

# PEIXIANG ZHAO

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## Research Interests

My broad research interest lies in **data and network science**. More specifically, my work and publications center primarily around **database systems**, **data/graph mining**, and **data-intensive computation and analytics**.

## Education

- ✿ **University of Illinois at Urbana-Champaign** Urbana IL., U.S. (Sept. 2007 – Aug. 2012)
  - \* Status: Ph.D., **Department of Computer Science**
  - \* Thesis: On querying large-scale information networks
  - \* Advisor: **Prof. Jiawei Han**
- ✿ **Chinese University of Hong Kong** Hong Kong SAR, China (Sept. 2004 – Jul. 2007)
  - \* Status: Ph.D., **Department of Systems Engineering and Engineering Management (SEEM)**
  - \* Thesis: Free tree-featured graph indexing and query processing
  - \* Advisor: **Prof. Jeffrey Xu Yu**
- ✿ **Peking University** Beijing, China (Sept. 2001 – Jul. 2004)
  - \* Status: M.S., **Department of Computer Science**
  - \* Advisor: **Prof. Ming Zhang**, Prof. Dongqing Yang
- ✿ **Peking University** Beijing, China (Sept. 1997 – Jul. 2001)
  - \* Status: B.S., **Department of Computer Science**
  - \* Advisor: Prof. Dongqing Yang

## Professional Experiences

- ✿ **Florida State University** Tallahassee, FL (Aug. 2012 — )
  - \* Position: Associate Professor (2018 – ) \* **Computer Science**
  - \* Position: Assistant Professor (2012 – 2018) \* **Computer Science**
- ✿ **Microsoft Research Asia** Beijing, China (May 2011 – Aug. 2011)
  - \* Position: Summer intern \* **Web Search and Data Management Group**
- ✿ **Microsoft Research** Redmond, WA (May 2010 – Aug. 2010)
  - \* Position: Summer intern \* **Sensing and Energy Research Group**
- ✿ **IBM Research** Yorktown Heights, NY (Jun. 2009 – Aug. 2009)
  - \* Position: Summer intern \* **Data Analytics Research Group**
- ✿ **IBM Research** Hawthorn, NY (May 2008 – Aug. 2008)
  - \* Position: Summer intern \* **Event-based Systems Group**
- ✿ **Microsoft Research Asia** Beijing, China (Oct. 2001 – Feb. 2002)
  - \* Position: Visiting student \* **Multimedia Management Group**

## Honors and Awards

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1. The Outstanding Review Award in the 35th IEEE International Conference on Data Engineering (ICDE), 2019
2. Army Research Office (ARO) Young Investigator Program (YIP) Award, the U.S. Army Research Office, 2018
3. Air Force Office of Scientific Research (AFOSR) Young Investigator Program (YIP) Award, the Air Force Office of Scientific Research, 2018
4. FSU Provost's Travel Award, 2016
5. FSU Arts and Science Faculty Travel Award, 2015
6. FSU CRC (Council of Research and Creativity) First Year Assistant Professor Award, 2013
7. ACM SIGMOD Travel Grant Award, 2011
8. Data Mining Research Silver Award, 2011, UIUC
9. Data Mining Research Award, Honorable mention, 2010, UIUC
10. Best Teaching Assistant Award, 2006, CUHK, Hong Kong
11. Best Graduate Award, 2004, Peking University, Beijing
12. Excellent Master Thesis Award, 2004, Peking University, Beijing
13. Dean's Award for Study Excellence, 2003, Peking University, Beijing
14. May 4th Scholarship, 2003, Peking University, Beijing
15. Kodak Fellowship, 2002, Peking University, Beijing
16. Tri-excellence Model Honor, 2002, Peking University, Beijing
17. Excellent Undergraduate Thesis Award, 2001, Peking University, Beijing

## Funding (1.1 million as the sole PI)

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1. Coordinating and Implementing MSRC Data Transfer to Public Host Site. PI. Denver Research Institute. \$9,000, 3/2023-3/2024.
2. Efficient Graph Management and Computation in Large-scale Information Networks. PI. Army Research Office. \$360,000, 10/2018-1/2024.
3. Graphs at Your Fingertips: Managing and Summarizing Big Graphs. PI. Air Force Of Scientific Research. \$450,000, 5/2018-4/2023.
4. Facilitating Graph Computation by Graph Sparsification. PI. NSF. CISE:IIS:III. \$200,000. 6/2017-10/2021.
5. Failure Prediction in Enterprise-scale Data for Danfoss Turbocor. PI. Danfoss Inc. \$60,843. 3/1/2017-2/28/2018.
6. FSU Provost's Travel Award. PI. FSU. \$1,500. 2016.
7. FSU Arts and Science Faculty Travel Award. PI. FSU. \$1,500. 2015.
8. Networks at Your Fingertips: On Summarizing Massive Information Networks. PI. FSU. \$20,000. 5/1/2013-8/31/2013.

## Selected Publications

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\* indicates the students under my supervision

1. Jiyang Bai\*, **Peixiang Zhao**. TaGSim: Type-aware Graph Similarity Learning and Computation. *The 48th International Conference on Very Large Data Bases (VLDB'22)*. Sydney, Australia. Sept. 2022.
2. Yongjiang Liang\*, **Peixiang Zhao**. Efficient Structural Clustering in Large Uncertain Graphs. *The 36th International Conference on Data Engineering (ICDE'20)*. Dallas, Texas. Apr. 2020.
3. Yongjiang Liang\*, **Peixiang Zhao**. Workload-aware Subgraph Query Caching and Processing in Large Graphs. *The 35th IEEE International Conference on Data Engineering (ICDE'19)*. Macau SAR, China. Apr. 2019.
4. **Peixiang Zhao**. Link Analytics in Graphs. *Encyclopedia of Big Data Technologies*. Springer Inc. 2018.
5. Kaixian Yu, Tingting Zhao, **Peixiang Zhao**, and Jinfeng Zhang. Automatic Extraction of Relationship Information Using Grammatical Relationship Graph. *Journal of BMC Medical Informatics and Decision Making*. 2018.
6. Esra Akbas\*, **Peixiang Zhao**. Truss-based Community Search: a Truss-equivalence Based Indexing Approach. *The 43rd International Conference on Very Large Data Bases (VLDB'17)*. Munich, Germany. Aug. 2017.
7. Esra Akbas\*, **Peixiang Zhao**. Attributed Graph Clustering: an Attribute-aware Graph Embedding Approach. *The 2017 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM'17)*. Sydney, Australia. Aug. 2017.
8. Yongjiang Liang\*, **Peixiang Zhao**. Similarity Search in Graph Databases: a Multi-layered Indexing Approach. *The 33rd International Conference on Data Engineering (ICDE'17)*. San Diego, California. Apr. 2017.
9. **Peixiang Zhao**. Similarity Search in Large-scale Graph Databases. *Handbook of Big Data Technologies*. Springer. 2017.
10. **Peixiang Zhao**, Charu Aggarwal, Gewen He\*. Link Prediction in Graph Streams. *The 32nd International Conference on Data Engineering (ICDE'16)*. Helsinki, Finland. May 2016.
11. Charu Aggarwal, Gewen He\*, **Peixiang Zhao**. Edge Classification in Networks. *The 32nd International Conference on Data Engineering (ICDE'16)*. Helsinki, Finland. May 2016.
12. Jianbin Huang, Xuejun Huangfu, Heli Sun, Hui Li, **Peixiang Zhao**, Hong Cheng, Qinbao Song. Backward Path Growth for Efficient Mobile Sequential Recommendation. *IEEE Transaction on Knowledge and Data Engineering (TKDE)*. Vol. 27:1. 2015.
13. **Peixiang Zhao**. gSparsify: Graph Motif Based Sparsification for Graph Clustering. *The 24th ACM International Conference on Information and Knowledge Management (CIKM'15)*. Melbourne, Australia. Oct. 2015.
14. Gewen He\*, Albert Steppi, Jose Laborde, Anuj Srivastava, **Peixiang Zhao**, Jinfeng Zhang. RASS: a Web Server for RNA Alignment in the Joint Sequence-structure Space. *Nucleic Acids Research*. 2014.
15. Charu C. Aggarwal, **Peixiang Zhao**. Towards Graphical Models for Text Processing. *Knowledge and Information Systems (KAIS)*. Vol. 36:1. 2013.
16. **Peixiang Zhao**, Charu C. Aggarwal, Min Wang. gSketch: On Query Estimation in Graph Streams. *The 38th International Conference on Very Large Data Bases (VLDB'12)*. Istanbul, Turkey. Aug. 2012.
17. Xiao Yu, Yizhou Sun, **Peixiang Zhao**, Jiawei Han. Query-driven Discovery of Semantically Similar Substructures in Heterogeneous Networks. *The 18th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'12)*. Beijing, China. Aug. 2012.
18. Manish Gupta, **Peixiang Zhao**, Jiawei Han. Evaluating Event Credibility on Twitter. *2012 SIAM International Conference on Data Mining (SDM'12)*. Anaheim, California. Apr. 2012.
19. **Peixiang Zhao**, Xiaolei Li, Dong Xin, Jiawei Han. Graph Cube: On Warehousing and OLAP Multidimensional Networks. *ACM SIGMOD International Conference on Management of Data (SIGMOD'11)*. Athens, Greece. Jun. 2011.

## Selected Publications (CONTINUED)

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20. Dimitrios Lymberopoulos, **Peixiang Zhao**, Arnd Christian König, Klaus Berberich, Jie Liu. Location-aware Click Prediction in Mobile Local Search. *The 20th ACM Conference on Information and Knowledge Management (CIKM'11)*. Glasgow, United Kingdom. Oct. 2011.
21. Klaus Berberich, Arnd Christian König, Dimitrios Lymberopoulos, **Peixiang Zhao**. Improving Local Search Ranking through External Logs. *The 34th Annual ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR'11)*. Beijing, China. Jul. 2011.
22. **Peixiang Zhao**, Jiawei Han. On Graph Query Optimization in Large Networks. *The 36th International Conference on Very Large Data Bases (VLDB'10)*. Singapore. Sept. 2010.
23. Charu C. Aggarwal, **Peixiang Zhao**. Graphical Models for Text: A New Paradigm for Text Representation and Processing. *The 33rd Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR'10)*. Geneva, Switzerland. Jul. 2010.
24. Heli Sun, Jianbin Huang, Jiawei Han, Hongbo Deng, **Peixiang Zhao**, and Boqin Feng. gSkeleton-Clu: Density-based Network Clustering via Structure-Connected Tree Division or Agglomeration. *The International Conference on Data Mining (ICDM'10)*. Sydney, Australia. Dec. 2010.
25. **Peixiang Zhao**, Jiawei Han, Yizhou Sun. P-Rank: A Comprehensive Structural Similarity Measure over Information Networks. *The 18th ACM Conference on Information and Knowledge Management (CIKM'09)*. Hong Kong, China. Nov. 2009.
26. Yizhou Sun, Jiawei Han, **Peixiang Zhao**, Zhijun Yin, Hong Cheng and Tianyi Wu, RankClus: Integrating Clustering with Ranking for Heterogeneous Information Network Analysis. *The International Conference on Extended Data Base Technology (EDBT'09)*, Saint-Petersburg, Russia. Mar. 2009.
27. **Peixiang Zhao**, Jeffrey Xu Yu. Fast Frequent Free Tree Mining in Graph Databases. *World Wide Web Journal*. Vol. 11:1. Mar. 2008.
28. Yizhou Sun, Tianyi Wu, Hong Cheng, Jiawei Han, Xiaoxin Yin and **Peixiang Zhao**, BibNetMiner: Mining Bibliographic Information Networks. *ACM SIGMOD International Conference on Management of Data (SIGMOD'08)*. Vancouver, Canada. Jun. 2008.
29. **Peixiang Zhao**, Jeffrey Xu Yu and Philip S. Yu. Graph Indexing: Tree + Delta  $\geq$  Graph. *The 33rd International Conference on Very Large Data Bases (VLDB'07)*. Vienna, Austria. Sept. 2007.
30. **Peixiang Zhao** and Jeffrey Xu Yu. Closed Frequent Free Tree Mining in Graph Databases. *The Twelfth International Conference on Database Systems for Advanced Applications (DASFAA'07)*. Bangkok, Thailand. Jun. 2007.
31. **Peixiang Zhao** and Jeffrey Xu Yu. Fast Frequent Free Tree Mining in Graph Databases. *the IEEE International Conference on Data Mining (ICDM'06)*. Hong Kong, China. Dec. 2006.
32. **Peixiang Zhao**, Ming Zhang, Dongqing Yang and Shiwei Tang. Finding Hidden Semantics behind Reference Linkages: an Ontological Approach for Scientific Digital Libraries. *The Tenth International Conference on Database Systems for Advanced Applications (DASFAA'05)*. Beijing, China. Apr. 2005.
33. **Peixiang Zhao**, Ming Zhang, Dongqing Yang and Shiwei Tang. Understanding the Semantics in Reference Linkages: An Ontological Approach for Scientific Digital Libraries. *The Seventh International Conference on Asian Digital Libraries (ICADL'04)*. Shanghai, China. Dec. 2004.
34. Ming Zhang, Dongqing Yang, Zhihong Deng, Ying Feng, Wenqing Wang, **Peixiang Zhao**, Sai Wu, Shuan Wang and Shiwei Tang. PKUSpace: A Collaborative Platform for Scientific Research. *The Third International Conference on Web-based Learning (ICWL'04)*. Beijing, China. Aug. 2004.

## Patents

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1. Dimitrios Lymberopoulos, Arnd Christian König, **Peixiang Zhao**, Klaus Berberich, Jie Liu. *Improving Local Search Ranking through External Logs*. US patent US patent filed as MS DOCKET 332725.01 by Microsoft Research. June 2011.
2. **Peixiang Zhao**, Charu C. Aggarwal and Min Wang. *Query Optimization over Graph Data Streams*. US patent filed as Docket YOR920080706US1 by IBM Research. July 2009.

## Teaching Experiences

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### ✿ Florida State University

Instructor

- \* COP5725: Advanced Database Systems
- \* COP4710: Introduction to Database Systems
- \* CAP5778: Advanced Data Mining
- \* CIS4930: Data Mining
- \* COP3330: Data Structures, Algorithms, and Generic Programming I

### ✿ University of Illinois at Urbana-Champaign

Instructor

- \* CS411: Database Systems (Fall 2011)

## Advisees (Graduated 2 PhDs, 9 Masters, and 2 Undergrads)

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### \* Ph.D.:

1. Esra Akbas (Graduated in 2018. Assistant Professor, Georgia State University)
2. Yongjiang Liang (Graduated in 2021, Amazon Robotics)

### \* Ph.D. Candidate:

1. Bowen Li
2. Jiyang Bai
3. Ashwathi Nair

- \* **M.S.:** Xibo Chen, Hussain, Islam, Andrew Berg, Adam Stallard, Nkemdirim Dockery, Shashank Golla, David Lafontant, Yilin 799G, Menghe Zhang.

- \* **B.S.:** Ian Terry, Jennifer Yaboro.

## Professional Activities and Academic Service

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### \* Conference organizer

- Exhibit co-chair: ACM SIGMOD 2014.
- Session chair: IEEE ICDE 2017.

### \* Selected conference technical program committee member

- ACM SIGKDD (2016-2022), EDBT (2023), IEEE ICDE (2013, 2019-2020), ACM CIKM (2013, 2017-2022), IEEE ICDM (2014, 2016, 2018-2022), SIAM SDM (2022)

### \* Editorship

- Area editor: Information Systems. 2018-.

## Professional Activities and Academic Service (CONTINUED)

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- \* **Selected journal reviewer**

- VLDB Journal, ACM Transactions on Knowledge Discovery from Data (TKDD), IEEE Transactions on Knowledge and Data Engineering (TKDE), Knowledge and Information Systems (KAIS), Data Mining and Knowledge Discovery (DAMI), Journal of Intelligent Information Systems (JIIS), Distributed and Parallel Databases (DPD), Information Processing Letters.

- \* **Panelist**

- NSF: 2014-.
- ARO: 2018-.

- \* **Department service**

- Chair, Graduate curriculum committee, 2020–.
- Member, Faculty recruitment committee, 2013–.
- Member, Faculty evaluation committee, 2021, 2012.
- Co-Advisor, ACM programming contest, 2012.
- CS Expo chair, 2012 – 2013.
- Member, PhD Portfolio & Qualification committee, 2012–.

## References

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Reference upon request.