

Malik Magdon-Ismail, PhD

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Rensselaer Polytechnic Institute (RPI), Troy, NY.
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<http://www.cs.rpi.edu/~magdon>

EDUCATION

- 1993-1998 **Ph.D., California Institute of Technology.**
Electrical Engineering/Physics
Thesis: Supervised Learning in Probabilistic Environments
Wilts Prize for best Ph.D. thesis in EE
Advisor: Professor Yaser S. Abu-Mostafa
- 1993-1998 **M.S., California Institute of Technology.**
Physics
- 1989-1993 **B.S., Yale University.**
summa cum laude with Honors in Physics
Thesis: Field Theories for Tachyonic Particles



ACADEMIC APPOINTMENTS

- 2012-date **Professor, Rensselaer Polytechnic Institute.**
Computer Science Department
Lally School of Management (courtesy joint appointment)
- 2006-2012 **Associate Professor, Rensselaer Polytechnic Institute.**
Computer Science Department
Lally School of Management (courtesy joint appointment, 2010-2012)
- 2000-2006 **Assistant Professor, Rensselaer Polytechnic Institute.**
Computer Science Department
- 1998-2000 **Postdoctoral Research Scholar, California Institute of Technology.**
Electrical Engineering Department

PROFESSIONAL

- 2011-date **Co-founder/CTO, SINE Management Ltd.**
Hedge fund: fully automated, data driven medium & high frequency trading.
- 2003-2011 **Co-founder/CTO, Goldfinger Management Ltd.**
Hedge fund: fully automated high frequency trading (absorbed into SINE).
- 2006-date **Co-founder/CTO, SwoogeTM LLC, an Internet startup.**
Launched pingstr.com in 2013.
- 1998-1999 **Consultant, Simplex Risk Management, Hong Kong & Tokyo.**
Developed efficient strategies for yield curve calibration and statistical arbitrage.
- 1996-2000 **Collaborations with Honeywell Inc. and Caxton Corporation.**
Automated learning systems and prediction of intraday FX-rates.

I. Scholarly Activity

(I-A) SELECTED RECENT PAPERS

All papers (including working papers) are available for download at

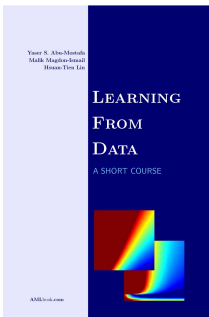
http://www.cs.rpi.edu/~magdon/talks_pubs.html

All publications in journals and peer reviewed conference proceedings are listed in Section V.

- [1] M. Magdon-Ismail and Amir F. Atiya. Maximum drawdown. *Risk*, 17(10):99–102, 2004.
- [2] J. Baumes, M. Goldberg, and M. Magdon-Ismail. Efficient identification of overlapping communities. In *Proc. Conf. on Intelligence and Security Informatics (ISI)*, Atlanta, Georgia, 2005.
- [3] M. Magdon-Ismail and Konstantin Mertsalov. A permutation approach to validation. *Statistical Analysis and Data Mining*, 3(6):361–380, 2010. (*invited*, best papers of SDM).
- [4] C. Boutsidis, P. Drineas, and M. Magdon-Ismail. Near-optimal column based matrix reconstruction. In *Proc. Symp. on Foundations of Computer Science (FOCS)*, 2011. (*invited* to SIAM J. Computing).
- [5] S. Adali, X. Lu, M. Magdon-Ismail, and J. Purnell. Prominence ranking in graphs with community structure. In *Proc. Conf. on Weblogs and Social Media (ICWSM)*, 2011.
- [6] P. Drineas, M. Magdon-Ismail, M. Mahoney, and D. Woodruff. Fast approximation of matrix coherence and statistical leverage. *J. Machine Learning Research (JMLR)*, 13:3441–3472, 2012.
- [7] A. Brahma, M. Chakraborty, S. Das, A. Lavoie, and M. Magdon-Ismail. A Bayesian market maker. In *Proc. Conference on Electronic Commerce (EC)*, June 2012.
- [8] S. Das and M. Magdon-Ismail. A model for information growth in collective wisdom processes. *ACM Transactions on Knowledge Discovery from Data (TKDD)*, 6(12), 2012.
- [9] E. Anshelevich, A. Hate, and M. Magdon-Ismail. Seeding influential nodes in non-submodular models of information diffusion. In *Proc. 12th AAMAS*, 2013. (submitted, Social Networks).
- [10] K. Clarkson, P. Drineas, M. Magdon-Ismail, M. Mahoney, X. Meng, and D. Woodruff. The Fast Cauchy Transform and faster robust linear regression. In *Symp. Disc. Alg. (SODA)*, 2013. (submitted, J. ACM).

(I-B) PEDAGOGY

Books and Articles.



Learning From Data: A Short Course

Yaser S. Abu-Mostafa
Malik Magdon-Ismail
Hsuan-Tien Lin
amlbook.com, March 2012.

#1 amazon.com bestseller in Computer Science
(March-April 2012)



- [1] Hsuan-Tien Lin, M. Magdon-Ismail, and Yaser Abu-Mostafa. Teaching machine learning to a diverse audience: the foundation-based approach. In *Teaching Machine Learning Workshop at the 25th International Conference on Machine Learning (ICML)*, June 2012.

Courses. Developed 5 new courses spanning a mix of theory/foundations and applications.

Introduction to Computer Science Problem solving introduction to CS.	(Freshman)
Introduction to Algorithms Algorithms and theory focused course.	(Sophomore)
Machine Learning Learning from data course, based on our book.	(Senior/Graduate)
Introduction to Computational Finance Emphasis on computational aspects of finance.	(Senior/Graduate)
Computational Analysis of Social Processes Algorithms and mathematics for analysis of social processes.	(Senior/Graduate)

(I-C) ADVISING

2000-date: Undergraduate advisor to approximately 30 students per year.

Bachelors Theses:

1. Eli Bocek-Rivele, May 2006.
2. Ben Caulfield, January 2013, in progress.

Masters Theses:

1. Weichia Su: “Pricing the American Put Option”; 05/2002.
2. Justin Chen: “The Multilevel Classification Problem”; 05/2002.
3. Victor Boyarshinov: “Finding Optimal Linear Separators in 2D”; 05/2002.
4. David Siebecker: “Probabilistic Analysis of Dynamic Social Groups”; 05/2003.
5. Tina Liu: “Bringing Down the House”; May, 2004.
6. Jonathan Purnell: “A Probabilistic Approach to Finding Geometric Objects in Spatial Data of the Milky Way”; 05/2005.
7. Julia Sarayeva: “Automated News Analysis”; 12/2009.
8. Andrew Bolin (“Flat versus Hierarchical Portfolio Allocation”, in progress).

Doctoral Theses:

1. Victor Boyarshinov: “Machine Learning in Computational Finance”; 2005.
First position: Senior Research Analyst, Amici LLC.
2. Alessandro Assis: “Inferring Dynamic Learner Behavior for User Modeling in Continuously Adapting Hypermedia”; 2006.
First position: Professor of CS, Federal University of Sao Carlos, Brasil.
3. Brandeis Hill: “An Evaluation of a Statistical Framework and Algorithms for Adaptive Aggregation”; 2007.
First position: Postdoc, Discovery Park Cyber Center, Purdue University.
4. Hung-Ching (Justin) Chen: “Reverse Engineering a Hidden Markov Model for Complex Systems”; 2008.
First position: Senior R&D Associate, EMSQRD LLC.

5. Andrey Sarayev: “Estimation of Credit and Interest Rate Risks for Loan Portfolios”; 2009.
First position: Senior R&D Associate, EMSQRD LLC.
6. Ali Civril: “Column Subset Selection for Approximating Data Matrices”; 2009.
First position: Assistant Professor, Meliksah University (Turkey).
7. Mykola Hayvanovych: “Algorithms for Finding Hidden Groups and their Structure from the Streaming Communication Data”; 2009.
First position: Research Staff, Applied Physics Laboratory, Johns Hopkins.
8. Nathan Cole: “Maximum Likelihood Fitting of Tidal Streams with Application to the Sagittarius Dwarf Tidal Tails”; 2010.
First position: Postdoctoral Scholar, Johns Hopkins.
9. Jonathan Purnell: “Approximating Covariance Matrices Using Low Rank Perturbations with Applications to Accent Identification and Social Network Clustering”; 2011.
First position: Postdoctoral Scholar, RPI.
10. James Thompson: “Evolution in Social Networks”, in progress.
11. Srinivas Nambirajan: in progress.
12. Maksim Tsikhanovich: in progress.
13. Abhishek Kundu: in progress.
14. Lingxun Hu: in progress.

(I-D) INVITED TALKS

1. “Calibration of Multi-Factor Vasicek Interest Rate Models”, INFORMS, 2000.
2. “Effective Choice of Learning Systems in the Presence of Noise”, Plenary Talk, Learning 00, Spain, 2000.
3. “Introduction to Statistical Learning Theory”, RPI, Troy, 2001.
4. “Learning in Distributed Systems: A Game Theoretic View”, Caltech, 2004.
5. “Network Algorithms for Homeland Security”, DIMACS Seminar”, Rutgers, 2004.
6. “An Analysis of the Maximum Drawdown Risk Measure”, NYU/Courant Institute, 2004.
7. “Modeling and Analysis of Dynamic Social Communication Networks”, DSES, RPI, 2005.
8. “An Analysis of the Maximum Drawdown Risk Measure”, INFORMS 2005.
9. “How Bad is Selfish Traffic Routing?”, SAC Capital, New York, 2006.
10. “Learning What Makes a Society Tick: From Communication Data to Social Mechanism”, Workshop on Computational Methods for Dynamic Interaction Networks, DIMACS, 2007. (Keynote)

II. Honors

(II-A) AWARDS

- Phi-Beta-Kappa, Yale University, 1992.
- Physice Prize, Yale University, 1993.
- Wilts Prize for Best PhD Thesis in EE, Caltech, 1998.
- Faculty Early Career Research Recognition Award, RPI, 2004.
- Best talk, financial services cluster, INFORMS, 2005.
- Best paper award (top-3), Conference on Intelligence and Security Informatics (ISI), 2006.
- Best paper award (top-2), International Conference on e-Science and Grid Computing, 2007.
- Best paper award, Conference on Agent Directed Simulation (ADS), 2010.
- Best paper award (top-3), SIAM Data Mining Conference (SDM), 2010.

(II-B) INVITED PAPERS AND BOOK CHAPTERS

- [1] M. Magdon-Ismael, A. Nicholson, and Y. S. Abu-Mostafa. Financial markets: very noisy information processing. *Proceedings of the IEEE*, 1998.
- [2] K. Busch, M. Magdon-Ismael, M. Mavronicolas, and P. Spirakis. Direct routing: Algorithms and Complexity. *Algorithmica*, 2006. (Special Issue of ESA 2004).
- [3] J. Baumes, M. K. Goldberg, M. Magdon-Ismael, and W. Wallace. Identification of hidden groups in communications. *Handbooks in Information Systems*, 2 (National Security), 2005.
- [4] J. Baumes, M. K. Goldberg, M. Magdon-Ismael, and W. Wallace. Discovering hidden groups in communication networks. In *Security Informatics and Terrorism: Patrolling the Web*. 2008.
- [5] C. Hui, M. Goldberg, M. Magdon-Ismael, and W. Wallace. Simulating the diffusion of information: An agent-based modeling approach. *Int. J. of Agent Tech. and Sys.*, 2010. (special issue of ADS).
- [6] M. Magdon-Ismael and K. Mertsalov. A permutation approach to validation. *Statistical Analysis and Data Mining*, 3(6):361–380, 2010. (best papers of SDM).
- [7] M. Magdon-Ismael and J. Purnell. Approximating the covariance matrix of GMMs with low-rank perturbations. *Int. J. Data Mining Mod. and Management*, 2011. (best papers of IDEAL).
- [8] K. Busch, M. Magdon-Ismael, and J. Xi. Oblivious routing for sensor network topologies. In *Theoretical Aspects of Distributed Computing in Sensor Networks*, chapter 13. 2011.
- [9] S. Kelley, M. Goldberg, M. Magdon-Ismael, K. Mertsalov, and William Wallace. Defining and discovering communities in social networks. In *Handbook of Optimisation in Complex Networks*, chapter 6. 2011.
- [10] K. Busch and M. Magdon-Ismael. Optimal oblivious routing in hole-free networks. In *Conference on Heterogeneous Networking for Quality, Reliability, Security, and Robustness (QShine)*, 2010.
- [11] C. Boutsidis, P. Drineas, and M. Magdon-Ismael. Near-optimal column based matrix reconstruction. In *Proc. Symp. on Foundations of Computer Science (FOCS)*, 2011. (*invited to SIAM J. Computing*).

III. Sponsored Research

PI or Co-PI on more than US\$ 13 million in sponsored research.

(III-A) ACTIVE FUNDED PROJECTS

1. S. Das, J. Holguin-Veras (**PI**), M. Magdon-Ismael J. Mitchell, “Collaborative CDI-Type II: Cyber Enabled Discovery System for Advanced Multidisciplinary Study of Humanitarian Logistics for Disaster Response”, **NSF**, \$ 1,747,660. Start date: Aug 2011. 4 years.
2. M. Magdon-Ismael (**Co-PI** task leader), B. Szymanski (**PI**), with 8 other Co-PIs, “Social Cognitive Network Academic Research Center”, **ARL** \$9,045,000. Start date: Oct 2009. 5 years (with potential funding extension of \$9,750,000 for additional 5 years).
3. M. Magdon-Ismael, J. Adams (**PI**), “Knowledge, Networks, and the Productivity of Scientists and Engineers: Individual Research Histories and Social Capital”, **NSF**, \$ 812,821. Start date: Sept 2011. 3 years. (Through NBER)
4. M. Magdon-Ismael “AF: Small: Fast and Efficient Randomized Algorithms for Solving Laplacian Systems of Linear Equations and Sparse Least Squares Problems”, **NSF**. Start Date: Aug. 2010. 3 years. \$322,721.
5. M. Magdon-Ismael “Collaborative Research: Randomized Algorithms in Linear Algebra and Numerical Evaluations on Massive Datasets”, **NSF**. Start Date: Oct. 2010. 3 years. \$220,413.
6. S. Das, M. Goldberg (**PI**), M. Magdon-Ismael, W. Wallace, “Network Identification in Large Semantic Databases Using Incomplete Information”, **IARPA**, \$ 242,185. March 2012. 1 year.

(III-B) PROPOSALS SUBMITTED AND PENDING

1. M. Goldberg, M. Magdon-Ismael (**PI**), W. Wallace, “Search and Analysis in Linked Data”, **IARPA**, \$ 195,822. Jan 2013. 1 year.

(III-C) PRIOR FUNDED PROJECTS

1. S. Bringsjord, M. Goldberg, W.R. Franklin, M. Magdon-Ismael (**PI**), B. Szymanski, “Simulation and Analysis of large Scale Complex Systems”, 2003. 3 years; \$155,969, **NSF**.
2. M. Goldberg, M. Magdon-Ismael (**PI**), W. Wallace, “Locating hidden Groups in Communication Networks”, 2003. $1\frac{1}{2}$ years; \$57,026, **NSF**.
3. M. Goldberg (**PI**), M. Krishnamoorthy, M. Magdon-Ismael, W. Wallace, B. Yener, “ITR: Study of Dynamically Evolving Social Groups in Communication Networks”, 2003. 4 years; \$550,000, **NSF**.
4. H. Newberg (**PI**) and M. Magdon-Ismael, “Data Mining The Galactic Sky” NSF 03-2 # 0307571. 2003. 3 years, \$306,512, **NSF**.
5. M. Goldberg, M. Magdon-Ismael (**PI**), W. Wallace “Detecting Hidden Groups in Communication Networks”, 2005. 1 year, \$143,400, **KDD** (awarded as **NSF** supplement to ITR award).

6. M. Goldberg, M. Magdon-Ismail (**PI**), W. Wallace “SGER: Using Global Communication Systems as Early Warning Systems for Natural Disasters”, 2005. 1 year, \$95,308, **NSF**.
7. M. Goldberg, M. Magdon-Ismail, B. Szymanski (**PI**), W. Wallace, “Uncovering the Hidden Networks that Support IED activity”, 2006, 3 years, \$884,060, **ONR**.
8. M. Goldberg, M. Magdon-Ismail (**PI**), W. Wallace “Social Communication Networks for Early Warning in Disasters”, 2006. 1 year, \$70,789, **NSF**.
9. M. Goldberg (**PI**), M. Magdon-Ismail, W. Wallace, “Algorithms and Software Tools for Discovering Coalitions and Identifying Leaders in the Blogosphere”, 2006. 1 year \$193,000, **NSF**.
10. M. Magdon-Ismail, H. Newberg (**PI**), “Revealing the Structure of the Galactic Halo through Statistical Analysis - Middle School Teacher Training”, 2006. 3 years \$317,676, **NSF**.
11. DHS Center Proposal, **participating faculty** “The DIMACS Center for Homeland Security Research and Education”, 3 years \$12,000 (RPI portion) **DHS**.
12. M. Goldberg (**PI**), M. Magdon-Ismail, W. Wallace, “Developing Software Tools for Detecting Groups in the Russian Blogosphere”, 2006. 4 months \$150,000 **CIA**.
13. M. Magdon-Ismail (**PI**), H. Newberg, B. Szymanski, C. Varela, “SEI(AST): A Dynamic Grid for Astroinformatics: Data-Driven Discovery of the Milky Way Origin and Evolution from the Sloan Digital Sky Survey”, 2006. 3 years \$757,700, **NSF**.
14. M. Magdon-Ismail (**PI**), H. Newberg, B. Szymanski, C. Varela, “SEI(AST): A Dynamic Grid for Astroinformatics: Data-Driven Discovery of the Milky Way Origin and Evolution from the Sloan Digital Sky Survey” (supplement), **NSF** \$53,004. 1 year. 2009.
15. M. Goldberg, M. Magdon-Ismail, W. Wallace (**PI**) “Dynamic Structure in Evolving Data Networks”, **NSF**, 1 year (subcontract to DIMACS-DYDAN center). \$42,819. 2009.
16. M. Goldberg, M. Magdon-Ismail, W. Wallace (**PI**) “Dynamic Structure in Evolving Data Networks”, **DHS**, 1 year (subcontract to DIMACS-DYDAN center). \$28,000. 2010; 1 year.
17. M. Magdon-Ismail , L. Newberg, B. Szymanski (**PI**), “Citizens Science: Enabling Computational Probabilistic Methods for Organism’s Transcriptional Regulatory Network Using Voluntary Computing Platforms” (EAGER), **NSF** \$241,714. 2009; 2.5 years.

IV. Service

(IV-A) CONFERENCE AND WORKSHOP PROGRAM COMMITTEES

- 2001 CIFEr; IDEAL
- 2002 CIFEr; IDEAL
- 2003 ICMLC; IDEAL
- 2004 ICMLC; IDEAL; Applied Computing
- 2005 IDEAL; CIS; Applied Computing; ISNN; ICMLC; SPAA
- 2006 IDEAL; CIS; Applied Computing; ISNN; ICONIP
- 2007 IDEAL (co-chair); CIS; Applied Computing; ISNN
- 2008 IDEAL; CIS; ISCIS; ISNN
- 2009 IDEAL; ISNN; AMMA; MOMO
- 2010 ISNN; SIMPLEX; CIS
- 2011 IJCAI; ICONIP; IWACI
- 2012 CIKM; ICDM; ICONIP; SocialCom
- 2013 AAAI; UAI; Applied Computing; SocialCom

(IV-B) JOURNAL EDITORSHIP

- 2001 Guest Editor, Special Issue on Financial Engineering,
IEEE Transactions on Neural Networks
- 2004 – 2008 Associate Editor,
Neurocomputing
- 2006 Guest Editor, Special Issue for IDEAL 05,
International Journal of Neural Systems (IJNS)
- 2008 Guest Editor, Special Issue for IDEAL 07,
International Journal of Neural Systems (IJNS)
- 2009 – date Associate Editor, IEEE Transactions on Neural Networks.

(IV-C) REVIEWER

Served as reviewer for numerous journals, conferences and funding panels:

Funding agencies:

National Science Foundation
Hong Kong University Grants Committee
Airforce Office of Sponsored Research

Conferences:

Neural Information Processing Systems (NIPS)
Conference on Computational Intelligence for Financial Engineering (CIFEr)
Intelligent Data Engineering and Automated Learning (IDEAL)
Computational Intelligence Society (CIS)
INFOCOM, IPDPS, HPSR, ICMLC, ISI, ICONIP, MOMO, AMMA, ISNN, ISI, SIMPLEX
Applied Computing, IJCAI, STOC, ICALP

Journals:

IEEE Transactions on Neural Computing
IEEE Transactions on Knowledge and Data Engineering
IEEE Transactions on Information Technology Systems
IEEE Transactions on Computers
IEEE Transactions on Parallel and Distributed Systems
IEEE Transactions on Wireless Communications
IEEE Transactions on Systems Man and Cybernetics

Neural Computation
Machine Learning
Neural Networks Journal
Knowledge and Information Systems
Neurocomputing
Computational Statistics and Data Analysis
Data Mining and Knowledge Discovery
International Journal of Neural Systems
The Open Statistics and Probability Journal

Distributed Processing and Data Mining Journal
Transactions on Parallel and Distributed Systems
Scientific Programming
Distributed Computing
Wireless Sensor Networks
Signal Processing Letters
Journal of Experimental Algorithmics
Journal of Computational Science

Algorithmica
Journal of Combinatorial Optimization
Networks
Social Network Analysis and Mining
Information Processing Letters

Journal of Banking and Finance
Quantitative Finance

V. Publications

(V-A) BOOKS, MONOGRAPHS

- [1] *Learning From Data*, Yaser Abu-Mostafa, Malik Magdon-Ismael, Hsuan-Tien Lin, amlbook.com, March 2012.

(V-B) BOOK CHAPTERS

- [1] Jeffery Baumes, Mark K. Goldberg, Malik Magdon-Ismael, and William Wallace. *Identification of Hidden Groups in Communications*, volume 2 (National Security) of *Handbooks in Information Systems*, chapter 9, pages 209–242. Elsevier, 2007. Invited book chapter.
- [2] Nate Cole, Travis Desell, Daniel Lombraaa Gonzlez, Francisco Fernandez de Vega, Malik Magdon-Ismael, Heidi Newberg, Boleslaw Szymanski, and Carlos Varela. Evolutionary algorithms on volunteer computing platforms: The milkyway@home project. In F Fernandez de Vega and E. Cant-Paz, editors, *Parallel and Distributed Computational Intelligence.*, volume 6 of *Studies in Computational Intelligence*, pages 63–90. Springer-Verlag, Berlin, 2010.
- [3] Costas Busch, Malik Magdon-Ismael, and Jing Xi. Oblivious routing for sensor network topologies. In Sotiris Nikolettseas and Jos D.P. Rolim, editors, *Theoretical Aspects of Distributed Computing in Sensor Networks*, chapter 13, pages 381–400. Springer, 2011.
- [4] Stephen Kelley, Mark Goldberg, Malik Magdon-Ismael, Konstantin Mertsalov, and William Wallace. Defining and discovering communities in social networks. In My Thai and Panos Pardalos, editors, *Handbook of Optimization in Complex Networks*, chapter 6, page to appear. 2011.

(V-C) JOURNAL ARTICLES

- [1] Malik Magdon-Ismael and Yaser S. Abu-Mostafa. Validation of volatility models. *Journal of Forecasting*, 17:349–368, September 1998.
- [2] Zehra Cataltepe, Yaser S. Abu-Mostafa, and Malik Magdon-Ismael. No free lunch for early stopping. *Neural Computation*, 11(4):995–1010, May 1998.
- [3] Malik Magdon-Ismael, Alexander Nicholson, and Yaser S. Abu-Mostafa. Financial markets: Very noisy information processing. *Proceedings of the IEEE: Special Issue on Information Processing*, 86(11):2184–2195, November 1998. (invited paper).
- [4] Malik Magdon-Ismael. No free lunch for noise prediction. *Neural Computation*, 12(3):547–565, 2000.
- [5] Malik Magdon-Ismael and Amir F. Atiya. The early restart algorithm. *Neural Computation*, 12(6):1303–1313, June 2000.
- [6] Eric Breimer, Mark K. Goldberg, Brian T. Kolstad, and Malik Magdon-Ismael. On the height of a random set of points in a d-dimensional unit cube. *Experimental Mathematics*, 10(4):583–597, 2001.
- [7] Malik Magdon-Ismael. The equivalent martingale measure: An introduction to pricing using expectations. *IEEE Transactions on Neural Networks*, 12(4):684–693, July 2001.
- [8] Malik Magdon-Ismael and Amir F. Atiya. Density estimation and random variate generation using multi-layer networks. *IEEE Trans. on Neural Networks*, 13(3):497–520, May 2002.
- [9] Malik Magdon-Ismael and Amir F. Atiya. A maximum likelihood approach to volatility estimation of a Brownian motion using the high, low and close. *Quantitative Finance*, 3:376–384, August 2003.

- [10] Malik Magdon-Ismail, Amir F. Atiya, Amrit Pratap, and Yaser S. Abu-Mostafa. On the maximum drawdown of a Brownian motion. *Journal of Applied Probability*, 41(3):147–161, March 2004.
- [11] Malik Magdon-Ismail and Amir F. Atiya. Maximum drawdown. *Risk*, 17(10):99–102, October 2004.
- [12] Malik Magdon-Ismail, Costas Busch, and Mukkai Krishnamoorthy. Hardness results for cake-cutting. *Bulletin of the European Association for Theoretical Computer Science*, 86:85–106, June 2005.
- [13] Malik Magdon-Ismail, Fikret Sivrikaya, and Bulent Yener. Joint problem of power optimal connectivity and coverage in wireless sensor networks. *Wireless Networks*, 13(4):537–550, 2006.
- [14] Costas Busch, Malik Magdon-Ismail, Marios Mavronicolas, and Paul Spirakis. Direct routing: Algorithms and Complexity. *Algorithmica*, 45(1):45–68, 2006. Invited for Special Issue from European Symposium on Algorithms (ESA) 2004.
- [15] Victor Boyarshinov and Malik Magdon-Ismail. Linear time isotonic and unimodal regression in the L_1 and L_∞ norms. *Journal of Discrete Algorithms*, 4(4):676–691, December 2006.
- [16] Victor Boyarshinov and Malik Magdon-Ismail. Efficient optimal linear boosting of a pair of classifiers. *IEEE Transactions on Neural Networks*, 18(2):317–328, 2007.
- [17] Costas Busch, Malik Magdon-Ismail, and Marios Mavronicolas. Universal bufferless packet switching. *SIAM Journal on Computing*, 37(4):1139–1162, 2007. Preliminary version appears in Workshop on Approximate and Online Algorithms (WAOA) 2004.
- [18] Sibel Adali, Brandeis Hill, and Magdon-Ismail. Information vs. robustness in rank aggregation: models, algorithms and a statistical framework for evaluation. *Journal of Digital Information Managemen*, 5(5), 2007. [11].
- [19] Malik Magdon-Ismail and Joseph Sill. A linear fit gets the correct monotonicity directions. *Machine Learning*, 70(1):21–43, 2008. Online First. Preliminary version appears in COLT 2003.
- [20] Costas Busch, Malik Magdon-Ismail, and Marios Mavronicolas. Efficient bufferless packet switching on trees and leveled networks. *Journal of Parallel and Distributed Computing*, 67:1168–1186, 2007. Preliminary versions appear in EURO-PAR 2004,2005.
- [21] Volkan Isler and Malik Magdon-Ismail. Sensor selection in arbitrary dimensions. *IEEE Tran. Automation Science and Engineering*, 5(4):651–660, 2008.
- [22] Costas Busch, Malik Magdon-Ismail, Fikret Sivrikaya, and Bulent Yener. Contention-free mac protocols for wireless sensor networks. *Distributed Computing*, 21(1):23–42, 2008. Preliminary version appears in DISC 2004.
- [23] Costas Busch, Malik Magdon-Ismail, and Jing Xi. Optimal oblivious path selection on the mesh. *IEEE Transactions on Computers*, 57(5):660–671, 2008.
- [24] Nathan Cole, Heidi Joe Newberg, Malik Magdon-Ismail, Travis Desell, Kristopher Dawsey, Warren Hayashi, Xinyang (Fred) Liu, Jonathan Purnell, Boleslaw Szymanski, Carlos Varela, and James Wisniewski. Maximum likelihood fitting of tidal streams with application to the sagittarius dwarf tidal tails. *The Astrophysical Journal*, 683:750–766, 2008.
- [25] Jeff Baumes, Hung-Ching Chen, Matthew Francisco, William Wallace, Malik Magdon-Ismail, and Mark Goldberg. ViSAGE: A virtual laboratory for simulation and analysis of social group evolution. *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, 3(3):1–35, August 2008.
- [26] Hung-Ching (Justin) Chen, Mark Goldberg, Malik Magdon-Ismail, and Al Wallace. Reverse engineering a social agent-based hidden Markov model - ViSAGE. *International Journal of Neural Systems*, 18(6):491–526, December 2008.
- [27] Costas Busch and Malik Magdon-Ismail. Atomic routing games on maximum congestion. *Theoretical Computer Science*, 410(36):3337–3347, 2009.

- [28] Ali Civril and Malik Magdon-Ismael. On selecting a maximum volume sub-matrix of a matrix and related problems. *Theoretical Computer Science*, 410(47-49):4801–4811, 2009.
- [29] Cindy Hui, Mark Goldberg, Malik Magdon-Ismael, and William A. Wallace. Simulating the diffusion of information: An agent-based modeling approach. *Special Issue on Agent-Directed Simulation, International Journal of Agent Technologies and Systems*, 2(3):31–46, 2010. (invited).
- [30] Malik Magdon-Ismael and Konstantin Mertsalov. A permutation approach to validation. *Statistical Analysis and Data Mining, Special Issue on Best Papers from SDM10 (invited)*, 3(6):361–380, 2010.
- [31] Malik Magdon-Ismael and Jonathan Purnell. Approximating the covariance matrix of GMMs with low-rank perturbations. *International Journal of Data Mining, Modelling and Management Special Issue of Best Papers from IDEAL 2010 (invited)*, page to appear, 2011.
- [32] S. Das and M. Magdon-Ismael. A model for information growth in collective wisdom processes. *ACM Transactions on Knowledge Discovery from Data (TKDD)*, page appear, 2011.
- [33] M. Goldberg and Malik Magdon-Ismael. Embedding a forest in a graph. *Electronic Journal of Combinatorics (EJC)*, 18(1, P99), 2011.
- [34] Ali Civril and Malik Magdon-Ismael. Exponential inapproximability of selecting a maximum volume sub-matrix. *Algorithmica*, 65(1):159–176, 2013.
- [35] Ali Civril and Malik Magdon-Ismael. Column subset selection via sparse approximation of SVD. *Theoretical Computer Science*, 421:1–14, 2012.
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VI. Miscellaneous

Data of Birth: 14 December, 1971.

Citizenship: USA.

Extracurricular: Competed at the national level in Bridge (NCAA champions, represented USA in World Juniors), Squash, Badminton.