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## Tina Eliassi-Rad

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### Research Interests

- Data Mining and Knowledge Discovery
- Machine Learning
- Big Data / Data Science
- Network Science
- Cyber Security
- Computational Social Science
- Computational Humanities
- Information Retrieval & Extraction
- Knowledge Representation
- Artificial Intelligence

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### Research Topics (as of July 2015)

- Learning to enrich incomplete networks
- Axiomatic approaches to descriptive measures on graphs
- Scalable algorithms for network similarity/graph comparison
- Unifying physics of networks with the mining of graphs through functional roles of nodes

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### Education

B.S. (with Distinction), Computer Sciences, University of Wisconsin-Madison, 1993  
M.S., Computer Science, University of Illinois at Urbana-Champaign, 1995  
Ph.D., Computer Sciences (Minor: Mathematical Statistics), University of Wisconsin-Madison, 2001

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### Employment (post Ph.D.)

7/2012–... Associate Professor (Tenured), Department of Computer Science & Center for Computational Biomedicine, Imaging and Modeling (CBIM), Rutgers University, Piscataway, NJ

9/2010–6/2012 Assistant Professor (Tenure-Track), Department of Computer Science & Center for Computational Biomedicine, Imaging and Modeling (CBIM), Rutgers University, Piscataway, NJ

9/2009–8/2010 Visiting Assistant Research Professor, Department of Computer Science & Center for Computational Biomedicine, Imaging and Modeling (CBIM), Rutgers University, Piscataway, NJ

9/2001–9/2010 Member of Technical Staff & Principal Investigator, Center for Applied Scientific Computing, Lawrence Livermore National Laboratory (LLNL), Livermore, CA

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### Awards

- Best Interdisciplinary Paper Award, The 21st ACM Conference on Information and Knowledge Management (CIKM'12), Maui, HI, October 2012

- Antivirus Research Grant/Gift Winner (Third Place Prize), sponsored by pcantivirusreviews.com, \$300, 2011 (<http://www.pcantivirusreviews.com/Gifts-and-Grants/>)
- Lawrence Livermore National Laboratory, Global Security Directorate Gold Award (for work on detection of cyber attacks), \$500, 2010
- U.S. Department of Energy, Office of Science Outstanding Mentor Award, 2010
- Best Paper Award Runner-up, The 9th IEEE International Conference on Data Mining (ICDM'09), Miami, FL, December 2009
- Top 3% of Accepted Papers, The 2008 Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD'08), Antwerp, Belgium, September 2008
- Research Award for First Year Graduate Students, University of Wisconsin-Madison, Summer 1996

### **Grants (Current)**

- Co-PI, "Scalable Robustness Analysis of Dynamic Heterogeneous Networks for Counter-WMD Operations under Uncertainty," Defense Threat Reduction Agency (DTRA), \$700,000 (Rutgers portion = \$159,938), 2014-2016
- PI, "Adaptive Mapping for Network Characterization," Lawrence Livermore National Laboratory (LLNL), \$90,000, 2014-2015
- Co-PI, "Know Thy Enemy: Data Mining Meets Networks for Understanding Web-Based Malware Dissemination," National Science Foundation (Award #1314603), \$1,000,000 (Rutgers portion = \$333,333), 2013-2017
- Co-PI, "Understanding and Utilizing Context-Aware Information Dissemination in Social Media," DARPA, Program on Social Media in Strategic Communications (6.1 funding), \$387,015 (Rutgers portion only), 2012-2015
- Co-PI, "Phase I: I/UCRC: Center for Dynamic Data Analytics (CDDA)," National Science Foundation (Award #1069258), \$404,100, 2011-2016
- Co-PI, "Robustness Analysis and Anomaly Detection of Interdependent Physical and Social Networks," Defense Threat Reduction Agency (DTRA), \$1,060,000 (Rutgers portion = \$222,082), 2010-2014

### **Grants (Past)**

- PI, "Dynamics of Network Change Detection at Various Scales," Lawrence Livermore National Laboratory (LLNL), \$90,000, 2013-2014
- PI, "Axiomatic Studies of Features for Network Map Detection and Characterization," Lawrence Livermore National Laboratory (LLNL), \$98,103, 2012-2013
- PI, "Network Analysis of Washington Post Social Reader Data," Washington Post Labs, \$51,500, 2012-2013
- Senior Personnel, "Research Experience for Undergraduates (REU): Perceptual Science & Technology," National Science Foundation, \$303,675, 2011-2013
- Co-PI, "The De-Anonymization of Consumer Networks using Wireless and Wired Call Detail Data," Wharton Customer Analytics Initiative (only 10 grants were awarded), \$2,500, 2011
- Co-PI, "Semantic Ontological Techniques for Analyst Reasoning (SOTAR)," Air Force Research Laboratory (AFRL), \$849,836, 2010-2012
- PI, "Cyber Situational Awareness through Host and Network Analysis," Lawrence Livermore National Laboratory (LLNL), \$150,000, 2010-2011

- PI, “Capturing Node-level Behavioral Structure (a.k.a. Roles) in Static and Dynamic Networks,” Lawrence Livermore National Laboratory (LLNL), \$100,000, 2010-2011
- Co-PI, “Network Pattern Recognition Project,” National Science Foundation (Award #0970179), \$299,982 (Rutgers portion = \$35,108), 2010-2011
- Co-PI, “Learning from Presence-Only Data, With Applications in Cyber Security and Ecology,” University of California Lab-Fees Research Program Award, \$472,748, January 2009 to December 2011
- Co-PI, “SETAC: Supercomputing Enabled Transformational Analytics Capability,” Lawrence Livermore National Laboratory – Strategic Initiative Award, \$5,100,000, November 2008 to September 2010 (was renewed in FY11 for \$2,700,000)
- PI, “Role Discovery in Dynamic Semantic Graphs,” Lawrence Livermore National Laboratory – Exploratory Research Award, \$854,100, October 2008 to September 2010 (was renewed in FY11 for \$456,220)
- Co-PI, “Predictive Knowledge Systems,” Lawrence Livermore National Laboratory – Strategic Initiative Award, \$12,500,000, April 2006 to September 2008
- Senior Personnel, “UCLA IPAM 2005 Graduate Summer School on Intelligent Extraction of Information from Graphs and High-dimensional Data,” National Science Foundation (Award #0442015) for \$199,735, Summer 2005
- Technical Point-of-Contact, Lawrence Livermore National Laboratory – External Collaboration Awards to Academia, \$1,160,000, Summer 2004 to Fall 2010

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**Publications** (available at <http://eliassi.org/pubs.html>)

### Peer-reviewed Journal Articles

- [1] “Node Immunization on Large Graphs: Theory and Algorithms” (C. Chen, H. Tong, B.A. Prakash, C. Tsourakakis, T. Eliassi-Rad, C. Faloutsos, D.H. Chau), *IEEE Transactions on Knowledge and Data Engineering* (TKDE), forthcoming, 2015.
- [2] “APATE: A Novel Approach for Automated Credit Card Transaction Fraud Detection Using Network-based Extensions” (C. Bravo, V. Van Vlasselaer, O. Caelen, T. Eliassi-Rad, L. Akoglu, M. Snoeck, B. Baesens), *Decision Support Systems*, 75: 38-48, 2015.
- [3] “Fast Best-Effort Search on Graphs with Multiple Attributes” (S. Basu Roy, T. Eliassi-Rad, S. Papadimitriou), *IEEE Transactions on Knowledge and Data Engineering* (TKDE), 27(3): 755-768, 2015.
- [4] “Gateway Finder in Large Graphs: Problem Definitions and Fast Solutions” (H. Tong, S. Papadimitriou, C. Faloutsos, P.S. Yu, T. Eliassi-Rad), *Information Retrieval*, 15(3-4): 391-411, 2012.
- [5] “Correcting Evaluation Bias of Relational Classifiers with Network Cross Validation” (J. Neville, B. Gallagher, T. Eliassi-Rad, T. Wang), *Knowledge and Information Systems* (KAIS), 30(1): 31-55, 2012.
- [6] “Massively Parallel Acceleration of a Document-Similarity Classifier to Detect Web Attacks” (C. Ulmer, M. Gokhale, B. Gallagher, P. Top, T. Eliassi-Rad), *Journal of Parallel and Distributed Computing*, 71(2): 225-235, 2011.
- [7] “Leveraging Label-Independent Features for Classification in Sparsely Labeled Networks: An Empirical Study” (B. Gallagher, T. Eliassi-Rad), *Lecture Notes in Computer Science: Advances in Social Network Mining and Analysis*, Springer, 2009.

- [8] “Two Heads Better than One: Pattern Discovery in Time-evolving Multi-Aspect Data” (J. Sun, C. Tsourakakis, E. Hoke, and C. Faloutsos, T. Eliassi-Rad), *Data Mining and Knowledge Discovery Journal*, 17(1):111-128, 2008.
- [9] “Collective Classification in Network Data” (P. Sen, G. Namata, M. Bilgic, L. Getoor, B. Gallagher, T. Eliassi-Rad), *AI Magazine*, special issue on *AI and Networks*, 29(3):93-106, 2008.
- [10] “Visual Analysis of Large Heterogeneous Social Networks by Semantic and Structural Abstraction” (Z. Shen, K.-L. Ma, T. Eliassi-Rad), *IEEE Transactions on Visualization and Computer Graphics, Special Issue on Visual Analytics*, 12(6):1427-1439, 2006.
- [11] “A System for Building Intelligent Agents that Learn to Retrieve and Extract Information” (T. Eliassi-Rad, J. Shavlik), *International Journal of User Modeling and User-Adapted Interaction*, special issue on *User Modeling and Intelligent Agents*, 13(4):35-88, 2003.

### Peer-reviewed Conference Papers

- [12] “A Probabilistic Model for Using Social Networks in Personalized Item Recommendation” (A. Chaney, D. Blei, T. Eliassi-Rad), *Proceedings of the 9th ACM Recommender Systems Conference (RecSys’15)*, Vienna, Austria, September 2015.
- [13] “AFRAID: Fraud Detection via Active Inference in Time-evolving Social Networks” (V. Van Vlasselaer, T. Eliassi-Rad, L. Akoglu, M. Snoeck, B. Baesens), *Proceedings of the 7th IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM’15, Industrial Track)*, Paris, France, August 2015.
- [14] “MET: A Fast Algorithm for Minimizing Propagation in Large Graphs with Small Eigen-Gaps” (L.T. Le, T. Eliassi-Rad, H. Tong), *Proceedings of the 2015 SIAM International Conference on Data Mining (SDM’15)*, Vancouver, British Columbia, Canada, April 2015.
- [15] “EP-MEANS: An Efficient Nonparametric Clustering of Empirical Probability Distributions” (K. Henderson, B. Gallagher, T. Eliassi-Rad), *Proceedings of the 30th ACM SIGAPP Symposium On Applied Computing (SAC’15)*, Salamanca, Spain, April 2015.
- [16] “Guilt-by-Constellation: Fraud Detection by Suspicious Clique Memberships” (V. Van Vlasselaer, L. Akoglu, T. Eliassi-Rad, M. Snoeck, B. Baesens), *Proceedings of the 48th Annual Hawaii International Conference on System Sciences (HICSS’15)*, Kauai, HI, January 2015.
- [17] “A Guide to Selecting a Network Similarity Method” (S. Soundarajan, T. Eliassi-Rad, B. Gallagher), *Proceedings of the 2014 SIAM International Conference on Data Mining (SDM’14)*, Philadelphia, PA, April 2014.
- [18] “Network Similarity via Multiple Social Theories” (M. Berlingerio, D. Koutra, T. Eliassi-Rad, C. Faloutsos), *Proceedings of the 5th IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM’13)*, Niagara Falls, Canada, August 2013.
- [19] “Guided Learning for Role Discovery (GLRD): Framework, Algorithms, and Applications” (S. Gilpin, T. Eliassi-Rad, I. Davidson), *Proceedings of the 19th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD’13)*, Chicago, IL, August 2013.
- [20] “Entelecheia: Detecting P2P Botnets in their Waiting Stage” (H. Hang, X. Wei, M. Faloutsos, T. Eliassi-Rad), *Proceedings of the 12th IEEE IFIP Networking Conference (Networking’13)*, Brooklyn, NY, May 2013.
- [21] “Gelling, and Melting, Large Graphs by Edge Manipulation” (H. Tong, B.A. Prakash, T. Eliassi-Rad, M. Faloutsos, C. Faloutsos), *Proceedings of the 21st ACM Conference on Information and Knowledge Management (CIKM’12)*, Maui, Hawaii, October 2012. (**Best interdisciplinary paper award**)
- [22] “RoIX: Structural Role Extraction and Mining in Large Networks” (K. Henderson, B. Gallagher, T. Eliassi-Rad, H. Tong, S. Basu, L. Akoglu, D. Koutra, C. Faloutsos, L. Li), *Proceedings of the 18th*

- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'12)*, Beijing, China, August 2012.
- [23] “Measuring Tie Strength in Implicit Social Networks” (M. Gupte, T. Eliassi-Rad), *Proceedings of the 4th ACM International Conference on Web Science (WebSci'12)*, Evanston, IL, June 2012.
  - [24] “Correcting Bias in Statistical Tests for Network Classifier Evaluation” (T. Wang, J. Neville, B. Gallagher, T. Eliassi-Rad), *Proceedings of the 2011 European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD'11)*, Athens, Greece, September 2011.
  - [25] “It’s Who You Know: Graph Mining Using Recursive Structural Features” (K. Henderson, B. Gallagher, L. Li, L. Akoglu, T. Eliassi-Rad, H. Tong, C. Faloutsos), *Proceedings of the 17th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'11)*, San Diego, CA, August 2011.
  - [26] “Ranking Information in Networks” (T. Eliassi-Rad, K. Henderson), *Proceedings of the 2011 International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction (SBP'11)*, College Park, MD, March 2011.
  - [27] “Detecting Novel Discrepancies in Communication Networks” (J. Abello, T. Eliassi-Rad, N. Devanur), *Proceedings of the 10th IEEE International Conference on Data Mining (ICDM'10)*, Sydney, Australia, December 2010.
  - [28] “On the Vulnerability of Large Graphs: Measures and Fast Immunization Algorithms” (H. Tong, B.A. Prakash, C. Tsourakakis, T. Eliassi-Rad, C. Faloutsos, D.H. Chau), *Proceedings of the 10th IEEE International Conference on Data Mining (ICDM'10)*, Sydney, Australia, December 2010.
  - [29] “Profiling-by-Association: A Resilient Traffic Profiling Solution for the Internet Backbone” (M. Iliofotou, B. Gallagher, T. Eliassi-Rad, G. Xie, M. Faloutsos), *Proceedings of the 6th ACM International Conference on Emerging Networking Experiments and Technologies (CoNext'10)*, Philadelphia, PA, November 2010.
  - [30] “MetricForensics: A Multi-Level Approach for Mining Volatile Graphs” (K. Henderson, T. Eliassi-Rad, C. Faloutsos, L. Akoglu, L. Li, K. Maruhashi, B. A. Prakash, H. Tong), *Proceedings of the 16th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'10)*, Washington, DC, July 2010.
  - [31] “Basset: Scalable Gateway Finder in Large Graphs” (H. Tong, S. Papadimitriou, C. Faloutsos, P.S. Yu, T. Eliassi-Rad), *Proceedings of the 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD'10)*, Hyderabad, India, June 2010.
  - [32] “HCDF: A Hybrid Community Discovery Framework” (K. Henderson, T. Eliassi-Rad, S. Papadimitriou, C. Faloutsos), *Proceedings of the 2010 SIAM Conference on Data Mining (SDM'10)*, Columbus, OH, April 2010.
  - [33] “Literature Search through Mixed-Membership Community Discovery” (T. Eliassi-Rad, K. Henderson), *Proceedings of the 2010 International Conference on Social Computing, Behavioral Modeling, and Prediction (SBP'10)*, Bethesda, MD, March 2010.
  - [34] “Homophily in Application Layer and its Usage in Traffic Classification” (B. Gallagher, M. Iliofotou, T. Eliassi-Rad, M. Faloutsos), *Proceedings of the 29th IEEE Conference on Computer Communications (INFOCOM'10) Miniconference*, San Diego, CA, March 2010.
  - [35] “Evaluating Statistical Tests for Within-Network Classifiers of Relational Data” (J. Neville, B. Gallagher, T. Eliassi-Rad), *Proceedings of the 9th IEEE International Conference on Data Mining (ICDM'09)*, Miami, FL, December 2009. (**Best paper award runner-up**)
  - [36] “Applying Latent Dirichlet Allocation to Group Discovery in Large Graphs” (K. Henderson, T. Eliassi-Rad), *Proceedings of the 24th Annual ACM Symposium on Applied Computing (SAC'09)*, Honolulu, HI, March 2009.

- [37] “Fast Mining of Complex Time-Stamped Events” (H. Tong, Y. Sakurai, T. Eliassi-Rad, C. Faloutsos), *Proceedings of the 17th ACM Conference on Information and Knowledge Management* (CIKM’08), Napa Valley, CA, October 2008.
- [38] “Two Heads Better than One: Pattern Discovery in Time-evolving Multi-Aspect Data” (J. Sun, C. Tsourakakis, E. Hoke, C. Faloutsos, T. Eliassi-Rad), *Proceedings of the 2008 European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases* (ECML PKDD’08), Antwerp, Belgium, September 2008. (**Top 3% of accepted papers**)
- [39] “Using Ghost Edges for Classification in Sparsely Labeled Networks” (B. Gallagher, H. Tong, T. Eliassi-Rad, C. Faloutsos), *Proceedings of the 14th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (KDD’08), Las Vegas, NV, August 2008.
- [40] “Re-thinking Supercomputing for Data Intensive Problems” (T. Damkroger, T. Eliassi-Rad, M. Gokhale, J. Grosh, S. Kohn), *Proceedings of the 2008 International Supercomputing Conference* (ICS’08), Dresden, Germany, June 2008.
- [41] “Fast Best-Effort Pattern Matching in Large Attributed Graphs” (H. Tong, B. Gallagher, C. Faloutsos, T. Eliassi-Rad), *Proceedings of the 13th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (KDD’07), San Jose, CA, 2007, pp. 737-746.
- [42] “A Hybrid Approach to Multiresolution Modeling of Large-Scale Scientific Data” (T. Eliassi-Rad, T. Critchlow), *Proceedings of the 20th Annual ACM Symposium on Applied Computing* (SAC’05), Santa Fe, NM, 2005, pp. 511-518.
- [43] “The Evolution of a Hierarchical Partitioning Algorithm for Large-Scale Scientific Data: Three Steps of Increasing Complexity” (C. Baldwin, T. Eliassi-Rad, G. Abdulla, T. Critchlow), *Proceedings of the 15th International Conference on Scientific and Statistical Data Base Management* (SSDBM’03), Cambridge, MA, 2003, pp. 225-228.
- [44] “Statistical Modeling of Large-Scale Simulation Data” (T. Eliassi-Rad, T. Critchlow, G. Abdulla), *Proceedings of the 8th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (KDD’02), Edmonton, Alberta, Canada, 2002, pp. 488-494.
- [45] “A Theory-Refinement Approach to Information Extraction” (T. Eliassi-Rad, J. Shavlik), *Proceedings of the 18th International Conference on Machine Learning* (ICML’01), Williamstown, MA, 2001, pp. 130-137.
- [46] “An Instructable, Adaptive Interface for Discovering and Monitoring Information on the World Wide Web” (J. Shavlik, S. Calcari, T. Eliassi-Rad, J. Solock), *Proceedings of the 1999 International Conference on Intelligent User Interfaces* (IUI’99), Redondo Beach, CA, 1999, pp. 157-160.

## Peer-reviewed Workshop Papers

### AAAI Workshops

- [47] “Intelligent Agents for Web-Based Tasks: An Advice-Taking Approach” (J. Shavlik, T. Eliassi-Rad), *The 1998 AAAI / ICML Workshop on Learning for Text Categorization*, Madison, WI, July 1998.

### ACM Workshops

- [48] “Minimizing Dissemination in a Population While Maintaining its Community Structure” (C. Zhang, T. Eliassi-Rad), *The 1st ACM SIGKDD Workshop on Population Informatics for Big Data* (PopInfo’15), Sydney, Australia, August 2015.
- [49] “Finding the Most Appropriate Auxiliary Data for Social Graph De-anonymization” (P. Govindan, S. Soundarajan, T. Eliassi-Rad), *The 1st ACM SIGKDD Workshop on Data Ethics*, New York, NY, August 2014.

- [50] “Measuring Coverage and Divergence of Reading Behaviors Among Friends” (L.T. Le, T. Eliassi-Rad), *The 1st ACM SIGKDD Workshop on Data Science for News Publishing* (NewsKDD’14), New York, NY, August 2014.
- [51] “Hyperlocal: Inferring Location of IP Addresses in Real-time Bid Requests for Mobile Ads” (L.T. Le, T. Eliassi-Rad, F. Provost, L. Moeres), *The 6th ACM SIGSPATIAL International Workshop on Location-Based Social Networks* (LBSN’13), Orlando, FL, November 2013.
- [52] “Leveraging Label-Independent Features for Classification in Sparsely Labeled Networks: An Empirical Study” (B. Gallagher, T. Eliassi-Rad), *The 2nd ACM SIGKDD Workshop on Social Network Mining and Analysis* (SNA-KDD’08), Las Vegas, NV, August 2008.

### IEEE Workshops

- [53] “Threatening Privacy across Social Graphs: A Structural Features Approach” (P. Govindan, T. Eliassi-Rad, J. Xu, S. Hill, C. Volinsky), *The 2014 IEEE ICDM Workshop on Data Mining in Networks* (DaMNet’14), Shenzhen, China, December 2014.
- [54] “An Evaluation of Experimental Methodology for Classifiers of Relational Data” (B. Gallagher, T. Eliassi-Rad), *The 2007 IEEE ICDM Workshop on Mining Graphs and Complex Structures* (MGCS’07), Omaha, NE, October 2007.

### NIPS Workshops

- [55] “NetSimile: An Effective and Scalable Network Similarity Approach” (M. Berlingerio, D. Koutra, T. Eliassi-Rad, C. Faloutsos), *The 2012 NIPS Workshop on Social Network and Social Media Analysis: Methods, Models and Applications*, Lake Tahoe, NV, December 2012.
- [56] “An Axiomatic Approach to Tie-Strength Measures” (M. Gupte, T. Eliassi-Rad), *The 2011 NIPS Workshop on Computational Social Science and the Wisdom of Crowds*, Sierra Nevada, Spain, December 2011.
- [57] “Continuous Time Group Discovery in Dynamic Graphs” (K. Miller, T. Eliassi-Rad), *The 2009 NIPS Workshop on Analyzing Networks and Learning with Graphs*, Whistler, BC, Canada, December 2009.

### SIAM Workshops

- [58] “PaCK: Scalable Parameter-Free Clustering on K-Partite Graphs” (J. He, H. Tong, S. Papadimitriou, T. Eliassi-Rad, C. Faloutsos, J. Carbonell), *The 2009 SIAM SDM Workshop on Link Analysis, Counterterrorism and Security (Adversarial Data Analysis)*, Reno, NV, May 2009.

### Peer-reviewed Symposium Papers

- [59] “Finding Mixed-Memberships in Social Networks” (P.S. Koutsourelakis, T. Eliassi-Rad), *Papers from the 2008 AAAI Spring Symposium – Social Information Processing* (AAAI-SS’08), Stanford CA, March 2008.
- [60] “A Position Paper: Value of Information for Evidence Detection” (D. Roberts, T. Eliassi-Rad), *Papers from the 2006 AAAI Fall Symposium – Capturing and Using Patterns for Evidence Detection* (AAAI-FS’06), Arlington, VA, October 2006.
- [61] “Knowledge Representation Issues in Semantic Graphs for Relationship Detection” (M. Barthelemy, E. Chow, T. Eliassi-Rad), *Papers from the 2005 AAAI Spring Symposium – AI Technologies for Homeland Security* (AAAI-SS’05), Stanford, CA, March 2005.

### Peer-reviewed Demos

- [62] “GRAPHITE: A Visual Query System for Large Graphs” (D. H. Chau, C. Faloutsos, H. Tong, J. Hong, B. Gallagher, T. Eliassi-Rad), *The 8th IEEE International Conference on Data Mining* (ICDM’08), Pisa, Italy, December 2008.

## Peer-reviewed Book Chapters

- [63] “Statistical Modeling of Large-Scale Scientific Simulation Data” (T. Eliassi-Rad, C. Baldwin, G. Abdulla, T. Critchlow), in *New Generation of Data Mining Applications*, Eds: J. Zurada and M. Kantardzic, Wiley, February 2005.
- [64] “Intelligent Web Agents that Learn to Retrieve and Extract Information” (T. Eliassi-Rad, J. Shavlik), in *Intelligent Exploration of the Web*, Eds: P.S. Szczepaniak, F. Segovia, J. Kacprzyk, and L.A. Zadeh, Springer-Verlag, 2003.

## Edited Volumes

- [65] *Proceedings of the 12th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (L. H. Ungar, M. Craven, D. Gunopulos, T. Eliassi-Rad: editors), ACM Press, 2006, ISBN 1-59593-339-5.

## Miscellaneous

- [66] “MET: A Fast Algorithm for Minimizing Propagation in Large Graphs with Small Eigen-Gaps” (L. Long, T. Eliassi-Rad, H. Tong), *The 2015 International School and Conference on Network Science* (NetSci’15), Zaragoza, Spain, June 2015. (poster)
- [67] “A Guide to Selecting a Network Similarity Method” (S. Soundarajan, T. Eliassi-Rad, B. Gallagher), *The 9th Annual Machine Learning Symposium*, New York Academy of Sciences, New York, NY, March 2015. (poster)
- [68] “A Proposal for Decreasing Geographical Inequality in College Admissions” (T. Eliassi-Rad, B. Fitelson), Chapter 12 Appendix in *The Future of Affirmative Action*, Eds: J. Renker and J. Miller, The Century Foundation Press, 2014. (Available at [http://tcf.org/assets/downloads/12\\_Talent-is-Everywhere.pdf](http://tcf.org/assets/downloads/12_Talent-is-Everywhere.pdf)).
- [69] “Social Order in Online Social Networks” (T. Eliassi-Rad), in *Encyclopedia of Social Network Analysis and Mining* (ESNAM), Eds: R. Alhajj and J. Rokne, Springer, 2013.
- [70] “Which Network Similarity Measure Should You Choose: An Empirical Study” (S. Soundarajan, T. Eliassi-Rad, B. Gallagher), *The 5th Workshop on Information in Networks* (WIN’13), New York, NY, September 2013.
- [71] “Local Structural Features Threaten Privacy across Social Networks” (P. Govindan, J. Xu, S. Hill, T. Eliassi-Rad, C. Volinsky), *The 5th Workshop on Information in Networks* (WIN’13), New York, NY, September 2013.
- [72] “Measuring Tie Strength in Implicit Social Networks” (M. Gupte, T. Eliassi-Rad), *Workshop on Computational and Online Social Science* (CAOSS), New York, NY, October 2012. (poster)
- [73] “Learning to Predict the Presence of Nodes in Anonymized Graphs” (P. Govindan, T. Eliassi-Rad, S. Basu Roy), *The 4th Workshop on Information in Networks* (WIN’12), New York, NY, September 2012.
- [74] “A Scalable Approach to Size-Independent Network Similarity” (M. Berlingerio, D. Koutra, T. Eliassi-Rad, C. Faloutsos), *The 4th Workshop on Information in Networks* (WIN’12), New York, NY, September 2012.
- [75] “Measuring Tie Strength in Implicit Social Networks” (M. Gupte, T. Eliassi-Rad), *The 3rd Workshop on Information in Networks* (WIN’11), New York, NY, September 2011.
- [76] “Ranking Information in Networks” (T. Eliassi-Rad, K. Henderson), *The 2nd Workshop on Information in Networks* (WIN’10), New York, NY, September 2010.



- [77] “A Renewal Theory Approach to Anomaly Detection in Communication Networks” (B. Thompson, T. Eliassi-Rad), *The 2nd Workshop on Information in Networks* (WIN’10), New York, NY, September 2010.
- [78] “Detecting Novel Discrepancies in Highly Dynamic Information Networks” (J. Abello, T. Eliassi-Rad, N. Devanur), *The 2nd Workshop on Information in Networks* (WIN’10), New York, NY, September 2010.
- [79] “Literature Search through Mixed-Membership Community Discovery” (T. Eliassi-Rad, K. Henderson), *The 1st Workshop on Information in Networks* (WIN’09), New York, NY, September 2009.
- [80] “DAPA-V10: Discovery and Analysis of Patterns and Anomalies in Volatile Time-Evolving Networks” (B. Thompson, T. Eliassi-Rad), *The 1st Workshop on Information in Networks* (WIN’09), New York, NY, September 2009.
- [81] “Similarity in Computational Sciences” (T. Eliassi-Rad, T. Critchlow), *The 2005 Learning Workshop*, Snowbird, UT, April 2005. (invited submission)
- [82] “Building Intelligent Agents for Web-Based Tasks: A Theory-Refinement Approach” (J. Shavlik, T. Eliassi-Rad), *Workshop on Learning from Text and the Web*, part of *Conference on Automated Learning and Discovery* (CONALD’98), Pittsburgh, PA, June 1998.

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## Theses

- “Building Intelligent Agents that Learn to Retrieve and Extract Information”, Ph.D. dissertation, Computer Sciences Department, University of Wisconsin, Madison, WI, 2001.
- “Visual Support for the ISLE Simulation Environment”, M.S. thesis, Department of Computer Science, University of Illinois, Urbana-Champaign, IL, 1995.

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## Patents

- “Methods, Systems, and Media for Determining Location Information from Real-time Bid Requests” (F. Provost, T. Eliassi-Rad, L. Moores), US Patent Number 9014717, issued April 21, 2015.

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## Invited Presentations

### Year 2016

- [1] Washington State University, Department of Mathematics, Pullman, WA, March 2016 (scheduled)
- [2] Workshop on Big Graphs: Theory and Practice, University of California, San Diego, CA, January 2016 (scheduled)

### Year 2015

- [3] The 6th Workshop on Information in Networks (WIN), New York, New York, October 2015 (scheduled)
- [4] Data Science Summit, Port Douglas, Australia, August 2015 (scheduled)
- [5] ACM SIGKDD, Conference Panel on “Data Driven Science”, Sydney, Australia, August 2015 (scheduled)
- [6] ACM SIGKDD Workshop on Outlier Definition, Detection, and Description (ODDx3), Panel on “What is an anomaly?”, Sydney, Australia, August 2015 (scheduled)
- [7] ACM Conference on Online Social Networks (COSN) PC Workshop, Stanford, CA, July 2015

- [8] “Incomplete Networks” Session, Algorithms for Threat Detection Program Meeting, National Science Foundation, Arlington, VA, July 2015
- [9] CINET Workshop, Virginia Tech, Blacksburg, Virginia, July 2015
- [10] International School and Conference on Network Science (NetSci), Satellite on Arts, Humanities, and Complex Networks, Panel on “Scientific Cultural Analysis”, Zaragoza, Spain, June 2015
- [11] International School and Conference on Network Science (NetSci), Satellite on Higher-Order Models in Network Science (HONS), Zaragoza, Spain, June 2015
- [12] Opening Governance Workshop, Center for Advanced Study in the Behavioral Sciences, Stanford University, Palo Alto, CA, May 2015
- [13] SIAM SDM Workshop on Mining Networks and Graphs: A Big Data Analytic Challenge, Panel on “Future Challenges in Mining Large Networks”, Vancouver, Canada, April 2015
- [14] University of California, Santa Barbara, Department of Computer Science, January 2015
- [15] University of California, Santa Cruz, Department of Computer Science, January 2015

#### **Year 2014**

- [16] NYC Women in Machine Learning and Data Science Meetup, New York, NY, December 2014
- [17] The 9th Annual Workshop for Women in Machine Learning (WiML), Montreal, Canada, December 2014
- [18] Northeastern University, College of Computer and Information Science, Boston, MA, December 2014
- [19] MIT Lincoln Laboratory's 5th Annual Graph Exploitation Symposium (GraphEx), Dedham, MA, August 2014
- [20] Yahoo!, Sunnyvale, CA, August 2014
- [21] Yahoo! NYC, New York, NY August 2014
- [22] University of Antwerp, Antwerp, Belgium, July 2014
- [23] University of Leuven, Leuven, Belgium, July 2014
- [24] International School and Conference on Network Science (NetSci), Berkeley, CA, June 2014
- [25] Charles River Workshop on Private Analysis of Social Networks, Boston University, Boston, MA, May 2014
- [26] SIAM SDM Workshop on Mining Networks and Graphs: A Big Data Analytics Challenge (MNG 2014), Philadelphia, PA, April 2014
- [27] Spring Workshop on Mining and Learning (SMiLe), Oostende, Belgium, March 2014
- [28] Rutgers DIMACS/RUCIA Workshop on Information Assurance in the Era of Big Data, February 2014
- [29] University of California Davis, Department of Computer Science, Davis, CA, January 2014
- [30] Lawrence Livermore National Laboratory, Center for Applied Scientific Computing, Livermore, CA, January 2014
- [31] Facebook, Menlo Park, January 2014
- [32] UCLA IPAM, Workshop on Mathematics of Social Learning, January 2014

#### **Year 2013**

- [33] University of Notre Dame, Department of Computer Science and Engineering, Notre Dame, IN, December 2013

- [34] Rutgers DIMACS, Workshop on Statistical Analysis of Network Dynamics and Interactions, November 2013
- [35] ACM SIGKDD Workshop on Mining and Learning from Graphs (MLG 2013), August 2013
- [36] Girls Inc. of New York City, Brooklyn, NY, July 2013
- [37] University of Illinois at Chicago, Department of Computer Science, Chicago, IL, May 2013
- [38] Northwestern University, Institute on Complex Systems, Evanston, IL, May 2013
- [39] Georgia Institute of Technology, School of Computational Science & Engineering, Atlanta, GA, April 2013
- [40] Stevens Institute of Technology, Computer Science Department, April 2013
- [41] Sarnoff Research, Princeton, NJ, March 2013
- [42] SUNY Stony Brook, Department of Computer Science, Colloquium Talk, Stony Brook, NY, February 2013
- [43] AT&T Research, Florham Park NJ, February 2013
- [44] Google, New York, NY, January 2013

### **Year 2012**

- [45] IEEE ICDM, Big Data Panel, Brussels, Belgium, December 2012
- [46] NYU Stern Business School, TUILES (Tuesday Informal Lunchtime Seminars), New York, NY, November 2012
- [47] Rutgers University Center for Cognitive Science (RuCCS), “What Is Cognitive Science” Talk Series, November 2012
- [48] Synergic Investigations in Network Science (SINS), Bertinoro International Center for Informatics, Bertinoro, Italy, October 2012
- [49] Current Challenges in Computing (CCubed) Conference: Network Science, Napa, CA, August 2012 (invited poster)
- [50] Lawrence Livermore National Laboratory, Network Security Innovation Center, Livermore, CA, April 2012
- [51] Lawrence Livermore National Laboratory, Center for Applied Scientific Computing, Livermore, CA, April 2012
- [52] Northern New Jersey Junior Science and Humanities Symposium, March 2012

### **Year 2011**

- [53] Northeastern University, The Barabási Lab, Boston, MA, December 2011
- [54] MIT, CSAIL, Cambridge, MA, December 2011
- [55] IBM Watson, Hawthorne, NY, November 2011
- [56] Lehigh University, Department of Computer Science & Engineering, Colloquium Talk, Bethlehem, PA, November 2011
- [57] UCLA IPAM, Workshop on Networks and Network Analysis for the Humanities, Los Angeles, CA, October 2011
- [58] Jive Software, Palo Alto, CA, August 2011
- [59] Lawrence Livermore National Laboratory, Center for Applied Scientific Computing, Livermore, CA, August 2011
- [60] The 3<sup>rd</sup> International Workshop on Social Network Analysis (ARS), Naples, Italy, June 2011
- [61] NSF-sponsored Workshop on Social-Computational Systems (SoCS), Minneapolis, MN, June 2011

- [62] Jozef Stefan Institute, Ljubljana, Slovenia, June 2011
- [63] Ludwig-Maximilians-Universität München, Munich, Germany, June 2011
- [64] D.E. Shaw Research & Development, New York, NY, May 2011
- [65] TEDx Rutgers, Piscataway, NJ, April 2011
- [66] Rutgers University, Perceptual Science Talk Series, Piscataway, NJ, April 2011
- [67] IEEE Computer Society – North Jersey Section, Data Mining Seminar, Teaneck, NJ, April 2011
- [68] Rutgers University, Department of Computer Science, Open House, Piscataway, NJ, April 2011
- [69] NYU, Courant Institute, Machine Learning Seminar, New York, NY, April 2011
- [70] Princeton University, Machine Learning Seminar, Princeton, NJ, March 2011
- [71] High Tech Crimes Investigation Association (HTICA) – Northeast Chapter, New York, NY, March 2011

### **Year 2010 and before**

- [72] Rutgers University, Yahoo!-sponsored Machine Learning Seminar Series, Piscataway, NJ, November 2010
- [73] Rutgers University, DIMACS, Interdisciplinary Seminar Series, Piscataway, NJ, October 2010
- [74] Telcorida, Piscataway, NJ, October 2010
- [75] UCLA IPAM, NEH-sponsored Workshop on Networks and Network Analysis for the Humanities, Los Angeles, CA, August 2010
- [76] ACM SIGKDD Workshop on Large-Scale Data Mining: Theory and Applications, Washington, DC, July 2010
- [77] USA/Canada Mathcamp, June 2010
- [78] Google, Mountain View, CA, March 2010
- [79] University of California at Merced, Electrical Engineering and Computer Science Technical Seminar Series, Merced, CA, December 2009
- [80] Lawrence Berkeley National Laboratory, Data Intensive Systems Group, Berkeley, CA, December 2009
- [81] Rutgers University, DHS Fellows Seminar Series, Piscataway, NJ, September 2009
- [82] Rutgers University, Department of Computer Science, Colloquium Talk, Piscataway, NJ, April 2009
- [83] Indiana University, School of Informatics, Informatics Colloquium, Bloomington, IN, February 2009
- [84] University of Rochester, Computer Science Department, Department Seminar Series, Rochester, NY, December 2008
- [85] University of Wisconsin-Madison, Computer Sciences Department, AI Seminar, Madison, WI, September 2008
- [86] Yahoo!, Santa Clara, CA, August 2008
- [87] The 2008 SIAM Annual Meeting, Mini-symposium on Toward Real-Time Analysis of Networks, San Diego, CA, July 2008
- [88] University of Southern California, Information Sciences Institute, AI Seminar, Marina del Ray, CA, December 2007
- [89] UCLA IPAM, Program on Mathematics of Knowledge and Search Engines, Workshop III: Social Data Mining and Knowledge Building, Los Angeles, CA, November 2007
- [90] 15th Bay Area Discrete Math Day (BADMath Day XV), Googleplex, Mountain View, CA, October 2007

- [91] UCLA IPAM, Workshop on NSF Cyber-Enabled Discovery and Innovation Program: Knowledge Extraction, Los Angeles, CA, October 2007
- [92] UCLA IPAM, Program on Mathematics of Knowledge and Search Engines, Workshop I: Dynamic Searches and Knowledge Building, Los Angeles, CA, October 2007
- [93] Rutgers University, DIMACS/DyDAn Workshop on Computational Methods for Dynamic Interaction Networks, Piscataway, NJ, September 2007
- [94] Army Research Office (ARO) Workshop on Abductive Reasoning, College Park, MD, August 2007
- [95] University of Maryland, College Park, Department of Computer Science, LINQS Seminar, College Park, MD, August 2007
- [96] University of Illinois at Urbana-Champaign, Multimodal Information Access and Synthesis Center (MIAS), Data Sciences Summer Institute, Urbana-Champaign, IL, July 2007
- [97] Carnegie Mellon University, Database Seminar, Pittsburgh, PA, June 2007
- [98] Rutgers University, Institute for Discrete Sciences Workshop on Associating Semantics with Graphs, Piscataway, NJ, April 2007
- [99] Rutgers University, Center for Dynamic Data Analysis, DyDan Homeland Security Seminar, Piscataway, NJ, March 2007
- [100] San Jose State University, Department of Mathematics, Colloquium Series, San Jose, CA, March 2007
- [101] University of California at Davis, Center for Computational Science and Engineering, Complex Systems Seminar, Davis, CA, November 2006
- [102] SRI International, Artificial Intelligence Center, Menlo Park, CA, November 2006
- [103] Siemens Medical, Malvern, PA, August 2006
- [104] University of San Francisco, Department of Computer Science, San Francisco, CA, November 2005
- [105] Los Alamos National Laboratory, ADVISE Machine Learning Workshop, Los Alamos, CA, August 2005
- [106] UCLA IPAM, Graduate Summer School on Intelligent Extraction of Information from Graphs and High-dimensional Data, July 2005
- [107] University of Texas at Austin, Department of Computer Sciences, Forum for Artificial Intelligence, Austin, TX, November 2004
- [108] SRI International, Artificial Intelligence Center, Menlo Park, CA, October 2004
- [109] University of California at Davis, Department of Computer Science, Computer Science Colloquium, Davis, CA, November 2003
- [110] Lawrence Livermore National Laboratory, Institute for Scientific Computing Research, Summer Lecture Series, Livermore, CA, July 2003
- [111] Stanford University, Center for the Study of Language and Information (CSLI), Seminar on Computational Learning and Adaptation, Stanford, CA, March 2003
- [112] California Institute of Technology, Computer Science Department, Pasadena, CA, January 2002
- [113] Research, Careers, and Computer Science: A Maryland Symposium, College Park, MD, November 2001
- [114] Lawrence Livermore National Laboratory, Livermore, CA, March 2001
- [115] IBM Watson Research Center, Yorktown, NY, March 2001
- [116] RAND Corporation, Santa Monica, CA, February 2001
- [117] MIT Lincoln Lab, Lexington, MA, February 2001

[118] University of New Mexico, Department of Computer Science, Albuquerque, NM, April 2000

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## **Teaching Experience & Tutorials** (material available at <http://eliassi.org/>)

### **Curriculum Development at Rutgers University**

- Created a 4-credit upper-level undergraduate course on “Introduction to Data Science” (CS 439), approved in Spring 2015

### **Teaching at Rutgers University**

- Fall 2015: Pattern Recognition: Theory & Applications (CS 535, 3 credits, graduate course)
- Spring 2015: Introduction to Data Science (CS 443, 3 credits, undergraduate special topics course)
- Fall 2014: Topics in AI: Machine Learning with Large-scale Data (CS 598, 3 credits, graduate course)
- Spring 2014: Machine Learning (CS 536, 3 credits, graduate course)
- Fall 2013: Introduction to Data Science (CS 444, 3 credits, undergraduate special topics course)
- Spring 2013: Information in Networks (CS 672, 3 credits, graduate seminar)
- Spring 2012: Machine Learning (CS 536, 3 credits, graduate course)
- Fall 2011: Introduction to Network Science (CS 442, 4 credits, undergraduate special topics course)
- Spring 2011: Graph Mining and Network Analysis (CS 672, 3 credits, graduate seminar)
- Spring 2011: Light Seminar on Machine Learning (CS 500, 1 credit, graduate course)

### **Tutorials**

- 2015 International World Wide Web Conference (WWW’15): Mining Mobility Data (with Spiros Papadimitriou), Florence, Italy, May 2015
- 2014 IEEE International Conference on Data Mining (ICDM’14): Node and Graph Similarity: Theory and Applications (with Danai Koutra and Christos Faloutsos), Shenzhen, China, December 2014
- 2014 SIAM International Conference on Data Mining (SDM’14): Node Similarity, Graph Similarity and Matching: Theory and Applications (with Danai Koutra and Christos Faloutsos), Philadelphia, PA, April 2014
- 2013 European Conference on Machine Learning and Principles and Practice of Knowledge Discovery In Databases (ECML PKDD 2013): Discovering Roles and Anomalies in Graphs: Theory and Applications (with Christos Faloutsos), Prague, Czech Republic, September 2013
- 2013 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD’13): Mining Data from Mobile Devices: A Survey of Smart Sensing and Analytics (with Spiros Papadimitriou), Chicago, IL, August 2013
- 2012 SIAM International Conference on Data Mining (SDM’12): Discovering Roles and Anomalies in Graphs: Theory and Applications (with Christos Faloutsos), Anaheim, CA, April 2012

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## **Advising & Mentoring**

### **Postdoctoral (PD) Scholars at Rutgers University**

- Sucheta Soundarajan (Ph.D., Cornell University)

- First employment after PD: Assistant Professor (tenure track) at Syracuse University
- Mengxiao Zhu (Ph.D., Northwestern University; co-mentors at Rutgers University: Marya Doerfel & Matthew Weber)
  - First employment after PD: Research Scientist at ETS Research, Princeton, NJ
- Michele Berlingiero (Ph.D., IMT Lucca, Italy)
  - First employment after PD: Research Scientist at IBM Research & Development, Dublin, Ireland
- Senjuti Basu Roy (Ph.D., University of Texas at Arlington)
  - First employment after PD: Assistant Professor (tenure track) at Univ. of Washington, Tacoma

#### **Ph.D. Students at Rutgers University**

- Priya Govindan (since Fall 2010)
- Mangesh Gupte (Summer 2011)
- Chetan Tonde (Summer & Fall 2011)
- Matthew Muscari (Summer 2011 to Summer 2012)
- Chaolun Xia (AY 2011-12)
- Xiaoye Han (Fall 2012)
- Chuxu Zhang (since Fall 2013)

#### **Other Ph.D. Thesis Committees**

- Vukosi Marivate (Rutgers University, 2014)
- Monica Babes-Vroman (Rutgers University, 2014)
- Ishani Chakraborty (Rutgers University 2013)
- Gayatree Ganu (Rutgers University, 2013)
- Fei Yang (Rutgers University, 2013)
- Xinyi Cui (Rutgers University, 2013)
- Nicholas Michael (Rutgers University, 2011)
- Shaoting Zhang (Rutgers University, 2011)
- Junzhou Huang (Rutgers University, 2011)
- Zeqian Shen (University of California Davis, 2009)

#### **Graduate Interns at Lawrence Livermore National Laboratory (2001-2009)**

- Marios Iliofotou (Ph.D., University of California Riverside)
- Brian Thompson (Ph.D., Rutgers University)
- Kurt T. Miller (Ph.D., University of California Berkeley)
- Aria Haghighi (Ph.D., University of California Berkeley)
- Tom Ouyang (Ph.D., MIT)
- Christopher L. Baker (Ph.D., MIT)
- David L. Roberts (Ph.D., Georgia Institute of Technology)

#### **Masters Students at Rutgers University**

- Nishchal Devanur (2011, co-advised with James Abello; first employment: Credit Suisse)

- Long T. Le (2014; continuing Ph.D. at Rutgers School of Communication and Information)
- Xiao Lin (expected 2015)

### **Undergraduate Students**

- Rutgers School of Arts & Sciences (SAS) Honors Program
  - Jason Krasnits (AY 2013-14)
  - Arpit Shah (AY 2013-14)
  - Evan Amster (AY 2013-14)
  - Brandon Diaz-Abreu (AY 2013-14)
  - Timothy Elbert (AY 2013-14)
  - Snigdha Paka (AY 2013-14)
  - Vaibhav Sharma (AY 2012-13)
  - Mita Joshi (AY 2011-12)
- Cristina Ruiz (co-advisee, Yale University), AY 2011-12
- NSF-sponsored Research Experience for Undergraduates (REU), Rutgers University
  - Florentina Ferati (Texas Lutheran University, Summer 2011)
  - Jack Murtagh (Tufts University, Summer 2011)
- Independent Study, Rutgers University
  - Hilal Genc (Spring 2011)
- UCLA IPAM Research in Industrial Partnership (RIPS) Program
  - Marcelo Alvisio (MIT, Summer 2006)
  - Christine Kim (Bryn Mawr University, Summer 2006)
  - Vyacheslav Kungurtsev (Duke University, Summer 2006)
  - Cory Nathe (Augsburg College, Summer 2006)

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### **Professional Activities**

#### **Affiliated Faculty**

- Center for Computational Biomedicine, Imaging and Modeling (CBIM), Rutgers University, Piscataway, NJ, 9/2010 to present
- Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), Rutgers University, Piscataway, NJ, 9/2010 to present
- Rutgers Center for Cognitive Science (RuCCS), Rutgers University, Piscataway, NJ, 9/2010 to present
- Center for Dynamic Data Analytics (CDDA), Rutgers University and SUNY Stony Brook, 2011 to present
- Rutgers Center for Information Assurance (RCIA), Rutgers University, Piscataway, NJ, 10/2011 to present
- Rutgers Business School (RBS), Dept. of Management Science & Information Systems (MSIS), 9/2013 to present



## Editorial Board Member

- Associate Editor, IEEE Transactions on Knowledge and Data Engineering (TKDE), April 2015 to present
- Editorial Board Member, Springer Encyclopedia of Machine Learning and Data Mining, August 2014 to present
- Action Editor, Data Mining and Knowledge Discovery (DMKD), Springer, September 2009 to present

## Journal Referee

- Proceedings of the National Academy of Sciences (PNAS)
- Data Mining and Knowledge Discovery (DMKD)
- ACM Transactions on Knowledge Discovery from Data (TKDD)
- IEEE Transactions on Knowledge Discovery from Data (TKDE)
- Machine Learning Journal (MLJ)
- Journal of Machine Learning Research (JMLR)
- Knowledge and Information Systems (KAIS)
- SIAM Journal on Optimization
- IEEE Transactions on Systems, Man, and Cybernetics Part C: Applications & Reviews
- Journal of Applied Logic
- Journal of Information Science and Engineering
- International Journal of Computers and their Applications, Special Issue on Intelligent Agents

## Program Committee Member

- National Conference on Artificial Intelligence (AAAI): 2006, 2007, 2008, 2012, 2013 (Senior PC)
- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD): 2004, 2005, 2007, 2010, 2011, 2012, 2013, 2014 (Senior PC), 2015 (Senior PC)
- IEEE International Conference on Data Mining (ICDM): 2003, 2004, 2006, 2007, 2008, 2009, 2010 (Vice PC Chair), 2011, 2012, 2013, 2014 (Area Chair)
- SIAM International Conference on Data Mining (SDM): 2008, 2011, 2012, 2013 (Senior PC), 2015 (Senior PC), 2016 (Senior PC)
- International Conference on Machine Learning (ICML): 2008, 2009, 2010, 2011, 2012, 2013
- Neural Information Processing Systems (NIPS): 2011 (Reviewer), 2012 (Area Chair), 2013 (Reviewer)
- European Conference on Machine Learning (ECML) / European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD): 2006, 2007, 2008, 2011, 2012 (Area Chair), 2013
- Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD): 2007, 2009, 2010
- International World Wide Web Conference (WWW): 2006 (Data Mining Track), 2012 (Social Network Track), 2013 (Web Mining Track)
- International Conference on Web Search and Data Mining (WSDM): 2013
- ACM International Conference on Information and Knowledge Management (CIKM): 2013, 2015 (Senior PC)

- ACM Conference on Online Social Networks (COSN): 2013, 2015
- ACM Symposium for Applied Computing (SAC): 2006, 2007, 2008
- IEEE International Conference on Big Data (BigData): 2013
- KDD Workshop on Interactive Data Exploration and Analytics (IDEA): 2013, 2014, 2015
- KDD Workshop on Outlier Definition, Detection, and Description (ODDx3): 2015
- NIPS Workshop on Machine Learning for Social Computing: 2010
- International Workshop on Mining and Learning with Graphs (MLG): 2010, 2011, 2012, 2013
- SIGMOD/PODS Workshop on Dynamic Networks Management and Mining (DyNetMM): 2013
- WWW Workshop on Big Graph Mining (BGM), 2014
- IEEE International Conference on Social Computing (SocialCom): 2009
- International Conference on Web Information Systems Engineering (WISE): 2005
- IADIS International Conference on WWW/Internet: 2004, 2005
- ACM SIGKDD Workshop on Large-scale Data Mining: Theory and Applications (LDMTA): 2011
- ACM SIGKDD Workshop on Social Network Mining and Analysis (SNA-KDD): 2007, 2008, 2009, 2010, 2011
- ACM SIGKDD Workshop on Social Media Analytics (SoMA): 2010
- CIKM Workshop on Complex Networks in Information & Knowledge Management (CNIKM): 2009
- IEEE ICDM Workshop on Analysis of Dynamic Networks (ICDM-ADN): 2008
- IEEE ICDM Workshop on Mining Graphs and Complex Structures (MGCS): 2007
- IJCAI Workshop on Link Analysis in Heterogeneous Information Networks: 2011
- ECML/PKDD Workshop on Finding Patterns of Human Behaviors in Network and Mobility Data (NEMO): 2011
- SIAM SDM Workshop Analysis of Dynamic Networks (SDM-ADN): 2009
- SIAM SDM Workshop on Networks (SDM-Networks): 2014, 2015
- AAAI Fall Symposium on Capturing and Using Patterns for Evidence Detection: 2006
- IEEE GlobeCom Workshop on Future User Centric Experiences: 2010
- IEEE International Conference on Data Mining (ICDM), PhD Forum: 2011
- Workshop on Parallel and Distributed Computing for Machine Learning and Inference Problems (ParLearning), in conjunction with the IEEE International Parallel & Distributed Symposium (IPDPS): 2012

### **Organizing Committee Member**

- Co-organizer, UCLA Institute for Pure and Applied Mathematics (IPAM) Program on “Culture Analytics in the Age of Big Data,” Spring 2016
- Workshop Co-chair, The 21st ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), August 2015
- Workshop Co-chair, The 2014 SIAM International Conference on Data Mining (SDM), April 2014
- Co-organizer, The 2011 IEEE ICDM Workshop on Data Mining Technologies for Computational Collective Intelligence (DMCCI), December 2011
- Co-organizer, NSF-sponsored Workshop on “Algorithms in the Field,” May 2011
- Co-organizer, Yahoo!-Rutgers Machine Learning Seminar, Academic Year 2010-11

- Tutorial Co-chair, The 16th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), July 2010
- Co-organizer, UCLA IPAM Program on “Networks and Network Analysis for the Humanities: An NEH Institute for Advanced Topics in Digital Humanities,” August 2010
- Co-organizer, The 2009 SIAM Conference on Computational Science and Engineering (CSE), March 2009
- Chair, Mini-symposium on “Toward Real-Time Analysis of Networks,” The 2008 SIAM Annual Meeting (AN), July 2008
- Co-chair, New Investigators Track, The Grace Hopper Celebration for Women in Computing, 2007
- Proceedings Chair, The 12th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), August 2006
- Organizer, Institute for Terascale Simulation (ITS) Lecture Series (sponsored by NNSA’s Advanced Simulation and Computing Program), 2006, 2007, 2008, 2009
- Co-organizer, UCLA IPAM Graduate Summer School on *Intelligent Extraction of Information from Graphs and High-dimensional Data*, Summer 2005
- Co-organizer, DHS Data Sciences Workshop, Fall 2004

### **Grant Panel Member and Reviewer**

- NSF Review Panels, Spring 2003, Winter 2005, Spring 2005, Fall 2007, Spring 2008, Spring 2012, Fall 2012, Fall 2013
- Air Force Office of Scientific Research (AFOSR), Fall 2007 and Summer 2009
- NSF CISE Ad-hoc Reviewer, Fall 2007, Spring 2008, and Fall 2008
- DOE/NNSA Proliferation Detection Program, 2006 and 2007
- ONR/DHS Institute for Discrete Sciences, University Affiliate Centers, 2006
- Lawrence Livermore National Laboratory (LLNL), University Collaborative Research Program, 2003

### **Academic Committee Member**

- Appointments and Promotions Committee, School of Arts and Sciences, Rutgers University, Spring 2015-Spring 2017
- PhD Admission Committee, Department of Computer Science, Rutgers University, 2010-11, 2011-12, 2012-13, 2013-14
- MS Admission Committee, Department of Computer Science, Rutgers University, 2010-11, 2011-12, 2012-13, 2013-14, 2014-15
- Faculty Mentor for the School of Arts and Sciences Honors Program, Rutgers University, 2011-12, 2012-13, 2013-14, 2014-15
- Rutgers Day Committee, Department of Computer Science, Rutgers University, 2011-12
- Admissions Committee, Computer Sciences Department, University of Wisconsin-Madison, 1998-99

### **Miscellaneous**

- Invited participant at the Workshop on Humanitarian Informatics, Georgetown University, Washington, DC, June 2015
- Invited participant at the Opening Governance Workshop, Center for Advanced Study in the Behavioral Sciences (CASBS), Stanford University, May 2015

- Invited participant at the DOE ASCR Cybersecurity Workshop, Rockville, MD, January 2015
- Invited participant at the ARO Meeting on “Computing Sciences Strategy Planning,” Adelphi, MD, October 2014
- Invited participant at the NITRD Meeting on “Data to Knowledge to Action: Building New Partnerships,” Washington, DC, November 2013
- Invited participant at the DTRA Workshop on AI and Autonomous Systems, Arlington, VA, October 2011
- Invited participant at the 7th Annual Google Faculty Summit, New York City, NY, July 2011
- Member of DOE Workshop for Cyber Security Research Needs for Open Science, Summer 2007
  - Lead author of Monitoring and Detection’s Priority Research Direction on “Verification of Intended Use”
- Referee for the 22nd National Conference on Artificial Intelligence (AAAI), Member Abstracts, 2006
- Referee for New Generation of Data Mining Applications, Wiley Publishers, Fall 2003
- Referee for the 18th National Conference on Artificial Intelligence (AAAI), Student Abstract and Poster Program, 2002

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## **Outreach Activities**

- Breakfast at the Barracks, Rutgers iTV Studio, November 2011
- Panel Member, CRA-W Career Mentoring Workshop, Spring 2005 and Summer 2009
- Organizer, LLNL Graph Analysis Working Group, Fall 2005 and Spring 2006
- Member, MIT Recruiting Team for LLNL Computation Directorate, 2005-06 and 2006-07
- Panel Member, Grace Hopper Celebration of Women in Computing Conference, Fall 2004

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## **Professional Societies**

- Association for Advancement of Artificial Intelligence (AAAI)
- Association for Computing Machinery (ACM) and ACM SIGKDD
- Institute of Electrical and Electronics Engineers (IEEE)
- Society for Industrial and Applied Mathematics (SIAM)

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## **References**

Available upon request.