

# HANGHANG TONG

Arizona State University, 699 S. Mill Ave., Tempe, AZ 85241  
Phone: 480-727-1431 | Email: hanghang.tong@gmail.com | Web: tonghanghang.org

## RESEARCH INTEREST

Large scale data mining and machine learning, especially for graph data with applications to social networks analysis, healthcare, transportation, cyber-security, e-commerce, etc.

## EDUCATION

### Carnegie Mellon University

Pittsburgh, PA

- *Ph.D in Machine Learning, Nov., 2009*
  - Dissertation: "Fast Algorithms for Querying and Mining Large Graphs"
  - Advisor: Christos Faloutsos
- *M.Sci. in Machine Learning, Sep., 2008*
  - Thesis: "Center-Piece Subgraphs: Problem Definition and Fast Solutions"
  - Advisor: Christos Faloutsos

### Tsinghua University

Beijing, China

- *M.Eng. in Pattern Recognition and Intelligent System, Jul., 2005*
  - Thesis: "Machine Learning for Internet Traffic Prediction and Anomaly Detection"
  - Advisor: Chongrong Li
- *B.Eng. in Automation, Jul., 2002*

## EMPLOYMENT HISTORY

- Assistant Professor, Arizona State University Aug. 2014 – Present
- Assistant Professor, City College, City University of New York Jan. 2013 – Aug. 2014
- Research Staff Member, IBM T.J. Watson Research Center Jul. 2010 – Jan. 2013
- Post-Doctoral Fellow, Carnegie Mellon University Dec. 2009 – Jul. 2010

## AWARDS AND HONORS

- ACM CIKM'17 Best Demo Candidate (Second Place), 2017 ACM
- ACM SIGMOD'17 Best Demo, Honorable Mention, 2017 ACM
- NSF CAREER Award, 2017 NSF
- ACM TKDD on "Best Papers of ACM TKDD 2016", 2016 ACM
- IEEE ICDM 2015 10-Year Highest Impact Paper Award, 2015 IEEE
- Springer Knowl. Inf. Syst. (KAIS) on "Bests of ICDM 2015", 2015 Springer
- Best Paper Award, IEEE Tsinghua Science and Technology, 2015 IEEE
- Statistical Analysis and Data Mining on "Bests of SDM 2015", 2015 Wiley
- "Data Mining Reveals the Secret to Getting Good Answers", MIT Tech. Review, 2013 MIT
- Best Paper Award, ACM CIKM, 2012 ACM
- IBM Research Accomplishment Award on "Social & Cognitive Network Science", 2012 IBM
- Statistical Analysis and Data Mining on "Bests of SDM 2011", 2011 Wiley
- Frontiers of Computer Science on "Bests of ICDM 2010", 2010 Springer
- Best Paper Award, 2008 SIAM Conference on Data Mining (SDM), 2008 SIAM
- Best Research Paper Award, IEEE ICDM, 2006 IEEE

## RESEARCH GRANTS

### Summary & Highlights

- Total Funding: more than \$42M (\$27M at ASU)
- Total Funding as PI: more than \$5.5M (\$4,789,979 at ASU)
- Total Personal Share (as of 09/19/2017): more than \$5M (\$4,153,492 at ASU)

### 2013-present (at CUNY & ASU)

- *PI* in an NSF grant: “CAREER: Network Robustification: Theories, Algorithms and Applications” (\$511,827, 8/1/2017 – 7/31/2022, *personal share*: \$511,827)
- *PI* in a Futurewei gift: “Towards the Next Generation of AI Framework based on Cognitive Graph Computing” (\$260,001, 8/1/2017-7/31/2018, *personal share*: \$260,001)
- *PI* in an ARO grant: “Towards Optimal Teams in Composite Networks” (\$366,027, 4/2016-3/2019, *personal share*: \$366,027)
- *PI* in a DTRA grant: “Towards a Theory of Closed-Loop Robustness for Real-Time Learning and Control of Multilayered Networks under Cascading Failures” (\$749,634, 2/2/2016-2/1/2021, *PI*: Tong, co-*PI*: Ying, *personal share*: \$374,817)
- *PI* in a Baidu USA gift: “Mining Health Related Websites” (\$25,000, *personal share*: \$25,000)
- *Lead PI* in an NSF grant: “EAGER: Collaborative Research: Correspondence Discovery in Disparate Networks” (\$100,000, 8/1/2017-7/31/2018, *PIs*: Tong (lead) and Koutra, *personal share*: \$50,000)
- *ASU PI* in a DARPA grant: “Complex Analytics of Network of Networks for Modeling of Adversarial Activity” (total budget for ASU: \$2,748,468, 9/8/2017-9/7/2021, *PI*: Tong, co-*PI*: He and Bliss, *personal share*: \$1,374,234)
- *Co-I* in a DHS grant: “Center of Excellence for Accelerating Operational Efficiency (CAOE)” (\$20M (expected), 9/1/2017-8/31/2022, *personal share*: \$800,000)
- *Co-PI* in an NSF grant: “III: Small: Towards a Theoretical Foundation for Diffusion Source Localization” (\$500,000, 9/1/2017-8/31/2020, *personal share*: \$250,000)
- *Senior Personnel* in an NSF grant: “CRI: An Energy-Efficient Big Data Research Infrastructure with Heterogeneous Computing and Storage Resources” (\$749,999, 9/1/2016-8/31/2019, *PI*: Zhao, *personal share*: \$67,499)
- *Co-PI* in an NIH RO1 grant: “Drug discovery by integrating chemical genomics and structural systems biology” (\$1M, 9/1/2014-8/31/2018, *PI*: Xie, co-*PIs*: Bourne, Krinkman, Honig and Tong, *personal share*: \$45,065)
- *Co-PI* in an UTRC2 proposal: “Smarter Multi-modal Traffic Signal Control with Both Floating Sensor Network and Fixed Sensor Network” (\$80K, 1/1/2015-8/31/2015, *PI*: Q. He, co-*PI*: H. Tong, *personal share*: \$29,021)
- *PI* and *task lead* in Social and Cognitive Networks Academic Research Center (SCNARC) by ARL: “Composite Networks in Organization and Team Performance”. Contract No. W911NF-09-2-0053: (\$86K, 9/1/2013-8/31/2014)

### 2010-2012 (at CMU & IBM)

- *PI*, *task lead* and *project lead* in Social and Cognitive Networks Academic Research Center (SCNARC) by ARL: “Composite Networks in Organization and Team Performance”. Contract No. W911NF-09-2-0053: (\$240K, 9/2012-8/2013)
- *Co-PI* and *task lead* in a DARPA grant: “Multi-Aspect Abnormal Behavior Detection”. Contract No. W911NF-11-C-0200 (\$4,789,938, 5/2011-4/2013, *PI*: C. Lin, co-*PI*: H. Tong)
- *Co-PI* and *task lead* in a DARPA grant: “Understand and Utilize Context-Aware Information Dissemination in Social Media”. Contract No. W911NF-12-C-0028, (\$8,987,156, 2/2012-1/2015, *PI*: C. Lin, co-*PIs*: Z. Wen, H. Tong)
- *PI* and *task lead* in Social and Cognitive Networks Academic Research Center (SCNARC) sponsored by ARL: “Composite Networks in Organization and Team Performance”. Contract No. W911NF-09-2-0053: (\$219,220, 9/2011-8/2012)
- *PI* in Social and Cognitive Networks Academic Research Center (SCNARC) sponsored by ARL: “Scientific Challenges of Large-Scale and Real-Time Network Mining Infrastructure”. Contract No. W911NF-09-2-0053: (\$319,634, 9/2010-8/2011)
- *Co-PI* in a NSF grant: “III:Small: Influence and Virus Propagation in Large Graphs - Theory and Algorithms”, (\$499K, 6/2010-5/2012, *PI*: C. Faloutsos, co-*PI*: H. Tong)

## PUBLICATIONS

### Summary & Highlights

- 1 ‘test of time’ award, 4 best paper awards, 5 ‘bests of the conferences’ awards, 2 best demo finalists
- 6,000+ citations (Google Scholar, 12/5/2017)
- 40+ h-index (Google Scholar, 12/5/2017)
- Invited Book Chapters Published: 3
- Refereed Conference Papers: 97
- Refereed Journal Publications (Published, In Press, and /or Accepted): 34
- Journal Editorials: 4
- Technical Papers (unreferreed): 15
- Intellectual Property: Patents 15; Patents pending 11

### Book Chapters

1. H. Tong and U Kang. Big Data Clustering. Book chapter in “Data Clustering: Algorithms and Applications”. 2012: 255-272. Publish by CRC Press.
2. H. Tong, S. Papadimitriou, P.S. Yu and C. Faloutsos. Proximity Tracking on Dynamic Bipartite Graphs: Problem Definitions and Fast Solutions. Book Chapter in “Link Mining: Models, Algorithms and Applications” 2010, Part 2, 211-236.
3. H. Tong, Y. Koren, and C. Faloutsos. Direction-Aware Proximity on Graphs. Book chapter in “Encyclopedia of Data Warehousing and Mining” 2009: 646-653.

### Refereed Journal Publications

1. C. Chen, J. He, N. Bliss and H. Tong: Towards Optimal Connectivity on Multi-layered Networks. IEEE Trans. Knowl. Data Eng., 29(10): 2332-2346 (2017)
2. C. Chen, H. Tong, L. Xie, L. Ying and Q. He: Cross-Dependency Inference in Multi-layered Networks: A Collaborative Filtering Perspective. ACM TKDD 2017, 42:1-42:26 [**“Best of KDD’16”**]
3. C. Chen, H. Tong: On the eigen-functions of dynamic graphs: Fast tracking and attribution algorithms. Statistical Analysis and Data Mining 10(2): 121-135 (2017) [**“Best of SDM’15”**]
4. L. Li, H. Tong, N. Cao, K. Ehrlich, Y. Lin, N. Buchler: Enhancing Team Composition in Professional Networks: Problem Definitions and Fast Solutions. IEEE Trans. Knowl. Data Eng. 29(3): 613-626 (2017)
5. Y. Yao, H. Tong, F. Xu, J. Lu: On the Measurement and Prediction of Web Content Utility. A Review. SIGKDD Explorations 19(2): 1-12 (2017)
6. C. Chen, H. Tong, B. Prakash, T. Eliassi-Rad, M. Faloutsos, C. Faloutsos: Eigen-Optimization on Large Graphs by Edge Manipulation. ACM Transactions on Knowledge Discovery from Data. TKDD 10(4): 49:1-49:30 (2016)
7. C. Chen, H. Tong, B. Prakash, C. Tsourakakis, T. Eliassi-Rad, C. Faloutsos, D. Chau: Node Immunization on Large Graphs: Theory and Algorithms. IEEE TKDE 2016: 113-126 (2016)
8. X. Su, H. Tong and P. Ji: “Activity Recognition with Smartphone Sensors”, Tsinghua Science and Technology, 19 (3), 235-249, 2014 [**Best Paper Award**] [published in 2014, awarded received in 2015]
9. X. Su, H. Caceres, H. Tong, Q. He: Online Travel Mode Identification Using Smartphones With Battery Saving Considerations. IEEE Transactions on Intelligent Transportation Systems 17 (10), 2921-2934 (2016)
10. X. Yang, L. Shi, M. Daianu, H. Tong, Q. Liu, P. Thompson: Blockwise Human Brain Network Visual Comparison Using NodeTrix Representation. IEEE transactions on visualization and computer graphics, 23 (1), 181-190, (2017)
11. J. Ni, M. Koyuturk, H. Tong, J. Haines, R. Xu, X. Zhang: Disease gene prioritization by integrating tissue-specific molecular networks using a robust multi-network model. BMC bioinformatics 17 (1), 453 (2016) [13 pages, no page number]
12. J. Xu, Y. Yao, H. Tong, X. Tao, J. Lu: RaPare: A Generic Strategy for Cold-Start Rating Prediction Problem. IEEE Transactions on Knowledge and Data Engineering 29(6): 1296-1309 (2017)
13. H. Lim, A. Poleksic, Y. Yao, H. Tong, D. He, L. Zhuang, P. Meng, L. Xie: Large-Scale Off-Target Identification Using Fast and Accurate Dual Regularized One-Class Collaborative Filtering and Its Application to Drug Repurposing. PLOS Comput Biol 12 (10), e1005135. 2016. [26 pages, no page number]

14. Z. Zhang, Q. He, H. Tong, J. Gou, X. Li: Spatial-temporal traffic flow pattern identification and anomaly detection with dictionary-based compression theory in a large-scale urban network. *Transportation Research Part C: Emerging Technologies* 71, 284-302 (2016)
15. Y. Lin, H. Tong, J. Tang, K. Candan: Guest Editorial: Big Scholar Data Discovery and Collaboration. *IEEE Trans. Big Data* 2(1): 1-2 (2016)
16. L. Shi, H. Tong, J. Tang, C. Lin: VEGAS: Visual influEnce GrAph Summarization on Citation Networks. *IEEE TKDE* 27(12): 3417-3431 (2015)
17. Y. Yao, H. Tong, T. Xie, L. Akoglu, F. Xu, J. Lu: "Detecting high-quality posts in community question answering sites". *Inf. Sci.* 302: 70-82 (2015)
18. F. Shang, Y. Liu, H. Tong, J. Cheng, H. Cheng: "Robust bilinear factorization with missing and grossly corrupted observations" *Inf. Sci.* 307: 53-72 (2015)
19. L. Akoglu, H. Tong, D. Koutra: "Graph-based Anomaly Detection and Description: A Survey", *DAMI*, 29(3): 626-688, 2015
20. Y. Yao, H. Tong, X. Yan, F. Xu and J. Lu: "Multi-Aspect+Transitivity+Bias: An Integral Trust Inference Model. *TKDE*, 26(7): 1706-1719 (2014)
21. F. Shang, L.C. Jiao, Y. Liu, H. Tong. Semi-supervised learning with nuclear norm regularization. *Pattern Recognition*, 46(8): 2323-2336 (2013)
22. J. F. Rodrigues Jr., H. Tong, J.-Y. Pan, A. J. M. Traina, C. Traina Jr., C. Faloutsos. Large Graph Analysis in the GMine System. *IEEE TKDE* 25(1): 106-118 (2013)
23. Y. Yao, H. Tong, F. Xu, J. Lu: Pairwise trust inference by subgraph extraction. *Social Netw. Analys. Mining* 3(4): 953-968 (2013)
24. Y. Yao, F. Xu, Y. Ren, H. Tong, J. Lu: SelfTrust: leveraging self-assessment for trust inference in Internetware. *Science China Information Sciences* 56(10): 1-14 (2013)
25. F. Wang, H. Tong, P.S. Yu, C. Aggarwal: Guest editorial: special issue on data mining technologies for computational social science. *DMKD* 25(3): 415-419 (2012)
26. H. Tong, S. Papadimitriou, C. Faloutsos, P.S. Yu, T. Eliassi-Rad: Gateway finder in large graphs: problem definitions and fast solutions. *Information Retrieval* 15(3-4): 391-411 (2012)
27. J. He, H. Tong, J. Carbonell, An Effective Framework for Characterizing Rare Category, *Frontiers of Computer Science* 6(2): 154-165 (2012) ("**bests of ICDM 2010**")
28. U Kang, H. Tong, J. Sun, C. Lin and C. Faloutsos. GBASE: An Efficient Analysis Platform for Large Graphs. *VLDB J.* 21(5): 637-650 (2012)
29. C. Lin, L. Wu, Z. Wen, H. Tong, V. Griffiths-Fisher, L. Shi and D. Lubensky: Social Network Analysis in Enterprise. *Proceedings of the IEEE* 100, 2759-2776 (2012)
30. H. Tong and C. Lin. Non-Negative Residual Matrix Factorization: Problem Definition, Fast Solutions and Applications. *SAM* 5(1): 3-15 (2012) ("**bests of SDM 2011**")
31. H. Tong, S. Papadimitriou, P. S. Yu and C. Faloutsos. Fast Monitoring Proximity and Centrality on Time-Evolving Bipartite Graphs. *SAM* 1(3): 142-156 (2008) ("**bests of SDM08**")
32. H. Tong, C. Faloutsos, and J.-Y. Pan. Random Walk with Restart: Fast Solutions and Applications. *Knowl. Inf. Syst.* 14(3): 327-346 (2008)
33. H. Tong, J. He, M. Li, W.-Y. Ma, H.-J. Zhang, C. Zhang. Manifold-Ranking Based Keyword Propagation for Image Retrieval. *EURASIP J. Adv. Sig. Proc.* 1-10, (2006)
34. J. He, M. Li, H.-J. Zhang, H. Tong and C. Zhang. Generalized Manifold-Ranking Based Image Retrieval. *IEEE Transactions on Image Processing* 15(10): 3170-3177 (2006)

### Refereed Conference Publications

1. L. Li, H. Tong, Y. Wang, C. Shi, N. Cao and N. Buchler: Is the Whole Greater Than the Sum of Its Parts? *KDD 2017*: 295-304
2. D. Zhou, S. Zhang, M. Yildirim, S. Alcorn, H. Tong, H. Davulcu and J. He: A Local Algorithm for Structure-Preserving Graph Cut. *KDD 2017*: 655-664
3. B. Du, S. Zhang, N. Cao and H. Tong: FIRST: Fast Interactive Attributed Subgraph Matching. *KDD 2017*: 1447-1456

4. J. Xu, Y. Yao, H. Tong, X. Tao and J. Lu: HoORaYs: High-order Optimization of Rating Distance for Recommender Systems. KDD 2017: 525-534
5. F. Du, N. Cao, Y. Lin, P. Xu, H. Tong: iSphere: Focus+Context Sphere Visualization for Interactive Large Graph Exploration. CHI 2017: 2916-2927
6. S. Zhang, D. Zhou, M. Yildirim, S. Alcorn, J. He, H. Davulcu and H. Tong: HiDDen: Hierarchical Dense Subgraph Detection with Application to Financial Fraud Detection. SDM'17, 570-578 [*Student Travel Award*]
7. A. Nelakurthi, H. Tong, R. Maciejewski, N. Bliss and J. He: User-guided Cross-domain Sentiment Classification. SDM'17, 471-479 [*Student Travel Award*]
8. L. Li, H. Jing, H. Tong, J. Yang, Q. He, B. Chen: NEMO: Next Career Move Prediction with Contextual Embedding. WWW (Industrial track) 2017: 505-513
9. C. Xie, L. Chen, J. Liang, K. Zhang, Y. Xiao, H. Tong, H. Wang, W. Wang: Automatic Navbox Generation by Interpretable Clustering over Linked Entities. CIKM 2017: 1857-1865
10. L. Shi, S. Sun, Y. Xuan, Y. Su, H. Tong, S. Ma, Y. Chen: TOPIC: Toward perfect Influence Graph Summarization. ICDE 2016: 1074-1085
11. L. Li, Y. Yao, J. Tang, W. Fan and H. Tong: Quint: On query-specific optimal networks. KDD 2016: 985-994. [*Student Travel Award*]
12. S. Zhang, H. Tong: Final: Fast attributed network alignment. KDD 2016: 1345-1354 [*Student Travel Award*]
13. C. Chen, H. Tong, L. Xie, L. Ying and Q. He: Fascinate: Fast cross-layer dependency inference on multi-layered networks. KDD 2016: 765-774 [*Student Travel Award*, "**Bests of KDD16**"]
14. L. Li, H. Tong, J. Tang and W. Fan: iPath: Forecasting the Pathway to Impact. SDM 2016: 468-476
15. Y. Wu, Y. Yao, F. Xu, H. Tong, J. Lu: Tag2Word: Using Tags to Generate Words for Content Based Tag Recommendation. CIKM 2016: 2287-2292
16. R. Pienta, A. Tamersoy, A. Endert, S. Navathe, H. Tong, D. Chau: VISAGE: Interactive Visual Graph Querying. AVI 2016: 272-279
17. C. Chen, J. He, N. Bliss and H. Tong: On the Connectivity of Multi-layered Networks: Models, Measures and Optimal Control. ICDM 2015: 715-720 [*Student Travel Award*]
18. L. Shi, H. Tong, X. Mu: BrainQuest: Perception-Guided Brain Network Comparison. ICDM 2015: 379-388
19. R. Liu, W. Cheng, H. Tong, W. Wang, and X. Zhang: Robust Multi-Network Clustering via Joint Cross-Domain Cluster Alignment. ICDM 2015: 291-300 [Invited to KAIS "**Bests of ICDM 2015**"]
20. Z. Chen, H. Tong and L. Ying: Full Diffusion History Reconstruction in Networks. IEEE BigData 2015: 707-716
21. D. Yang, Y. Xiao, H. Tong, W. Cui, W. Wang: Towards Topic Following in Heterogeneous Information Networks. ASONAM 2015: 363-366
22. L. Li, H. Tong: The Child is Father of the Man: Foresee the Success at the Early Stage. KDD 2015: 655-664 [*Student Travel Award*]
23. Y. Cai, H. Tong, W. Fan, P. Ji and Q. He: Facets: Fast Comprehensive Mining of Coevolving High-order Time Series. KDD 2015: 79-88
24. J. Ni, H. Tong, W. Fan, and X. Zhang: Flexible and Robust Multi-Network Clustering. KDD 2015: 835-844
25. J. Zhang, J. Tang, C. Ma, H. Tong, Y. Jing, J. Li: Panther: Fast Top-k Similarity Search in Large Networks. KDD 2015: 1445-1454
26. L. Li, H. Tong, N. Cao, K. Ehrlich, Y. Lin, N. Buchler: Replacing the Irreplaceable: Fast Algorithms for Team Member Recommendation. WWW 2015: 636-646
27. N. Cao, Y. Lin, L. Li, H. Tong: g-Miner: Interactive Visual Group Mining on Multivariate Graphs. CHI 2015: 279-288
28. J. Xu, Y. Yao, H. Tong, X. Tao, J. Lu: Ice-Breaking: Mitigating Cold-Start Recommendation Problem by Rating Comparison. IJCAI 2015: 3981-3987
29. D. Yang, Y. Xiao, H. Tong, J. Zhang, W. Wang: An Integrated Tag Recommendation Algorithm Towards Weibo User Profiling. DASFAA (1) 2015: 353-373
30. H. Wang, W. Cui, Y. Xiao, H. Tong: Robust network construction against intentional attacks. BigComp 2015: 279-286
31. L. Li, H. Tong, Y. Xiao and W. Fan: Cheetah: Fast Graph Kernel Tracking on Dynamic Graphs. SDM 2015: 280-288

32. Y. Cai, H. Tong, W. Fan and P Ji: Fast Mining of a Network of Coevolving Time Series. SDM 2015: 298-306 [*Student Travel Award*]
33. C. Chen and H. Tong: Fast Eigen-Functions Tracking on Dynamic Graphs. SDM 2015: 559-567 [*Student Travel Award*] , [**Invited to SAM SI on 'Best of SDM'15'**]
34. L. Le, T. Eliassi-Rad and H. Tong: MET: A Fast Algorithm for Minimizing Propagation in Large Graphs with Small Eigen-Gaps. SDM 2015: 694-702
35. Y. Yao, H. Tong, G. Yan, F. Xu, X. Zhang, B.K. Szymanski, and J. Lu: Dual-Regularized One-Class Collaborative Filtering. CIKM 2014: 759-768
36. Y. Yao, H. Tong, F. Xu, and J. Lu: Predicting Long-Term Impact of CQA Posts: A Comprehensive Viewpoint. KDD 2014: 1496-1505
37. J. Ni, H. Tong, W. Fan, and X. Zhang: Inside the atoms: ranking on a network of networks. KDD 2014: 1356-1365
38. L. Shi, H. Tong, J. Tang, C. Lin: Flow-Based Influence Graph Visual Summarization. ICDM 2014: 983-988
39. R. Pienta, A. Tamersoy, H. Tong and D. Chau: Matching Approximate Patterns in Richly-Attributed Graphs. BigData 2014: 585-590
40. L. Shi, Q. Liao, H. Tong, Y. Hu, Y. Zhao, C. Lin: Hierarchical Focus+Context Heterogeneous Network Visualization. PacificVis 2014: 89-96
41. Y. Yao, H. Tong, T. Xie, L. Akoglu, F. Xu and J. Lu: Joint Voting Prediction for Questions and Answers in CQA. ASONAM 2014: 340-343
42. Y. Liu, F. Shang, H. Cheng, J. Cheng, H. Tong: Factor Matrix Trace Norm Minimization for Low-Rank Tensor Completion. SDM 2014: 866-874
43. H. Chan, L. Akoglu, H. Tong: Make It or Break It: Manipulating Robustness in Large Networks. SDM 2014: 325-333
44. J. Pudipeddi, L. Akoglu, H. Tong: User churn in focused question answering sites: characterizations and prediction. WWW 2014 (web science track): 469-474
45. D. Koutra, H. Tong and D. Lubensky: BIG-Align: Fast Bipartite Graph Alignment. ICDM 2013: 389-398
46. Z. Lin, C. Nan, H. Tong, F. Wang, U Kang and D. Chau: Interactive Multi-resolution Exploration of Million Node Graphs. VisWeek 2013 (no page number).
47. Y. Yao, H. Tong, X. Yan, F. Xu and J. Lu: MATRI: A Multi-Aspect and Transitive Trust Inference Model. WWW 2013: 1467-1476
48. B. Prakash, L. Adamic, T. Iwashynaz, H. Tong and C. Faloutsos: Fractional Immunization in Networks. SDM 2013: 659-667
49. L. Akoglu, J., Vreeken, H. Tong, D.H. Chau, N. Tatti, and C. Faloutsos: Mining Connection Pathways for Marked Nodes in Large Graphs. SDM 2013: 37-45
50. L. Akoglu, H. Tong, J., Vreeken, C. Faloutsos. Fast and Reliable Anomaly Detection in Categorical Data. CIKM 2012: 415-424
51. H. Tong, B. Prakash, T. Eliassi-Rad, M. Faloutsos, C. Faloutsos. Gelling, and Melting, Large Graphs by Edge Manipulation. CIKM 2012: 245-254 [**Best Paper Award**]
52. J. He, H. Tong, Q. Mei and B. Szymanski. GenDeR: A Generic Diversified Ranking Algorithm. NIPS 2012: 1151-1159
53. D. Yang, Y. Xiao, B. Xu, H. Tong, W. Wang, S. Huang: Which Topic Will You Follow? ECML/PKDD 2012: 597-612
54. K. Henderson, B. Gallagher, T. Eliassi-Rad, H. Tong, S. Basu, L. Akoglu, D. Koutra, L. Li and C. Faloutsos: RoIX: Structural Role Extraction & Mining in Large Graphs. KDD 2012 (research track): 1231-1239
55. P. Sondhi, J. Sun, H. Tong, C.X. Zhai. SympGraph: A Framework for Mining Clinical Notes through Symptom Relation Graphs. KDD 2012 (industry track): 1167-1175
56. L. Akoglu, H. Tong, B. Meeder and C. Faloutsos. PICS: Parameter-free Identification of Cohesive Subgroups in Large Attributed Graphs. SDM 2012: 439-450
57. U Kang, H. Tong and J. Sun. Fast Random Walk Graph Kernel. SDM 2012: 828-838
58. Y. Yao, H. Tong, F. Xu and J. Lu: Subgraph Extraction for Trust Inference in Social Networks. ASONAM 2012: 163-170 [*Invited to "Social Network Analysis and Mining" journal (SNAM) by Springer*]

59. D. Surian, N. Liu, D. Lo, H. Tong, E.-P. Lim and C. Faloutsos. Recommending People in Developers' Collaboration Network. the 18th Working Conference on Reverse Engineering (WCRE 2011, full paper): 379-388
60. H. Tong, J. He, Z. Wen, and C. Lin. Diversified Ranking on Large Graphs: An Optimization Viewpoint. KDD 2011 (research track): 1028-1036
61. U Kang, H. Tong, J. Sun, C. Lin and C. Faloutsos. GBASE: A Scalable and General Graph Management System. KDD 2011 (research track): 1091-1099
62. K. Henderson, B. Gallagher, L. Li, L. Akoglu, T. Eliassi-Rad, H. Tong and C. Faloutsos. It's Who You Know: Graph Mining Using Recursive Structural Features. KDD 2011 (research track): 663-671
63. F. Wang, H. Tong and C. Lin. Towards Evolutionary Nonnegative Matrix Factorization. AAAI 2011: 501-506
64. H. Tong and C. Lin. Non-Negative Residual Matrix Factorization with Application to Graph Anomaly Detection. SDM 2011: 143-153 [Invited to SAM SI on 'Bests of SDM'11']
65. U Kang, S. Papadimitriou, J. Sun, and H. Tong. Centralities in Large Networks: Algorithms and Observations. SDM 2011: 119-130
66. D. Wang, Z. Wen, H. Tong, C.-Y. Lin, C. Song, A.-L. Barabási. Information Spreading in Context. WWW 2011: 735-744
67. N. Valler, B. Prakash, H. Tong, M. Faloutsos, and C. Faloutsos. Epidemic Spread in Mobile Ad Hoc Networks: Determining the Tipping Point. NETWORKING 2011: 266-280
68. B. Prakash, H. Tong, N. Valler, M. Faloutsos, C. Faloutsos: Virus Propagation on Time-Varying Networks: Theory and Immunization Algorithms. PKDD 2010: 99-114
69. H. Tong, B. Prakash, C. Tsourakakis, T. Eliassi-Rad, C. Faloutsos, D. Chau: On the Vulnerability of Large Graphs. ICDM 2010: 1091-1096
70. J. He, H. Tong, J. G. Carbonell: Rare Category Characterization. ICDM 2010: 226-235 [Invited to FCS SI on 'Bests of ICDM2010']
71. K. Henderson, T. Eliassi-Rad, C. Faloutsos, L. Akoglu, L. Li, K. Maruhashi, B. A. Prakash, H. Tong: Metric forensics: a multi-level approach for mining volatile graphs. KDD 2010: 163-172 (industry track)
72. H. Tong, S. Papadimitriou, C. Faloutsos, P. S. Yu, T. Eliassi-Rad: BASSET: Scalable Gateway Finder in Large Graphs. PAKDD (2) 2010: 449-463
73. H. Tong, H. Qu, H. Jamjoom, and C. Faloutsos. iPoG: Fast Interactive Querying on Graphs. CIKM 2009: 1673-1676
74. K. Onuma, H. Tong, C. Faloutsos: TANGENT: a novel, 'Surprise me', recommendation algorithm. KDD 2009: 657-666 (research track)
75. H. Tong, H. Qu, and H. Jamjoom. Measuring Proximity on Graphs with Side Information. ICDM 2008 (full paper): 598-607
76. H. Tong, Y. Sakurai, T. Eliassi-Rad, C. Faloutsos. Fast Mining of Complex Time-Stamped Events. CIKM 2008 (full paper): 759-768
77. H. Tong, S. Papadimitriou, J. Sun, P. S. Yu, and C. Faloutsos. Colibri: Fast Mining of Large Static and Dynamic Graphs. KDD 2008 (research track): 686-694
78. B. Gallagher, H. Tong, T. Eliassi-Rad, C. Faloutsos. Using Ghost Edges for Classification in Sparsely Labeled Networks. KDD 2008 (research track): 256-264
79. H. Tong, S. Papadimitriou, P. S. Yu and C. Faloutsos. Proximity Tracking on Time-Evolving Bipartite Graphs. SDM 2008: 704-715 **[Best Paper Award]**
80. H. Tong Y. Koren, and C. Faloutsos. Fast Direction-Aware Proximity for Graph Mining. KDD2007 (research track): 747-756
81. H. Tong B. Gallagher, C. Faloutsos, and T. Eliassi-Rad. Fast Best-Effort Pattern Match in Large Attributed Graphs. KDD2007 (research track): 737-746
82. H. Tong and C. Faloutsos. Center-Piece Subgraphs: Problem Definition and Fast Solutions. KDD 2006 (Full paper): 404-413 *[Student Travel Award]*
83. H. Tong, C. Faloutsos and J.-Y. Pan. Fast Random Walk with Restarts and Its Applications. ICDM 2006 (Full paper): 613-622 **[Best Research Paper Award]**
84. H. Tong, J. He, M. Li, C. Zhang, W.-Y. Ma. Graph based multi-modality learning. ACM Multimedia 2005: 862-871 (Full paper)

85. H. Tong, J. He, M. Li, H.-J. Zhang, C. Zhang. A Unified Optimization Based Learning Method for Image Retrieval, CVPR2005: 230-235
86. H. Tong, M. Li, H.-J. Zhang, C. Zhang, J. He. Learning No-Reference Quality Metric by Examples. The 11th International Multi-Media Modelling Conferene (MMM 2005): 247-254
87. J. He, C. Zhang, N. Zhao and H. Tong. Boosting Web Image Search by Co-Ranking. International Conference on Acoustics, Speech, and Signal Processing 2005 (ICASSP 2005): 409-412
88. H. Tong, C. Li, J. He. Internet Traffic Prediction by W-Boost: Classification and Regression Proc. ISNN (3) 2005: 397-402
89. H. Tong, C. Li, J. He, J. Chen, Q.-A. Tran, H.-X. Duan, X. Li: Anomaly Internet Network Traffic Detection by Kernel Principle Component Classifier. ISNN (3) 2005: 476-481
90. H. Tong, M. Li, H.-J. Zhang, J. He and C. Zhang. Classification of Digital Photos Taken by Photographers or Home Users. Pacific-Rim Conference on Multimedia. PCM (1) 2004: 198-205
91. H. Tong, M. Li, H.-J. Zhang, C. Zhang. No Reference Quality Assessment for JPEG2000 Compressed Images. International Conference on Image Processing 2004 (ICIP 2004): 3539-3542
92. H. Tong, M. Li, H.-J. Zhang, C. Zhang. Blur Detection for Digital Images Using Wavelet Transform. International Conference on Multimedia and Expo 2004. (ICME 2004): 17-20
93. H. Tong, C. Li, J. He. Boosting Feed-Forward Neural Network for Internet Traffic Prediction. International Conference on Machine Learning and Cybernetics (ICMLC 2004) (no page number).
94. H. Tong, C. Li, J. He. A Boosting-based Framework for Self-similar and Non-linear Internet Traffic Prediction. International Symposium on Neural Network 2004 (ISNN2004): 931-936
95. J. He, M. Li, H.-J. Zhang, H. Tong, C. Zhang. Manifold-Ranking Based Image Retrieval. ACM Int. Conf. on Multimedia 2004 (Full paper): 9-16
96. J. He, M. Li, H.-J. Zhang, H. Tong, and C. Zhang. Pseudo Relevance Feedback Based on Iterative Probabilistic One-Class SVMs in Web Image Retrieval. Proc. Pacific-Rim Conference on Multimedia (PCM), 2004: 213-220
97. J. He, M. Li, H.-J. Zhang, H. Tong, and C. Zhang. Automatic Peak Number Detection in Image Symmetry Analysis. Proc. Pacific-Rim Conference on Multimedia (PCM), 2004: 198-205

### Demos in Conferences

1. S. Freitas, H. Tong, N. Cao, Y. Xia: Rapid Analysis of Network Connectivity. CIKM 2017: 2463-2466 **[Best Demo Candidate, Second Place]**
2. R. Pienta, F. Hohman, A. Tamersoy, A. Endert, S. Navathe, H. Tong, D. Chau: Visual Graph Query Construction and Refinement. SIGMOD Conference 2017: 1587-1590 **[Best Demo, Honorable Mention]**
3. L. Li, H. Tong, N. Cao, K. Ehrlich, Y. Lin, N. Buchler: TEAMOPT: Interactive Team Optimization in Big Networks. CIKM 2016: 2485-2487 *[Student Travel Award]*
4. R. Pienta, A. Tamersoy, H. Tong, A. Endert, D. Chau: Interactive Querying over Large Network Data: Scalability, Visualization, and Interaction Design. IUI Companion 2015: 61-64
5. X. Su, H. Tong and P. Ji: Accelerometer-based Activity Recognition on Smartphone. CIKM 2014: 2021-2023
6. K. Zhang, Y. Xiao, H. Tong, H. Wang and W. Wang: WiiCluster: a Platform for Wikipedia Infobox Generation. CIKM 2014: 2033-2035
7. Z. Lin, N. Cao, H. Tong, F. Wang, U Kang, and D. Chau: Demonstrating Interactive Multi-resolution Large Graph Exploration. ICDM 2013: 1097-1100
8. D. Chau, L. Akoglu, J. Vreeken, H. Tong and C. Faloutsos: TOURVIZ: Interactive Visualization of Connection Pathways in Large Graphs. KDD 2012: 1516-1519
9. D. Chau, L. Akoglu, J. Vreeken, H. Tong and C. Faloutsos: Interactively and Visually Exploring Tours of Marked Nodes in Large Graphs. ASONAM 2012: 696-698
10. D. Chau, A. Kittur, H. Tong, C. Faloutsos, and J. I. Hong. SHIFTR: A Fast and Scalable System for Ad Hoc Sensemaking of Large Graphs.
11. D. Chau, C. Faloutsos, H. Tong, J. Hong, B. Gallagher, and T. Eliassi-Rad. GRAPHITE: A Visual Query System for Large Graphs. ICDM 2008: 963-966
12. J. Rodrigues Jr., H. Tong, A. Traina, C. Faloutsos, J. Leskovec: Gmine: A System for Scalable, Interactive Graph Visualization and Mining. VLDB 2006: 1195-1198



## Tech Reports

1. L. Li, H. Tong: The Child is Father of the Man: Foresee the Success at the Early Stage. CoRR abs/1504.00948 (2015)
2. J. Zhang, J. Tang, C. Ma, H. Tong, Y. Jing, J. Li: Panther: Fast Top-k Similarity Search in Large Networks. CoRR abs/1504.02577 (2015)
3. J. Fernando Rodrigues Jr., H. Tong, J.-Y. Pan, A. J. M. Traina, C. Traina Jr., Christos Faloutsos: Large Graph Analysis in the GMine System. CoRR abs/1505.07777 (2015)
4. L. Akoglu, H. Tong, D. Koutra: Graph-based Anomaly Detection and Description: A Survey. CoRR abs/1404.4679 (2014)
5. K. Zhang, Y. Xiao, H. Tong, H. Wang, W. Wang: The Links Have It: Infobox Generation by Summarization over Linked Entities. CoRR abs/1406.6449 (2014)
6. L. Shi, H. Tong, J. Tang, C. Lin: Flow-based Influence Graph Visual Summarization. CoRR abs/1408.2401 (2014)
7. F. Shang, Y. Liu, H. Tong, J. Cheng, H. Cheng: Structured Low-Rank Matrix Factorization with Missing and Grossly Corrupted Observations. CoRR abs/1409.1062 (2014)
8. L. Li, H. Tong, N. Cao, K. Ehrlich, Y. Lin, N. Buchler: Replacing the Irreplaceable: Fast Algorithms for Team Member Recommendation. CoRR abs/1409.5512 (2014)
9. Y. Yao, H. Tong, T. Xie, L. Akoglu, F. Xu, J. Lu: Want a Good Answer? Ask a Good Question First! CoRR abs/1311.6876 (2013)
10. R Pienta, A Tamersoy, H Tong and D. Chau: Mage: Expressive Pattern Matching in Richly-Attributed Graphs. GT-CSE-13-08 (2013)
11. Y. Yao, H. Tong, X. Yan, F. Xu, J. Lu: MaTrust: An Effective Multi-Aspect Trust Inference Model. CoRR abs/1211.2041 (2012)
12. L. Akoglu, J. Vreeken, H. Tong, D. H. Chau, and C. Faloutsos. Islands and bridges: Making sense of marked nodes in large graphs. CMU-CS-12-124
13. H. Tong, B. A. Prakash, C. Tsourakakis, T. Eliassi-Rad, C. Faloutsos, and D. H. Chau. BridgeFind: Fast Detection of Top-k Bridges in Large Graphs. LLNL-TR-414449
14. H. Tong, C. Faloutsos, and J.-Y. Pan. Fast Random Walk with Restart and Its Application. CMU-ML-06-109
15. H. Tong and C. Faloutsos. Center-Piece Subgraphs: Problem Definition and Fast Solutions. CMU-ML-06-102

## Workshop Publications

1. W. Wang, J. Liu, F. Xia, I. King, H. Tong: Shifu: Deep Learning Based Advisor-advisee Relationship Mining in Scholarly Big Data. WWW (workshop) 2017: 303-310
2. L. Li, H. Tong, N. Cao, K. Ehrlich, Y. Lin, N. Buchler: Enhancing Team Composition in Professional Networks: Problem Definitions and Fast Solutions. Poster at Science of Team Science (SciTS) Conference 2016
3. L. Li, H. Tong, N. Cao, K. Ehrlich, Y. Lin, N. Buchler: Computational Methods to Enhance Team Composition in Networks. Poster at the 2nd International Computational Social Science Conference 2nd International Computational Social Science Conference (IC2S2 2016)
4. Y. Cheng, Y. Lin and H. Tong: A Network Regression Framework for Forecasting Labor Transitions. Poster at the 2nd International Computational Social Science Conference 2nd International Computational Social Science Conference (IC2S2 2016)
5. H. Lu, Y. Hong, W. N. Street, F. Wang, H. Tong: Overlapping Clustering with Sparseness Constraints. ICDM Workshops 2012
6. L. Akoglu, J. Vreeken, H. Tong, D. H. Chau, and C. Faloutsos: Mining and Visualizing Connection Information Networks Pathways in Large Information Networks. 2012 Workshop on Information in Networks (WIN)
7. K. Ehrlich and H. Tong: The effect of leader centrality on team performance. WIDS 2012
8. Wang, Z. Wen, H. Tong, C.-Y. Lin, C. Song, A.-L. Barabási: Impact of context on information spreading. WIDS 2011
9. J. He, H. Tong, S. Papadimitriou, T. Eliassi-Rad, C. Faloutsos, and J. Carbonell: PaCK: Scalable Parameter-Free Clustering on K-Partite Graphs. SDM 2009 Workshop on Link Analysis, Counterterrorism and Security
10. J. He, H. Tong, M. Li, W.-Y. Ma and C. Zhang: Multiple random walk and its application in content-based image retrieval. ACM MIR 2005: 151-158

## Patents (filing + pending, as of November 2015)

1. Direction-aware proximity for graph mining. Publication number: US 2009/0204554 A1, US Pat. 12069500. Filed Feb. 11, 2008
2. System and method to measure node proximity on graphs with side information. Application Serial No.: 12/638531. Filed Dec. 15, 2009
3. Efficient method to compute node proximity with on line feedback on large graphs. Application Serial No.: 12/638514. Filed Dec. 15, 2009
4. Method and system for large-scale centrality measures in social networks. Filed April 2011
5. Method and apparatus for detecting abnormal behaviors on large bi-partite graphs. Filed April 2011
6. Method and apparatus for privacy-aware on-line user role tracking. Filed August 2011.
7. Method and system for measuring the goodness of a top-k diversified ranking list on graphs. Filed August 2011
8. Method and system for finding a top-k diversified ranking list on graphs. Filed August 2011
9. Method and apparatus to for managing large graphs. Filed September 2011
10. Method and algorithm for efficient egonet computation in social network graphs. Filed June 2012
11. Method and system for tracking anomalies and clusters from dynamic data. Filed May 2012
12. Method and system for finding anomalies, cross-association and contextual clustering from static data. Filed May 2012
13. Determining a similarity between graphs. Filed, December 2012
14. Determining soft graph correspondence. Filed, December, 2012
15. Method and system for bi-partite graph matching, filed, September 2013
16. Method and system for cross-population community alignment, September 2013
17. Method and system for linking heterogeneous networks, September 2013
18. Method and system for matching dynamic networks, September 2013
19. Method and system for linking multi-relational data sets, September 2013
20. Method and system to explorative cross-network data analytics, September 2013
21. Method and system to predictive cross-network data analytics, September 2013
22. System and method for computing local characteristics from big data (filing)
23. Method and system for characterizing the pathway of success (filing)
24. System and method for patient hospitalization prediction (filing)
25. Improving team performance by refining team structure (filing)
26. Systems and methods for full diffusion history reconstruction in the networks (filing)

## INVITED TALKS

### 1. "Towards Optimal Teams in Big Networks"

- Invited talk at SDM 2016 workshop on the 2nd International Workshop on Machine Learning Methods for Recommender Systems (MLRec 2016), Miami, FL, 2016

### 2. "Inside the Atom: Mining a Network of Networks and Beyond"

- Keynote talk at ICDM 2017 workshop on High Performance Graph Data Mining and Machine Learning
- Invited talk at University of New Mexico, NM, 2017
- Keynote talk at KDD 2016 workshop on the 5th International Workshop on Big Data, Streams and Heterogeneous Source Mining (BigMine 16), San Francisco, CA, 2016
- Invited talk at HRL, Malibu, CA, 2016
- Invited talk at GraphEx 2016, Dedham, Massachusetts
- Invited talk at Asilomar 2015 special session on "Statistical Signal Processing for Social and Information Networks", Pacific Grove, CA, 2015
- Invited talk at Baidu USA, Google, LinkedIn, and Yahoo! Labs
- Keynote talk at ICDM 2015 Workshop on "Representation Learning for Semantic Data", Atlantic City, NJ, 2015

- Keynote talk at SDM 2015 Workshop on “Adaptive Learning On-a-chip: Hardware and Algorithms (ALOHA)”, Vancouver, Canada, 2015
- 3. "Query Complex Graph Patterns: Tools and Applications"**
- Keynote talk at WWW 2014 Workshop on “The First WWW Workshop on Big Scholarly Data: Towards the Web of Scholars (BigScholar 2014)”, Seoul, Korea, 2014
- 4. "The Dynamics of Dissemination on Graphs: Theory and Algorithms"**
- DIMACS Workshop on “Statistical Analysis of Network Dynamics and Interactions”, Rutgers University, NJ, 2013
- 5. "Graph Enhancement: Theory and Algorithms"**
- EECS, Case Western Reserve University, OH, 2013
- 6. "Optimal Dissemination on Graphs: Theory and Algorithms"**
- Keynote talk at ICDM 2013 workshop on “Mining and Understanding from Big Data (BigMUD)”, Dallas, TX, 2013
- Keynote talk at the 8th Workshop on “Optimization Based Techniques for Emerging Data Mining Problems (OEDM)” at ICDM2013, Dallas, TX, 2013
- CIDSE, Arizona State University, AZ, 2014
- DCS, Tsinghua University, Beijing, 2014
- CS, Stony Brook University, NY, 2013
- MSIS, Business School, Rutgers University, NJ 2013
- EECS, Case Western Reserve University, OH, 2013
- Math & Computer Science Department, Emory University, GA 2013
- 7. "Influence Propagation on Large Graphs: Theory and Algorithms"**
- Department of Automation, Tsinghua University, Beijing, 2012
- 8. "Algorithms to Affect Influence Propagation on Large Graphs"**
- Department of Computer Science, Rutgers University, NJ, 2012
- Department of Computer Science, Purdue University, IN, 2012
- Computer Science Department, The City College of New York, NY, 2012
- 9. "Mining Large Graphs: Querying, Detecting and Affecting"**
- Computer Science Department, University of California at Santa Barbara, CA, 2011
- 10. "People and Network Analytics at IBM Research"**
- Computer Science Department, Carnegie Mellon University, PA, 2010
- 11. "Fast Algorithms for Querying and Mining Large Graphs"**
- Department of Computer Science, University of Maryland, College Park, MD, 2009
- IBM T.J. Watson Research Center, Hawthorne, NY, 2009
- Department of Electric Engineering, Zhejiang University, Hongzhou, China, 2009
- Department of Computer Science, Peking University, Peking, China, 2009
- Department of Computer Science, Tsinghua University, Peking, China, 2009
- Microsoft Research Asia, Beijing, China, 2009
- IBM T.J. Watson Research Center, Yorktown Heights, NY, 2010
- School of Computational Science and Engineering, Gatech, Atlanta, GA, 2010
- Yahoo! Labs, Sunnyvale, CA, 2010

## TEACHING AND MENTORING

### Summary & Highlights

- Ph.D. Students: 1 Graduated and 7 Current
- M.S. Students: 3 Graduated and 2 Current
- Undergraduate Students (Research): 1
- High-School Students (Research): 3
- Student Fellowships and Awards: 16
- Average Teaching Evaluation Score for Undergraduate Courses taught at ASU: 4.26
- Average Teaching Evaluation Score for Graduate Courses taught at ASU: 4.07

### **Course Instructor**

- CSE 575 Statistical Machine Learning, ASU (Spring 2016, Spring 2017, Fall 2017)
- CSE 310 Data Structures and Algorithms, ASU (Fall 2015)
- CSE 591 Semantic Web Mining, ASU (Spring 2015)
- CS 11900 Pattern Recognition and Machine Learning, City College, CUNY (Spring 2014)
- CS 84010 Big Data Analytics, at Graduate Center, CUNY (Fall, 2013)

### **Teaching Assistant**

- Machine Learning (10-701), Instructor: E.P. Xing (Fall, 2008)
- Multimedia Databases and Data Mining (15-826), Instructor: C. Faloutsos (Spring, 2008)

### **Guest Lecture Instructor**

- Query Complex Graph Patterns: Tools and Applications, at “MIS G5010: Seminar in Information Systems Management”, CCNY (Fall, 2014)
- Matrix Tools for Large Network Analytics, at “MIS G5010: Seminar in Information Systems Management”, CCNY (Fall, 2014)
- Mining Large Graphs, at “Selected Topics in Data Analytics”, University of Southern California (Fall, 2011)
- Proximity on Large Graphs, at “Multimedia Databases and Data Mining”, Carnegie Mellon University (Spring, 2010)

### **Conference Tutorial Instructor**

- Optimal Connectivity on Big Graphs: Measures, Algorithms and Applications, at IEEE Big Data 2015 and SIAM SDM 2016
- Applied Matrix Analytics: Recent Advance and Case Studies, at ICDM 2013 (with F. Wang, C. Ding, December 2013)
- Recent Advance in Applied Matrix Technologies, at SDM 2013 (with F. Wang, May, 2013)
- Large Graph Mining: Patterns, Tools, and Case Studies, at ICDE 2009 (with C. Faloutsos, April, 2009)
- Large Graph Mining: Patterns, Tools, and Case Studies, at CIKM 2008 (with C. Faloutsos, October, 2008)

### **Thesis Committee Chair**

- Dr. Xing Su (CUNY): Travel Mode Detection with Smartphone Sensors (2017)
- Mr. Rongyu Lin (ASU): MASON: Real-time NBA Matches Outcome Prediction (2017)
- Mr. Xiaoyu Zhang (ASU): Network Effects in NBA Teams: Observations and Algorithms (2017)
- Ms. Ruiyue Peng (ASU): TiCTak: Target-Specific Centrality Manipulation on Large Networks (2016)

### **Thesis Committee**

- Dr. Brian Thompson (Rutgers): Models and Algorithms for Event-Driven Networks (2013)
- Dr. Yongjie Cai (CUNY): Data Monitoring and Analysis in Wireless Networks (2015)
- Dr. Jung Hyun Kim (ASU): Efficient Node Proximity and Node Significance Computations in Graphs (2017)
- Dr. Robert Pienta (Gatech): Adaptive Visual Network Analytics: Algorithms, Interfaces, and Systems for Exploration and Querying (2017)
- Ms. Kewei Cheng (ASU): Mining Signed Social Networks Using Unsupervised Learning Algorithms (2017)
- Ms. Lingfan Zhu (ASU): Adaptive Sampling and Learning in Recommendation Systems (2015)

- Mr. Yash Garg (ASU): Multi-Variate Time Series Similarity Measures and Their Robustness Against Temporal Asynchrony (2015)
- Mr. Anirudh Acharya (ASU): Online ET-LDA: Joint Modeling of Events and Their Related Tweets with Online Streaming Data (2015)
- Mr. Piyush Awasthi (ASU): Breaking Hash-Tag Detection Algorithm for Social Media (Twitter) (2015)
- Mr. Ankur Chowdhary (ASU): Secure Mobile SDN (2015)
- Mr. Sheng-Hung Hu (ASU): Video2Vec: Learning Semantic Spatio-Temporal Embedding for Video Representations (2016)
- Mr. Harsh Dani (ASU): Sentiment Informed Cyberbullying Detection in Social Media (2017)

### **Student Mentoring**

- Pramesh Singh (RPI); Topic: information pathway (2012)
- Danai Koutra (CMU); Topic: graph matching (2012)
- Leman Akoglu (CMU); Topic: anomaly detection (2011)
- U Kang (CMU); Topic: graph kernel (2011), large scale graph management system (2010)
- Parikshit Sondhi (UIUC); Topic: mining clinical notes (2011)
- Dashun Wang (Northeastern University); Topic: team performance characterization (2011), information spreading in organization (2010)

### **Student Awards & Recognitions (under my advising at the time of recognition)**

- CIKM17 Best Demo Candidate (Second Place, Scott Freitas, Master Student)
- “Bests of KDD16” (Chen Chen, Ph.D Student)
- “Bests of SDM15” (Chen Chen, Ph.D Student)
- Best Paper Award, Tsinghua Science and Technology, 2015 (Xing Su, Ph.D Student)
- SDM17 Student Travel Award (Si Zhang, Ph.D Student)
- KDD17 Student Travel Award (Liangyue Li, Ph.D Student)
- KDD17 Student Travel Award (Boxin Du, Ph.D Student)
- CIKM17 Student Travel Award (Scott Freitas, master Student)
- SBP-BRiMS 2017 Doctoral Consortium program travel scholarship (Chen Chen, Ph.D Student)
- SBP-BRiMS 2017 Doctoral Consortium program travel scholarship (Liangyue Li, Ph.D Student)
- KDD16 Student Travel Award (Si Zhang, Ph.D Student)
- KDD16 Student Travel Award (Chen Chen, Ph.D Student)
- KDD16 Student Travel Award (Liangyue Li, Ph.D Student)
- ICDM15 Student Travel Award (Chen Chen, Ph.D Student)
- KDD15 Student Travel Award (Liangyue Li, Ph.D Student)
- ASU FURI Luncheon Keynote Speaker, 2017 (Scott Freitas, undergraduate student)
- Scholarship for ACM’s Celebration of 50 Years of the Turing Award, 2017 (Liangyue Li, Ph.D Student)

## **PROFESSIONAL ACTIVITIES AND SERVICE**

### **Summary & Highlights**

- Associate editor for peer-reviewed journals: 3
- International/national conferences chaired: 1
- International/national conferences committees: 80+
- Member of editorial board: 3
- Peer reviewer for journals: 16

### **Editor-ship & Chair-ship**

- *Poster co-chair* in the 24th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2018)

- *Hands-on Tutorial co-chair* in the 23rd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2017)
- *Program Co-chair* in the 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)
- *Associate Editor* in ACM SIGKDD Explorations (2014-)
- *Associate Editor* in Elsevier Neurocomputing Journal (2016-)
- *Action Editor* in Data Mining and Knowledge Discovery (DMKD) (2016-)
- *Hands-on Tutorial co-chair* in the 23rd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2017)
- *Tutorial co-chair* in the 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2016)
- *Tutorial co-chair* in the IEEE Big Data 2016
- *Editorial Board* in 10K Award Committee of IEEE ICME (2016-)
- *Editorial Board* in Data Mining and Knowledge Discovery (DMKD) (2015-2016)
- *Editorial Board* in Social Network Analysis and Mining Journal, Springer (SNAM) (2017-)
- *Exhibits and Demos Co-chair* in The IEEE International Conference on Data Mining (ICDM) 2014 and 2015
- *Local Arrangement Chair* in the 3rd Multimedia/Vision meeting in Greater New York Area, 2013
- *Sponsorship Co-chair* in the 2012 International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2012
- *Guest Editor* in IEEE Transactions on Big Data (TBD) Special Issue on “Big Scholar Data Discovery and Collaboration”
- *Guest Editor* in ELSEVIER Big Data Research Special Issue on “Big Data Analytics and Applications”, 2014
- *Guest Editor* in ACM Transactions on Knowledge Discovery from Data (TKDD) Special Issue on “Connected Health at Big Data Era”, 2014
- *Guest Editor* in Data Mining and Knowledge Discovery Special Issue on “Data Mining Technologies for Computational Social Science”, 2012
- *Section Editor* in “Social Network Applications in Homeland Security, Terrorism, Fraud Detection, Public Sector, Politics and Case studies”, in Encyclopedia of Social Network Analysis and Mining (ESNAM) by Springer
- *Program Co-chair* in ACM-BCB 2016 Workshop on BrainKDD
- *Program Co-chair* in the workshop on “DAVA: DATA mining meets Visual Analytics at Big Data Era”, in CIKM 2016
- *Program Co-chair* in CIKM 2016 Workshop on Big Network Analytics (BigNet 2016)
- *Program Co-chair* in the workshop on “DAVA: DATA mining meets Visual Analytics at Big Data Era”, in ICDM 2015
- *Program Co-chair* in the workshop on “Connected Health at Big Data Era (BigChat)”, in KDD 2015
- *Best Paper Award Committee* in the 19th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2015)
- *General Co-chair* in the Workshop on “Interactive Mining for Big Data (ImBig)”, in CIKM 2014
- *Program Co-chair* in the workshop on “Connected Health at Big Data Era (BigChat)”, in KDD 2014
- *Program Co-chair* in the workshop on “Diffusion Networks and Cascade Analytics”, in WSDM 2014
- *Program Co-chair* in the 2nd international workshop on “Large Scale Network Analysis (LSNA)”, in WWW 2013
- *Program Co-chair* in IBM workshop of "Frontiers in AI and KDD", 2012
- *Program Co-chair* in the 10th workshop on “Mining and Learning with Graphs (MLG)”, in ICML 2012
- *Program Co-chair* in the workshop on “Data Mining Technologies for Computational Collective Intelligence (DMCCI)”, in ICDM 2011
- *Session chair* in the IEEE International Conference on Data Mining (ICDM 2013) (ICDM 2013) “Graph and Network Mining”
- *Session chair* in the 2013 ACM SIGMOD/PODS Conference (SIGMOD 2013) “Graph Connectivity”
- *Session chair* in the 19th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2013) “Graph Mining and Sampling”
- *Session chair* in the 18th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2012) “Social and Web Mining Applications”

## Program Committee in Conferences

- Program Committee in the 12nd International Conference on Weblogs and Social Media (ICWSM 2018)
- Senior Program Committee in the 22nd Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2018)
- Program Committee in the 23rd International Conference on Database Systems for Advanced Applications (DASFAA2018)
- Senior Program Committee in the 2018 SIAM International Conference on Internet on Data Mining (SDM 2018)
- Program Committee in the 27th International World Wide Web Conference (WWW 2018, Poster Track)
- Senior Program Committee in the 27th International World Wide Web Conference (WWW 2018, Social Network Analysis and Graph Algorithms for the Web Track)
- Senior Program Committee in the 31st AAAI Conference on Artificial Intelligence (AAAI-18)
- Area Chair in the IEEE International Conference on Data Mining (ICDM 2017)
- Program Committee in ACM Multimedia Conference 2017 (Engagement - Big Data, MM 2017)
- Program Committee in 2017 International Conference on Behavior, Economic and Socio-Cultural Computing (BESC 2017)
- Senior Program Committee in the 26th ACM International Conference on Information and Knowledge Management (CIKM 2017) (KM track)
- Area Chair in the 6th CCF Conference on Natural Language Processing & Chinese Computing (Social Network, NLPC 2017)
- Program Committee in the 30th International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems (IEA/AIE 2017)
- Senior Program Committee in the 21st Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2017)
- Program Committee in the 22nd International Conference on Database Systems for Advanced Applications (DASFAA2017)
- Program Committee in the 11st International Conference on Weblogs and Social Media (ICWSM 2017)
- Program Committee in the 29th International Teletraffic Congress (ITC 29), 2017
- Program Committee in the 3rd IEEE Conference on Cloud and Big Data Computing (CBDCom 2017)
- Area Chair in the IEEE International Conference on Data Mining (ICDM 2016)
- Program Committee in the 2017 SIAM International Conference on Internet on Data Mining (SDM 2017)
- Senior Program Committee in the 31st AAAI Conference on Artificial Intelligence (AAAI-17)
- Program Committee in the 26th International World Wide Web Conference (WWW 2017, Web Mining & Content Analysis track and Poster track)
- Program Committee in the 11th ACM International Conference on Web Search and Data Mining (WSDM 2017)
- Program Committee in 2016 International Conference on Behavior, Economic and Socio-Cultural Computing (BESC 2016)
- Senior Program Committee in the 25th ACM International Conference on Information and Knowledge Management (CIKM 2016) (KM track)
- Program Committee in the 25th ACM International Conference on Information and Knowledge Management (CIKM 2016) (Industrial track)
- Senior Program Committee in the International Joint Conference on Artificial Intelligence (IJCAI 2016) (main track)
- Senior Program Committee in the 2016 SIAM International Conference on Internet on Data Mining (SDM 2016)
- Program Committee in IEEE BigData 2016
- Program Committee in the 30th AAAI Conference on Artificial Intelligence (AAAI-16)
- Program Committee in the 25th International World Wide Web Conference (WWW 2016, Social Networks and Graph Analysis track)

- Senior Program Committee in the 20th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2016)
- Program Committee in the 10th ACM International Conference on Web Search and Data Mining (WSDM 2016)
- Program Committee in the 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2016) (Research track)
- Program Committee in IEEE Big Data 2016
- Senior Program Committee in the 24th ACM International Conference on Information and Knowledge Management (CIKM 2015) (KM track)
- Senior Program Committee in the International Joint Conference on Artificial Intelligence (IJCAI 2015) (main track)
- Senior Program Committee in the 2015 SIAM International Conference on Internet on Data Mining (SDM 2015)
- Senior Program Committee in the 19th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2015)
- Program Committee in the 21st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2015) (Research track)
- Program Committee in Conference on Complex Systems 2015 (CCS'15)
- Program Committee in IEEE Big Data 2015
- Program Committee in the 9th ACM International Conference on Web Search and Data Mining (WSDM 2015)
- Program Committee in the IEEE International Conference on Data Mining (ICDM 2015)
- Program Committee in the 8th International Conference on Similarity Search and Applications (SISAP 2015)
- Program Committee in 2015 International Conference on Behavior, Economic and Socio-Cultural Computing (BESC 2015)
- Program Committee in the 24th International World Wide Web Conference (WWW 2015, Social Networks and Graph Analysis track)
- Program Committee in the 23rd ACM International Conference on Information and Knowledge Management (CIKM 2014) (KM track)
- Program Committee in IEEE BigData 2014
- Program Committee in the IEEE International Conference on Data Mining (ICDM 2014)
- Program Committee in the 2014 International Conference on Behavioral, Economic, Socio-Cultural Computing (BESC 2014)
- Program Committee in the 2014 International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2014)
- Program Committee in the 8th International Conference on Weblogs and Social Media (ICWSM 2014)
- Program Committee in the 20th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2014) (Research track and Industrial track)
- Program Committee in the 7th International Conference on Similarity Search and Applications (SISAP 2014)
- Senior Program Committee in the 18th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2014)
- Senior Program Committee in the 22nd ACM International Conference on Information and Knowledge Management (CIKM 2013) (KM track)
- Program Committee in the 23rd International World Wide Web Conference (WWW 2014, Social Networks and Graph Analysis track)
- Program Committee in The 31st International Conference on Machine Learning (ICML 2014)
- Program Committee in the 2014 SIAM International Conference on Internet on Data Mining (SDM 2014)
- Program Committee in the 19th International Conference on Database Systems for Advanced Applications (DASFAA2014)
- Program Committee in the 10th International Conference on Advanced Data Mining and Applications (ADMA'14)



- Senior Program Committee in the 17th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2013)
- Program Committee in the 19th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2013) (Research track)
- Program Committee in the 2013 ACM SIGMOD/PODS Conference (SIGMOD 2013)
- Program Committee in the 27th AAAI Conference on Artificial Intelligence (AAAI-13)
- Program Committee in the 29th International Conference on Data Engineering (ICDE 2013)
- Program Committee in the 6th ACM International Conference on Web Search and Data Mining (WSDM 2013)
- Program Committee in the IEEE International Conference on Data Mining (ICDM 2013) (ICDM 2013)
- Program Committee in the 2013 International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2013)
- Program Committee in the 9th International Conference on Advanced Data Mining and Applications (ADMA'13)
- Program Committee in the 5th International Conference on Internet Multimedia Computing and Service (ICIMCS 2013)
- Program Committee in the 2013 SIAM International Conference on Internet on Data Mining (SDM 2013)
- Program Committee in the 9th International Conference on Advanced Data Mining and Applications (ADMA'13)
- Program Committee in the 21st International World Wide Web Conference (WWW 2012)
- Program Committee in the 18th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2012) (for both Research track and Industry track)
- Program Committee in European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/ PKDD 2012)
- Program Committee in the 5th ACM International Conference on Web Search and Data Mining (WSDM 2012)
- Program Committee in the 2012 International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2012)
- Program Committee in the 8th International Conference on Advanced Data Mining and Applications (ADMA'12)
- Program Committee in the 17th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2011) (for both Research track and Industry track)
- Program Committee in the 20th International World Wide Web Conference (WWW 2011)
- Program Committee in the 7th International Conference on Advanced Data Mining and Applications (ADMA'11)
- Program Committee in the 16th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2010) (Research track)
- Program Committee in European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD 2009)

### **Program Committee in Workshops**

- Program Committee in the 13th International Workshop on Mining and Learning with Graphs (MLG), in KDD 2017
- Program Committee in the 12th International Workshop on Mining and Learning with Graphs (MLG), in KDD 2016
- Program Committee in the 4th Interactive Data Exploration and Analytics (IDEA), in KDD 2016
- Program Committee in the 5th International Workshop on Big Data, Streams and Heterogeneous Source Mining: Algorithms, Systems, Programming Models and Applications (Big-Mine), in KDD 2016
- Program Committee in ACM SIGKDD Workshop on Interactive Data Exploration and Analytics (IDEA), in KDD 2015
- Program Committee in the 4th International Workshop on Big Data, Streams and Heterogeneous Source Mining: Algorithms, Systems, Programming Models and Applications (Big-Mine), in KDD 2015
- Program Committee in Big-O(Q): Big-Graphs Online Querying, 2015
- Program Committee in the 1st Workshop on Connecting Online and Offline Social Network Analysis (COOL-SNA), in ICDM 2014

- Program Committee in The 8th Social Network Mining and Analysis Workshop (SNAKDD), in KDD 2014
- Program Committee in the 2nd Interactive Data Exploration and Analytics (IDEA), in KDD 2014
- Program Committee in the 3rd International Workshop on Big Data, Streams and Heterogeneous Source Mining: Algorithms, Systems, Programming Models and Applications (BigMine14), in KDD 2014
- Program Committee in the 2nd Outlier Detection & Description under Data Diversity workshop (ODD), in KDD 2014
- Program Committee in the 2nd Dynamic Networks Management and Mining (DyNetMM 2014) workshop, in ECML/PKDD 2014
- Program Committee in the WWW 2014 Workshop on Big Graph Mining (BGM 2014)
- Program Committee in the 13th International Workshop on "Multimedia Data Mining" (MDMKDD 2013), in KDD 2013
- Program Committee in the 7th International Workshop on "Social Network Mining and Analysis" (SNAKDD), in KDD 2013
- Program Committee in the 2nd International Workshop on "Big Data, Streams and Heterogeneous Source Mining: Algorithms, Systems, Programming Models and Applications" (BigMine), in KDD 2013
- Program Committee in the 11th workshop on "Mining and Learning with Graphs (MLG)", in KDD 2013
- Program Committee in "ODD: Outlier Detection and Description", in KDD 2013
- Program Committee in the 1st Dynamic Networks Management and Mining (DyNetMM 2013) workshop, in SIGMOD/PODS 2013
- Program Committee and best paper award committee in the 1st International Workshop on Big Data, Streams and Heterogeneous Source Mining: Algorithms, Systems, Programming Models and Applications (BigMine-12), in KDD2012.
- Program Committee in the 6th Workshop on Social Network Mining and Analysis (SNAKDD-12), in KDD2012.
- Program Committee in the workshop on "International Workshop on Finding Patterns of Human Behaviors in Network and Mobility Data", in ECML/PKDD 2011
- Program Committee in the 11th International Workshop on "Multimedia Data Mining", in KDD 2011
- Program Committee in the workshop on "Complex Networks in Information & Knowledge Management" (CNIKM 2009), in CIKM 2009

### **Reviewer**

- NSF Panel (2012, 2015, 2016, 2017)
- ACM Computing Surveys Review
- Neural Information Processing Systems (NIPS 2012, 2013, 2015)
- Book Proposal Review for Cambridge University Press, Morgan & Claypool publishers
- Springer Journal on Data Mining and Knowledge Discovery (DMKD)
- Springer Journal on Information Retrieval
- Springer Journal on Information Technology and Management
- The International Journal on Very Large Data Bases (by Springer)
- IEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- ACM Transactions on Knowledge Discovery from Data (TKDD)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Database Systems (TODS)
- IEEE Transactions on Computational Social Systems
- IEEE Transactions on Information Forensics and Security
- Advances in Complex Systems (ACS) (by World Scientific Publishing Co. Pte. Ltd.)
- Journal of Visual Communication and Image Representation (Elsevier)

### **Other Committees**

- Ph.D Admission Committee (CSE), CIDSE, ASU (2014-2017)
- Curriculum Committee, Graduate Center, CUNY (2013-2014)
- Admission Committee, Machine Learning Department, CMU. (2008, 2009)

## REFERENCES – UPON REQUEST