

# Hanghang Tong

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Machine Learning Department  
School of Computer Science  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh PA, 15213

Phone: 412-268-3046  
Cell: 412-508-2169  
Email: htong@cs.cmu.edu  
Homepage: www.cs.cmu.edu/~htong

## Education

- 9/2008-11/2009 Ph.D in Machine Learning Department, School of Computer Science, Carnegie Mellon University (Advisor: Prof. **Christos Faloutsos**)
- 9/2005-9/2008 M. Sci. in Machine Learning Department, School of Computer Science, Carnegie Mellon University (Advisor: Prof. **Christos Faloutsos**)
- 9/2002-7/2005 M. Eng. in Pattern Recognition and Intelligent System, Tsinghua University (Advisor: Prof. **Chongrong Li**)
- 9/1998-7/2002 B. Eng. in Automation Technology, Tsinghua University

## Publications

### *Book Chapter*

1. **Hanghang Tong**, Yehude Koren, and Christos Faloutsos. Direction-Aware Proximity on Graphs. Book chapter in Encyclopedia of Data Warehousing and Mining (2<sup>nd</sup> edition)

### *Refereed Journal Publications*

1. **Hanghang Tong**, Spiros Papadimitriou, Philip S. Yu and Christos Faloutsos. Fast Monitoring Proximity and Centrality on Time-Evolving Bipartite Graphs. SAM Special Issue on Best of SDM08
2. **Hanghang Tong**, Christos Faloutsos, and Jia-Yu Pan. Random Walk with Restart: Fast Solutions and Applications. Knowledge and Information Systems: An International Journal (KAIS), Volume 14 Number 3/ March 2008, pp327-346.
3. **Hanghang Tong**, Jingrui He, Mingjing Li, Wei-Ying Ma, Hong-Jiang Zhang, Changshui Zhang. Manifold-Ranking Based Keyword Propagation for Image Retrieval. EURASIP Journal on Applied Signal Processing, vol. 2006, Article ID 79412, 10 pages, 2006. doi:10.1155/ASP/2006/79412.
4. Jingrui He, Mingjing Li, Hong-Jiang Zhang, **Hanghang Tong** and Changshui zhang. Generalized Manifold-Ranking Based Image Retrieval. IEEE Transaction on Image Processing. volume 15, issue 10: pp.3170-3177, 2006

### *Refereed Conference Publications*

1. **Hanghang Tong**, Huiming Qu, Hani Jamjoom, and Christos Faloutsos. iPoG: Fast Interactive Querying on Graphs. CIKM 2009
2. Kensuke Onuma, **Hanghang Tong**, Christos Faloutsos: TANGENT: a novel, 'Surprise me', recommendation algorithm. KDD 2009: 657-666 (*research track, short paper, Acceptance Rate: 20%*)
3. **Hanghang Tong**, Huiming Qu, and Hani Jamjoom. Measuring Proximity on Graphs with Side Information. ICDM 2008 (*full paper, Acceptance Rate: 10%*)
4. **Hanghang Tong**, Yasushi Sakurai, Tina Eliassi-Rad, Christos Faloutsos. Fast Mining of Complex Time-Stamped Events. CIKM 2008 (*full paper, Acceptance Rate: 17%*)
5. **Hanghang Tong**, Spiros Papadimitriou, Jimeng Sun, Philip Yu, and Christos

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- Faloutsos. Colibri: Fast Mining of Large Static and Dynamic Graphs. KDD 2008 (*research track, short presentation*)
6. Brian Gallagher, **Hanghang Tong**, Tina Eliassi-Rad, Christos Faloutsos. Using Ghost Edges for Classification in Sparsely Labeled Networks. KDD 2008 (*research track, full presentation, Acceptance Rate: 10%*)
  7. **Hanghang Tong**, Spiros Papadimitriou, Philip S. Yu and Christos Faloutsos. Proximity Tracking on Time-Evolving Bipartite Graphs. SDM 2008 (*full paper, Acceptance Rate: 14%*)  
**[won Best Paper Award]**
  8. **Hanghang Tong** Yehude Koren, and Christos Faloutsos. Fast Direction-Aware Proximity for Graph Mining. KDD2007 (*research track, full paper, Acceptance Rate: <8%*)
  9. **Hanghang Tong** Brian Gallagher, Christos Faloutsos, and Tina Eliassi-Rad. Fast Best-Effort Pattern Match in Large Attributed Graphs. KDD2007 (*research track, short paper, Acceptance Rate: 19%*)
  10. **Hanghang Tong** and Christos Faloutsos. Center-Piece Subgraphs: Problem Definition and Fast Solutions. KDD 2006 (*Full paper, Acceptance Rate: 11%*)
  11. **Hanghang Tong**, Christos Faloutsos and Jia-Yu Pan. Fast Random Walk with Restarts and Its Applications. ICDM 2006 (*Full paper, Acceptance Rate: 10%*),  
**[won Best Research Paper Award]**
  12. **Hanghang Tong**, Jingrui He, Mingjing Li, Changshui Zhang, Wei-Ying Ma. Graph based multi-modality learning. ACM Multimedia 2005: 862-871 (*Full paper, Acceptance Rate: 16%*)
  13. **Hanghang Tong**, Jingrui He, Mingjing Li, Hong-Jiang Zhang, Changshui Zhang. A Unified Optimization Based Learning Method for Image Retrieval, CVPR2005 (*Acceptance Rate: 22%*)
  14. **Hanghang Tong**, Mingjing Li, Hong-Jiang Zhang, Changshui Zhang, Jingrui He. Learning No-Reference Quality Metric by Examples. The 11<sup>th</sup> International Multi-Media Modelling Conference (MMM 2005).
  15. Jingrui He, Changshui Zhang, Nanyuan Zhao and **Hanghang Tong**. Boosting Web Image Search by Co-Ranking. International Conference on Acoustics, Speech, and Signal Processing 2005 (ICASSP 2005)
  16. **Hanghang Tong**, Chongrong Li, Jingrui He. Internet Traffic Prediction by W-Boost: Classification and Regression Proc. ISNN (3) 2005: 397-402
  17. **Hanghang Tong**, Chongrong Li, Jingrui He, Jiajian Chen, Quang-Anh Tran, Hai-Xin Duan, Xing Li: Anomaly Internet Network Traffic Detection by Kernel Principle Component Classifier. ISNN (3) 2005: 476-481
  18. **Hanghang Tong**, Mingjing Li, Hong-Jiang Zhang, Jingrui He and Changshui Zhang. Classification of Digital Photos Taken by Photographers or Home Users. 2004 Pacific-Rim Conference on Multimedia (PCM2004).
  19. **Hanghang Tong**, Mingjing Li, Hong-Jiang Zhang, Changshui Zhang. No Reference Quality Assessment for JPEG2000 Compressed Images. International Conference on Image Processing 2004 (ICIP 2004).
  20. **Hanghang Tong**, Mingjing Li, Hong-Jiang Zhang, Changshui Zhang. Blur Detection for Digital Images Using Wavelet Transform. International Conference on Multimedia and

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Expo 2004 (ICME 2004).

21. **Hanghang Tong**, Chongrong Li, Jingrui He. Boosting Feed-Forward Neural Network for Internet Traffic Prediction. The Third International Conference on Machine Learning and Cybernetics (ICMLC 2004).
22. **Hanghang Tong**, Chongrong Li, Jingrui He. A Boosting-based Framework for Self-similar and Non-linear Internet Traffic Prediction. International Symposium on Neural Network 2004 (ISNN2004).
23. Jingrui He, Mingjing Li, Hong-Jiang Zhang, **Hanghang Tong**, Changshui Zhang. Manifold-Ranking Based Image Retrieval. ACM Int. Conf. on Multimedia 2004 (*Full paper, Acceptance Rate: 17%*)
24. Jingrui He, Mingjing Li, Hong-Jiang Zhang, **Hanghang Tong**, and Changshui Zhang. Pseudo Relevance Feedback Based on Iterative Probabilistic One-Class SVMs in Web Image Retrieval. Proc. Pacific-Rim Conference on Multimedia (PCM), 2004.
25. Jingrui He, Mingjing Li, Hong-Jiang Zhang, **Hanghang Tong**, and Changshui Zhang. Automatic Peak Number Detection in Image Symmetry Analysis. Proc. Pacific-Rim Conference on Multimedia (PCM), 2004

## *Tutorials*

1. Christos Faloutsos, **Hanghang Tong**. Large Graph Mining: Patterns, Tools, and Case Studies. CIKM 2008, full day tutorial.
2. Christos Faloutsos, **Hanghang Tong**. Large Graph Mining: Patterns, Tools, and Case Studies. ICDE 2008.

## *Demos in Conferences*

1. Duen Horng Chau, Aniket Kittur, **Hanghang Tong**, Christos Faloutsos, and Jason I. Hong. SHIFTR: A Fast and Scalable System for Ad Hoc Sensemaking of Large Graphs. KDD 2009
2. Duen Horng Chau, Christos Faloutsos, **Hanghang Tong**, Jason Hong, Brian Gallagher, and Tina Eliassi-Rad. GRAPHITE: A Visual Query System for Large Graphs. ICDM 2008
3. Jos é Fernando Rodrigues Jr., **Hanghang Tong**, Agma J. M. Traina, Christos Faloutsos, Jure Leskovec: Gmine: A System for Scalable, Interactive Graph Visualization and Mining. VLDB 2006: 1195-1198

## *Tech Reports*

1. **Hanghang Tong**, B. Aditya Prakash, Charalampos Tsourakakis, Tina Eliassi-Rad, Christos Faloutsos, and Duen Horng Chau. BridgeFind: Fast Detection of Top-k Bridges in Large Graphs. Lawrence Livermore Technical Report, LLNL-TR-414449, July 2009.
2. **Hanghang Tong**, Christos Faloutsos, and Jia-Yu Pan. Fast Random Walk with Restart and Its Application. CMU-ML-06-109
3. **Hanghang Tong** and Christos Faloutsos. Center-Piece Subgraphs: Problem Definition and Fast Solutions. CMU-ML-06-102

## *Workshop Publications*

1. Jingrui He, **Hanghang Tong**, Spiros Papadimitriou, Tina Eliassi-Rad, Christos Faloutsos, and Jaime Carbonell. PaCK: Scalable Parameter-Free Clustering on K-Partite Graphs. SDM 2009 Workshop on Link Analysis, Counterterrorism and Security, Reno, NV, May 2009.

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2. Jingrui He, *Hanghang Tong*, Mingjing Li, Wei-Ying Ma and Changshui Zhang. Multiple random walk and its application in content-based image retrieval. ACM Multimedia 2005 workshop on Multimedia information retrieval: 151-158.

## *Publications in Chinese*

1. Nan Zhu, Chongrong Li, Yalei Wang and *Hanghang Tong*. Hierarchical Periodic Broadcasting Stratagem and Resource Allocation. Journal of Huangzhong University of Science and Technology (Nature Science), vol 31, 2003.10.
2. Rongrong Tong and *Hanghang Tong*. Tele-Immersion and its Application to Distance Learning. Global Chinese Conference on Computer in Education (GCCCE2003).
3. *Hanghang Tong*, Ling Wang, and Jingrui He. Reference Point-Based Near Insertion Approach and Its Improvement for Traveling Salesman Problem. Computers Engineering and Applications.

## **Academic Honors (Selected)**

2008	SDM 2008 Best Paper Award
2006	ICDM 2006 Best Research Paper Award
2005	Nominated as 'Rising Academic Star' in Tsinghua Univeristy (1%, the only one who is a master candidate)
2005	Excellent thesis (2%)
2004	Tsinghua-Lianxin Fellowship for Excellent Student (top grade 1%)
2003	Tsnghua-Guanghua Fellowship for Excellent Student (second grade)
2000	Tsinghua Fellowship for Excellent Student (third grade)

## **Working Experience**

6/2008-9/2008	Intern in Operation Insight Group, IBM T.J. Watson Labs Mentor: Huiming Qu; Manager: Hani Jamjoom (Led to 2 paper and 2 patents pending)
5/2006-7/2006	Intern in Information Visualization Group, AT&T Shannon Labs Mentor: Yehuda Koren; Manager: Stephen C. North (Led to 1 paper, 1 book chapter and 1 patent pending)
7/2004-7/2005	Intern in Web Search and Mining Group, Microsoft Research Asia Mentor: Mingjing Li; Manager: Wei-Ying Ma (Led to 5 papers)
7/2003-7/2004	Intern in Media Computing Group, Microsoft Research Asia Mentor: Mingjing Li; Manager: Hong-Jiang Zhang (Led to 2 papers)

## **Funding Experience**

2009	Co-PI in a NSF proposal pending, Proposal No. 1017415: <i>III:Small: Influence and Virus Propagation in Large Graphs - Theory and Algorithms</i> , \$499K.
2/2009-9/2009	Helped in a successful proposal for a Lawrence Livermore National Laboratory, Contract No. B580840: <i>Trend and Anomaly Detection in Network Traffic</i> , \$100K.
2/2008-9/2009	Helped in a successful proposal Lawrence Livermore National Laboratory (LLNL) grant, Contract No. B579447: <i>Mining Large Time-Evolving Graphs</i> ,

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\$50K

3/2007-9/2008 Helped in a successful proposal for Lawrence Livermore National Laboratory (LLNL), Contract No. B573265: *Mining Large Time-Evolving Graphs*, \$90K

2006-2007 Helped in a successful proposal for a Yahoo! Research Alliance gift: *Analysis and Mining of the Query and Answer System of Yahoo*, \$75K

## **Teaching Experience (TA)**

Fall, 2008 Machine Learning

Spring, 2008 Multimedia Databases and Data Mining

## **Service Experience**

2010 PC Member of KDD 2010

2009 PC Member of PKDD 2009; PC Member of CNIKM'09.

2009 Admission Committee, Machine Learning Department, CMU.

2008 Admission Committee, Machine Learning Department, CMU.

## **References**

### **Christos Faloutsos**

Professor  
School of Computer Science  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213  
(412) 268 - 1457  
[christos+letters@cs.cmu.edu](mailto:christos+letters@cs.cmu.edu)

### **William C. Cohen**

Associate Research Professor  
Machine Learning Department  
School of Computer Science  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213  
(412) 268-7664  
[wcohen@cs.cmu.edu](mailto:wcohen@cs.cmu.edu)

### **Philip S. Yu**

Professor  
Department of Computer Science  
University of Illinois at Chicago  
851 S. Morgan St., Rm 1138 SEO,  
Chicago, IL 60607  
(312) 996-0498  
[psyu@cs.uic.edu](mailto:psyu@cs.uic.edu)

### **Jaime Carbonell**

Allen Newell Professor  
School of Computer Science  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213  
(412)268-7279  
[jgc@cs.cmu.edu](mailto:jgc@cs.cmu.edu)

### **Jeff Schneider**

Associate Research Professor  
The Robotics Institute  
School of Computer Science  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213  
(412) 268-2339  
[schneide@cs.cmu.edu](mailto:schneide@cs.cmu.edu)

### **Tina Eliassi-Rad**

Ph.D  
Lawrence Livermore National Laboratory  
Box 808, L-560  
Livermore, CA 94551-0808  
(925)422-1552  
[eliassirad1@llnl.gov](mailto:eliassirad1@llnl.gov)

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