of Applied Probability, *submitted for publication*.

Accepted

6. C. Daskalakis, A. G. Dimakis, R. Karp and M. J. Wainwright, “Probabilistic Analysis of Linear Programming Decoding”. IEEE Transactions on Information Theory 54(8), August 2008.
7. A. G. Dimakis, A. A. Gohari and M. Wainwright, “Guessing Facets: Polytope Structure and Improved LP Decoding” IEEE Transactions on Information Theory, *to appear*.
8. A. G. Dimakis, A.D. Sarwate, and M.J. Wainwright, “Geographic Gossip: Efficient Averaging for Sensor Networks”. IEEE Transactions on Signal Processing, Volume 56, Issue 3, March 2008.
9. A. G. Dimakis V. Prabhakaran, K. Ramchandran, “Decentralized Erasure Codes for Distributed Networked Storage”, Joint special issue, IEEE Transactions on Information Theory and IEEE/ACM Transactions on Networking, June 2006.
10. A. G. Dimakis, P. Maragos, “Phase Modulated Resonances by Self-Similar Processes With Application to Turbulent Sounds”, IEEE Transactions on Signal Processing, Nov 2005, Vol 53.

Book Chapter

11. A. G. Dimakis and K. Ramchandran, “Network Coding for Distributed Storage in Wireless Networks”, in V. Saligrama, editor, *Networked Sensing Information and Control*, Signals and Communication series, Springer Verlag, October 2007.

Publications in Conference proceedings

12. A.G. Dimakis and P.O. Vontobel, "LP Decoding Meets LP Decoding: A Connection between Channel Coding and Compressed Sensing", Proceedings of the 47th Annual Allerton Conference on Communication, Control and Computation, September 2009.
13. T.C. Aysal, A.D. Sarwate, A.G. Dimakis, "Reaching Consensus in Wireless Networks with Probabilistic Broadcast", Proceedings of the 47th Annual Allerton Conference on Communication, Control and Computation, September 2009.
14. D. Cullina, A.G. Dimakis, T. Ho, "Searching for Minimum Storage Regenerating Codes", Proceedings of the 47th Annual Allerton Conference on Communication, Control and Computation, September 2009.
15. M. Hansen, B. Hassibi, A.G. Dimakis, W. Xu "Near-Optimal Detection in MIMO Systems using Gibbs Sampling", IEEE Global Communications Conference (GLOBECOM), 2009.
16. Y. Wu and A. G. Dimakis "Reducing Repair Traffic for Erasure Coding-Based Storage via Interference Alignment", IEEE International Symposium on Information Theory (ISIT), 2009
17. T. Dikaliotis, A. G. Dimakis, T. Ho, M. Effros, "On the Delay of Network Coding over Line Networks", IEEE International Symposium on Information Theory (ISIT), 2009
18. D. Leong A.G. Dimakis, T. Ho "Distributed Storage Allocation Problems", Network Coding Workshop (NETCOD), 2009.
19. M. A. Khajehnejad A. G. Dimakis, B. Hassibi, "Nonnegative Compressed Sensing with Minimal Perturbed Expanders", Digital Signal Processing Workshop 2009.
20. B. Nazer, A. G. Dimakis, and M. Gastpar, "Neighborhood Gossip: Concurrent Averaging through Local Interference," Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Taipei, Taiwan, April 2009.
21. A.D. Sarwate and A. G. Dimakis, "The Impact of Mobility on Gossip Algorithms," IEEE Conference on Computer Communications. (INFOCOM), April 2009.
22. B. Nazer, A. G. Dimakis, and M. Gastpar, "Local Interference Can Accelerate Gossip Algorithms," Proceedings of the 46th Annual Allerton Conference on Communication, Control and Computation, September 2008.
23. F. Benezit, P. Denantes, A. G. Dimakis, P. Thiran, and M. Vetterli. "Reaching Consensus about Gossip: Convergence Times and Costs", Information Theory and Applications (ITA) January 2008.
24. A. G. Dimakis, J. Wang and K. Ramchandran, "Unequal Growth Codes: Intermediate Performance and Unequal Error Protection for Video Streaming", International workshop on Multimedia Signal Processing. (MMSP) October 2007. *Best student paper runner-up*
25. Y. Wu, A. G. Dimakis and K. Ramchandran, "Deterministic Regenerating Codes for Distributed Storage", Forty-Fifth Annual Allerton Conference, September 2007.

26. F. Benezit, A. G. Dimakis, P. Thiran and M. Vetterli, "Gossip Along the Way: Order-Optimal Consensus through Randomized Path Averaging" Forty-Fifth Annual Allerton Conference, September 2007.
27. A. G. Dimakis, M. J. Wainwright and K. Ramchandran, "Lower bounds on the rate-distortion function of LDGM codes", Information Theory workshop (ITW) 2007.
28. A. G. Dimakis, P. B. Godfrey, M. J. Wainwright and K. Ramchandran "Network Coding for Distributed Storage Systems", IEEE Conference on Computer Communications. (INFOCOM), May 2007.
29. J. Schiff, D. Antonelli, A. G. Dimakis, D. Chu and M. Wainwright "Robust Message-Passing for Statistical Inference in Sensor Networks", ACM/IEEE Symposium on Information Processing in Sensor Networks (IPSN) 2007.
30. C. Daskalakis, A. G. Dimakis, R. Karp and M. J. Wainwright, "Probabilistic Analysis of Linear Programming Decoding". SIAM Symposium on Discrete Algorithms (SODA), January 2007.
31. A. G. Dimakis, P. B. Godfrey, M. J. Wainwright and K. Ramchandran "On the benefits of Network coding for peer-to-peer storage", Third Workshop on Network Coding, Theory, and Applications (NETCOD), January 2007.
32. A. G. Dimakis, A.D. Sarwate, and M.J. Wainwright, "Geographic Gossip: Efficient Aggregation for Sensor Networks". ACM/IEEE Symposium on Information Processing in Sensor Networks (IPSN). 2006.
33. A.G. Dimakis, M.J. Wainwright, "Guessing Facets: Improved LP decoding and Polytope structure", IEEE International Symposium on Information Theory (ISIT) , 2006.
34. A. G. Dimakis, D. Petrovic, K. Ramchandran, "From Dumb Wireless Sensors to Smart Networks using Network Coding", Information Theory and Applications (ITA) San Diego, 2006.
35. A. G. Dimakis V. Prabhakaran K. Ramchandran "Distributed Fountain Codes for Networked Storage", (Invited paper), IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) May 2006.
36. A. G. Dimakis, V. Prabhakaran, K. Ramchandran, "Ubiquitous Access to Distributed Data in Large-Scale Sensor Networks Through Decentralized Erasure Codes". IEEE/ACM Symposium on Information Processing in Sensor Networks (IPSN). 2005
Best Paper Award.
37. A. G. Dimakis, V. Prabhakaran, K. Ramchandran, "Distributed Data Storage in Sensor Networks using Decentralized Erasure Codes", Asilomar Conference on Signals, Systems, and Computers, November 2004.
38. A. G. Dimakis, P. Maragos, "Modeling Resonances with Phase Modulated Self-Similar Processes" IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) May 2004.
39. P. Maragos, A. G. Dimakis, I. Kokkinos, "Some advances in nonlinear Speech Modeling using Modulations, Fractals and Chaos", IEEE International Conference on Digital Signal Processing (DSP), July 2002.

**Professional
Service**

Reviewer for: IEEE Transactions on Signal processing, IEEE Transactions on Information Theory, Random Structures and Algorithms, ACM Transactions on Sensor Networks, EURASIP Journal on Wireless Communications and Networking, Signal Processing, IEEE Globecom, ACM/SIAM Symposium on Discrete Algorithms (SODA), ACM Symposium on Theory of Computing (STOC), Information Processing in Sensor Networks (IPSN), IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP), IEEE International Conference on Image Processing (ICIP), International symposium on Information Theory (ISIT).

Patents

Two patents on Storage for Data centers, in preparation with Yunnan Wu, Microsoft Research.

References

Dr. Phil Chou
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