

Jimeng Sun

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Summary

Jimeng Sun is an Associate Professor of School of Computational Science and Engineering at College of Computing in Georgia Institute of Technology. His research focuses on health analytics and data mining, especially in applying large-scale predictive modeling, tensor analysis and similarity analytics on biomedical applications. Dr. Sun has extensive research records on data mining and machine learning: big data analytics, tensor analysis, similarity metric learning, social network analysis, predictive modeling and visual analytics. He applies data mining and machine learning to healthcare applications such as computational phenotyping from electronic health records, heart failure onset prediction and hypertension control management.

Dr. Sun has received AMIA best paper finalist in 2015, Google Faculty Award 2015, ICDM best research paper in 2008, SDM best research paper in 2007, and KDD Dissertation runner-up award in 2008. Dr. Sun received his B.S. and M.Phil. in Computer Science from Hong Kong University of Science and Technology in 2002 and 2003, and PhD in Computer Science from Carnegie Mellon University in 2007. Prior to joining Georgia Tech, he was a research staff member at IBM TJ Watson Research Center. Dr. Sun has published over 100 papers, filed over 20 patents (5 granted) and an h-index of 35 and i10-index 79.

Experience

Co-director

Center of Computational Health, Georgia Tech 2015-present

- Develop an open source health prediction engine that can perform integrated analysis of various health-related data
- Build an ecosystem to enable development, validation and deployment of health predictive models through big data systems, web-based health standards and cloud computing.

Associate Professor

Georgia Institute of Technology, GA, USA 2014-present

- Health analytics
- Data mining, Machine learning

Healthcare Analytic Lead

IBM TJ Watson Research Center, NY, USA 2009-2013

- Lead the research and development on predictive modeling technology for personalized disease risk assessment
- Lead the research and development on patient similarity technology for supporting various healthcare analytics
- Research on advanced visual analytics for exploring patient cohorts

Service Research

IBM TJ Watson Research Center, NY, USA 2007-2009

- Design and implement a distributed data warehouse that host IT delivery data and metrics for over thousands of accounts
- Design data analytic techniques for IT service delivery data and metrics to optimize service processes.
- Research on enterprise social networks, visualization and recommendation.

Intern, Software Tools and Techniques

IBM TJ Watson Research Center, NY, USA 2006 summer

- Developed techniques to summarize huge volume of monitoring data streams through matrix and tensor techniques
- Developed privacy-preserving publishing methods for sharing data streams

Jimeng Sun

Senior Research Associate, Center for advanced research

PricewaterhouseCoopers, CA, USA

2004 summer, 2005 summer

- Worked on data analysis of business transactional data and anomaly detection
- Developed techniques to summarize huge volume of financial streams

Education

Ph.D in Computer Science

Carnegie Mellon University, Pittsburgh, PA, USA.

2007

Thesis title: “Incremental Pattern Discovery on Streams, Graphs and Tensors” Adviser: Prof. Christos Faloutsos

M.Sc. in Computer Science

Carnegie Mellon University, Pittsburgh, PA, USA.

2006

M.Phil. in Computer Science,

Hong Kong University of Science and Technology, Hong Kong

2003

Thesis title: “Analysis of Predictive Spatio-temporal Queries” Research Adviser: Prof. Dimitris Papadias

B.Sc. in Computer Science (minor in Mathematics)

Hong Kong University of Science and Technology, Hong Kong

2002

Awards

- AMIA Distinguished Paper Semi-finalist 2015
- Best Health Connect South Collaboration Award (UCB+GT) 2015
- Google Faculty Award 2015
- Microsoft Azure Research Award 2014
- CDC Research Project Award for \$185K (Sep 2014 – Mar 2016)
- NSF Smart Connect Health Project Award for \$2.1 million total (\$640K to GT). (Sep 2014 – Aug 2018)
- Amazon AWS in Education Research Award 2014
- IBM Master Inventor 2013
- IBM Research Accomplishment Award for Intelligent Care Delivery Analysis 2013
- KDD’12 Best Poster Presentation Award
- AMIA’10 Distinguished Paper Award nominee
- IBM Research Accomplishment Award for Service Quality Research 2009
- ICDM’08 Best Research Paper Award
- KDD’08 Dissertation Award (runner-up)
- SDM’07 Best Research Paper

Research funding

- As Principal Investigator
 - Industry research project: Phenotyping Epilepsy Non-responders, UCB \$312,042 12/15/2015 – 12/31/2016

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- Industry research project: Analytics and Connectivity Platforms Proof-of-concept, UCB \$260,000 1/1/2014 – 6/30/2016
 - Georgia Tech IDEAS: Innovation in Data Engineering and Science Award (PIs with Jim Rehg) : \$150,000 9/1/2015 – 9/1/2016
 - SCH: INT: Collaborative Research: High-throughput Phenotyping on Electronic Health Records using Multi-Tensor Factorization, NSF \$2.1m total (lead PI \$640,617 + \$13,920 REU), 09/01/2014-08/31/2018.
 - Just-in-time Learning Pilot for Public Health Preparedness and Response, CDC, \$185,000, 09/19/2014-09/18/2016
 - Similarity-based Just-in-time Learning Pilot for Public Health Informatics, CDC, \$184,956, 09/19/2014-09/18/2015
 - Scalable Healthcare Analytics using Similarity and Temporal Analysis, ORNL, \$100,000, 11/15/2014-10/31/2016.
- As Co-Principal Investigator
 - XPS:FULL:DSD: A Parallel Tensor Infrastructure (ParTI!) for Data Analysis, NSF, \$750,000, 09/01/15-08/31/19

Representative Publications

- Wang, Yichen, Robert Chen, Joydeep Ghosh, Joshua C. Denny, Abel Kho, You Chen, Bradley A. Malin, and Jimeng Sun. “Rubik: Knowledge Guided Tensor Factorization and Completion for Health Data Analytics.” KDD ’15.
- Joyce Ho, Joydeep Ghosh, Jimeng Sun. Marble: High-throughput Phenotyping from Electronic Health Records via Sparse Nonnegative Tensor Factorization. ACM SIGKDD, 2014
- Kenney Ng, Amol Ghoting, Steven R Steinhubl, Walter F Stewart, Bradley Malin, and Jimeng Sun. PARAMO: A Parallel Predictive Modeling Platform for Healthcare Analytic Research using Electronic Health Records. Journal of Biomedical Informatics
- Fei Wang, Jimeng Sun, Shahram Ebadollahi: Composite distance metric integration by leveraging multiple experts' inputs and its application in patient similarity assessment. Statistical Analysis and Data Mining 5(1): 54-69 (2012) (journal special issue for the best of SDM’11)
- Tamara G. Kolda and Jimeng Sun. Scalable Tensor Decompositions for Multi-aspect Data Mining. in Proc. IEEE International Conference on Data Mining (ICDM), 2008. (Best Paper). Acceptance rate: 9.7%

Teaching Experience

Georgia Tech

- CSE8803/CX4803: Big Data Analytics in Healthcare, Spring 2016, [Spring 2015](#)
- VIP team: Predictive Health, [Fall 2014](#), Spring 2015, Fall 2015
- CS4001: Computing & Society, Fall 2015, [Spring 2014](#)
- CS8001: Big data analytics in healthcare, [Spring 2014](#)

Before Georgia Tech

- Tutorial on “Big Data Analytics for Healthcare” at AMIE in Jun 2015
- Tutorial on “Healthcare Analytics for Big Data” at KDD in Aug 2013, SDM in Apr 2013

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- Rutgers MBA class on “Information Technology for Managers” Spring 2012
- Tutorial on “Distance Metric Learning in Data mining” at SDM, Apr 2012
- Tutorial on “Large-scale Data Mining: Map-Reduce and Beyond ” with Spiros Papadimitriou and Rong Yan
 - KDD Aug 2010, ICDM Dec 2009
- Tutorial on “Mining Large Time-Evolving Graphs Using Matrix and Tensor Tools” with Christos Faloutsos and Tammy Kolda
 - SDM Apr 2007, SIGMOD Jun 2007, ICML Jun 2007, KDD Aug 2007
- Fall 2006, Teaching Assistant, 15-415 Database Applications, Carnegie Mellon University, Computer Science, Department for prof. Christos Faloutsos
- Fall 2005, Teaching Assistant, 15-781 Machine Learning, Carnegie Mellon University, Computer Science, Department for prof. Tom Mitchell and Andrew Moore

Professional activities and services

Organizing committee

- Publication chair for KDD 2013
- Student award chair for KDD 2012, 2011
- Sponsorship chair for SDM 2012

Guest Editor

- Journal of Biomedical Informatics: special issue on medical privacy
- TKDD journal special issue on Large-scale data mining: theory and applications

Review Committee

- Review committee for various NIH, NSF panels from 2010 to 2016 with a specialty on data mining, big data analysis, health informatics

Program Chair

- AIME'15 workshop on [Matrix Computations for Biomedical Informatics](#)
- KDD'14 [workshop on health informatics](#) (HI-KDD)
- KDD'13 workshop on data mining for healthcare
- ICML'13 workshop on Role of Machine Learning in Transforming Healthcare
- SAMSI FODAVA workshop: Interactive Visualization and Analysis of Massive Data
- KDD'11 workshops:
 - Large-scale Data Mining: Theory and Applications
 - Visual Analytics and Information Fusion
 - Data Mining for Medicine and Healthcare
- VisWeek'10 workshop: Visual Analytics in Healthcare
- ICDM'10 workshop: Large-scale Analytics for Complex Instrumented Systems
- KDD'10 workshop: LDM: Large-scale Data Mining: theory and applications
- ICDM'09 workshop: LDM: Large-scale Data Mining: theory and applications

Program Committee Member

- ACM-BCB: 2014
- KDD 2016 Senior PC, 2015 Senior PC, 2014 Senior PC, 2013 Senior PC, 2012, 2011, 2010, 2009, 2008, 2007
- ICML 2015

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- IJCAI 2016
- SDM 2013 Senior PC, 2011 Senior PC, 2010 Senior PC, 2008
- CIKM 2015 Senior PC, 2014, 2012, 2011, 2010 2009, 2008
- ICDM 2012, 2011, 2010, 2009
- PKDD 2012

Refereed Publications

Journals

1. Chen, Robert, Jimeng Sun, Robert S. Dittus, Daniel Fabbri, Jacqueline Kirby, Cheryl L. Laffer, Candace D. McNaughton, and Bradley Malin. "Patient Stratification Using Electronic Health Records from a Chronic Disease Management Program." *IEEE Journal of Biomedical and Health Informatics*, January 4, 2016. doi:10.1109/JBHI.2016.2514264.
2. Han, Dong, Shuang Wang, Chao Jiang, Xiaoqian Jiang, Hyeon-Eui Kim, **Jimeng Sun**, and Lucila Ohno-Machado. "Trends in Biomedical Informatics: Automated Topic Analysis of JAMIA Articles." *Journal of the American Medical Informatics Association: JAMIA* 22, no. 6 (November 2015): 1153–63. doi:10.1093/jamia/ocv157.
3. Basole, Rahul C., Mark L. Braunstein, and **Jimeng Sun**. "Data and Analytics Challenges for a Learning Healthcare System." *J. Data and Information Quality* 6, no. 2–3 (2015): 10. doi:10.1145/2755489.
4. Chen, You, Joydeep Ghosh, Cosmin Adrian Bejan, Carl A. Gunter, Siddharth Gupta, Abel N. Kho, David M. Liebovitz, **Jimeng Sun**, Joshua C. Denny, and Bradley Malin. "Building Bridges across Electronic Health Record Systems through Inferred Phenotypic Topics." *Journal of Biomedical Informatics* 55 (2015): 82–93. doi:10.1016/j.jbi.2015.03.011.
5. Wang, Fei, and Jimeng Sun. "PSF: A Unified Patient Similarity Evaluation Framework Through Metric Learning With Weak Supervision." *IEEE J. Biomedical and Health Informatics* 19, no. 3 (2015): 1053–60. doi:10.1109/JBHI.2015.2425365.
6. Wang, Fei, and **Jimeng Sun**. "Survey on Distance Metric Learning and Dimensionality Reduction in Data Mining." *Data Min. Knowl. Discov.* 29, no. 2 (2015): 534–64. doi:10.1007/s10618-014-0356-z.
7. Ho, Joyce C., Joydeep Ghosh, Steven R. Steinhubl, Walter F. Stewart, Joshua C. Denny, Bradley A. Malin, and **Jimeng Sun**. "Limestone: High-Throughput Candidate Phenotype Generation via Tensor Factorization." *Journal of Biomedical Informatics* 52 (2014): 199–211.
8. Vijaykrishnan, Rajakrishnan, Steven R. Steinhubl, Kenney Ng, **Jimeng Sun**, Roy J. Byrd, Zahra Daar, Brent A. Williams, null Christopher Defilippi, Shahram Ebadollahi, and Walter F. Stewart. "Prevalence of Heart Failure Signs and Symptoms in a Large Primary Care Population Identified Through the Use of Text and Data Mining of the Electronic Health Record." *Journal of Cardiac Failure*, April 4, 2014. doi:10.1016/j.cardfail.2014.03.008.
9. Gkoulalas-Divanis, Aris, Grigorios Loukides, and **Jimeng Sun**. "Publishing Data from Electronic Health Records While Preserving Privacy: A Survey of Algorithms." *Journal of Biomedical Informatics*, June 14, 2014. doi:10.1016/j.jbi.2014.06.002.
10. Gkoulalas-Divanis, Aris, Grigorios Loukides, and **Jimeng Sun**. "Toward Smarter Healthcare: Anonymizing Medical Data to Support Research Studies." *IBM Journal of Research and Development* 58, no. 1 (2014). doi:10.1147/JRD.2013.2288173.
11. Ng, Kenney, Amol Ghoting, Steven R. Steinhubl, Walter F. Stewart, Bradley Malin, and **Jimeng Sun**. "PARAMO: A PARALLEL Predictive MODELing Platform for Healthcare Analytic Research Using Electronic Health Records." *Journal of Biomedical Informatics* 48 (April 2014): 160–70. doi:10.1016/j.jbi.2013.12.012.

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12. **Sun, Jimeng**, Candace D. McNaughton, Ping Zhang, Adam Perer, Aris Gkoulalas-Divanis, Joshua C. Denny, Jacqueline Kirby, Thomas Lasko, Alexander Saip, and Bradley A. Malin. “Predicting Changes in Hypertension Control Using Electronic Health Records from a Chronic Disease Management Program.” *Journal of the American Medical Informatics Association: JAMIA* 21, no. 2 (April 2014): 337–44. [doi:10.1136/amiajnl-2013-002033](https://doi.org/10.1136/amiajnl-2013-002033).
13. Vijayakrishnan, Rajakrishnan, Steven R. Steinhubl, Kenney Ng, **Jimeng Sun**, Roy J. Byrd, Zahra Daar, Brent A. Williams, null Christopher Defilippi, Shahram Ebadollahi, and Walter F. Stewart. “Prevalence of Heart Failure Signs and Symptoms in a Large Primary Care Population Identified Through the Use of Text and Data Mining of the Electronic Health Record.” *Journal of Cardiac Failure*, April 4, 2014. [doi:10.1016/j.cardfail.2014.03.008](https://doi.org/10.1016/j.cardfail.2014.03.008).
14. Byrd, Roy J., Steven R. Steinhubl, **Jimeng Sun**, Shahram Ebadollahi, and Walter F. Stewart. “Automatic Identification of Heart Failure Diagnostic Criteria, Using Text Analysis of Clinical Notes from Electronic Health Records.” *International Journal of Medical Informatics*, January 10, 2013. [doi:10.1016/j.ijmedinf.2012.12.005](https://doi.org/10.1016/j.ijmedinf.2012.12.005).
15. Wang, Fei, Noah Lee, Jianying Hu, **Jimeng Sun**, Shahram Ebadollahi, and Andrew F. Laine. “A Framework for Mining Signatures from Event Sequences and Its Applications in Healthcare Data.” *IEEE Transactions on Pattern Analysis and Machine Intelligence* 35, no. 2 (February 2013): 272–85. [doi:10.1109/TPAMI.2012.111](https://doi.org/10.1109/TPAMI.2012.111).
16. Gotz, David, **Jimeng Sun**, and Nan Cao. “Multifaceted Visual Analytics for Healthcare Applications.” *IBM Journal of Research and Development* 56, no. 5 (2012): 6. [doi:10.1147/JRD.2012.2199170](https://doi.org/10.1147/JRD.2012.2199170).
17. Kang, U., Hanghang Tong, **Jimeng Sun**, Ching-Yung Lin, and Christos Faloutsos. “Gbase: An Efficient Analysis Platform for Large Graphs.” *VLDB J.* 21, no. 5 (2012): 637–50. [doi:10.1007/s00778-012-0283-9](https://doi.org/10.1007/s00778-012-0283-9).
18. Markatou, Marianthi, Prabani Kuruppumullage Don, Jianying Hu, Fei Wang, **Jimeng Sun**, Robert Sorrentino, and Shahram Ebadollahi. “Case-Based Reasoning in Comparative Effectiveness Research.” *IBM Journal of Research and Development* 56, no. 5 (2012): 4. [doi:10.1147/JRD.2012.2198311](https://doi.org/10.1147/JRD.2012.2198311).
19. Sondhi, Parikshit, **Jimeng Sun**, ChengXiang Zhai, Robert Sorrentino, and Martin S. Kohn. “Leveraging Medical Thesauri and Physician Feedback for Improving Medical Literature Retrieval for Case Queries.” *Journal of the American Medical Informatics Association: JAMIA* 19, no. 5 (October 2012): 851–58. [doi:10.1136/amiajnl-2011-000293](https://doi.org/10.1136/amiajnl-2011-000293).
20. Sow, Daby M., **Jimeng Sun**, Alain Biem, Jianying Hu, Marion Blount, and Shahram Ebadollahi. “Real-Time Analysis for Short-Term Prognosis in Intensive Care.” *IBM Journal of Research and Development* 56, no. 5 (2012): 3. [doi:10.1147/JRD.2012.2197952](https://doi.org/10.1147/JRD.2012.2197952).
21. **Sun, Jimeng**, Fei Wang, Jianying Hu, and Shahram Ebadollahi. “Supervised Patient Similarity Measure of Heterogeneous Patient Records.” *SIGKDD Explorations* 14, no. 1 (2012): 16–24. <http://sigkdd.org/sites/default/files/issues/V14-01-03-Sun.pdf>
22. Tang, Jie, Yuan Zhang, **Jimeng Sun**, Jinghai Rao, Wenjing Yu, Yiran Chen, and Alvis Cheuk M. Fong. “Quantitative Study of Individual Emotional States in Social Networks.” *T. Affective Computing* 3, no. 2 (2012): 132–44.
23. Wang, Fei, **Jimeng Sun**, and Shahram Ebadollahi. “Composite Distance Metric Integration by Leveraging Multiple Experts’ Inputs and Its Application in Patient Similarity Assessment.” *Statistical Analysis and Data Mining* 5, no. 1 (2012): 54–69. [doi:10.1002/sam.11135](https://doi.org/10.1002/sam.11135)
24. Cao, Nan, David Gotz, **Jimeng Sun**, and Huamin Qu. “DICON: Interactive Visual Analysis of Multidimensional Clusters.” *IEEE Transactions on Visualization and Computer Graphics* 17, no. 12 (December 2011): 2581–90. [doi:10.1109/TVCG.2011.188](https://doi.org/10.1109/TVCG.2011.188).
25. Lin, Yu-Ru, **Jimeng Sun**, Hari Sundaram, Aisling Kelliher, Paul Castro, and Ravi B. Konuru. “Community Discovery via Metagraph Factorization.” *TKDD* 5, no. 3 (2011): 17. [doi:10.1145/1993077.1993081](https://doi.org/10.1145/1993077.1993081)

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26. Cao, Nan, **Jimeng Sun**, Yu-Ru Lin, David Gotz, Shixia Liu, and Huamin Qu. “FacetAtlas: Multifaceted Visualization for Rich Text Corpora.” *IEEE Transactions on Visualization and Computer Graphics* 16, no. 6 (December 2010): 1172–81. doi:10.1109/TVCG.2010.154.
27. Cao, Nan, **Jimeng Sun**, Yu-Ru Lin, David Gotz, Shixia Liu, and Huamin Qu. “FacetAtlas: Multifaceted Visualization for Rich Text Corpora.” *IEEE Transactions on Visualization and Computer Graphics* 16, no. 6 (December 2010): 1172–81. doi:10.1109/TVCG.2010.154.
28. Khan, Asheq, Hani Jamjoom, and **Jimeng Sun**. “AIM-HI: A Framework for Request Routing in Large-Scale IT Global Service Delivery.” *IBM Journal of Research and Development* 53, no. 6 (2009): 4. doi:10.1147/JRD.2009.5429032.
29. **Sun, Jimeng**. “Incremental Pattern Discovery on Streams, Graphs and Tensors.” *SIGKDD Explorations* 10, no. 2 (2008): 28–29.
30. **Sun, Jimeng**, Dacheng Tao, Spiros Papadimitriou, Philip S. Yu, and Christos Faloutsos. “Incremental Tensor Analysis: Theory and Applications.” *TKDD* 2, no. 3 (2008). <http://doi.acm.org/10.1145/1409620.1409621>.
31. **Sun, Jimeng**, Charalampos E. Tsourakakis, Evan Hoke, Christos Faloutsos, and Tina Eliassi-Rad. “Two Heads Better than One: Pattern Discovery in Time-Evolving Multi-Aspect Data.” *Data Min. Knowl. Discov.* 17, no. 1 (2008): 111–28. doi:10.1007/s10618-008-0112-3.
32. **Sun, Jimeng**, Yinglian Xie, Hui Zhang, and Christos Faloutsos. “Less Is More: Sparse Graph Mining with Compact Matrix Decomposition.” *Statistical Analysis and Data Mining* 1, no. 1 (2008): 6–22. doi:10.1002/sam.102.
33. Tao, Dacheng, Mingli Song, Xuelong Li, Jialie Shen, **Jimeng Sun**, Xindong Wu, Christos Faloutsos, and Stephen J. Maybank. “Bayesian Tensor Approach for 3-D Face Modeling.” *IEEE Trans. Circuits Syst. Video Techn.* 18, no. 10 (2008): 1397–1410. doi:10.1109/TCSVT.2008.2002825.
34. Hoke, Evan, **Jimeng Sun**, John D. Strunk, Gregory R. Ganger, and Christos Faloutsos. “InteMon: Continuous Mining of Sensor Data in Large-Scale Self-Infrastructures.” *Operating Systems Review* 40, no. 3 (2006): 38–44.
35. **Sun, Jimeng**, Yufei Tao, Dimitris Papadias, and George Kollios. “Spatio-Temporal Join Selectivity.” *Inf. Syst.* 31, no. 8 (2006): 793–813. doi:10.1016/j.is.2005.02.002.
36. **Sun, Jimeng**, Huiming Qu, Deepayan Chakrabarti, and Christos Faloutsos. “Relevance Search and Anomaly Detection in Bipartite Graphs.” *SIGKDD Explorations* 7, no. 2 (2005): 48–55.
37. Tao, Yufei, **Jimeng Sun**, and Dimitris Papadias. “Analysis of Predictive Spatio-Temporal Queries.” *ACM Trans. Database Syst.* 28, no. 4 (2003): 295–336.
38. Papadias, Dimitris, Yufei Tao, Jun Zhang, Nikos Mamoulis, Qiongmao Shen, and **Jimeng Sun**. “Indexing and Retrieval of Historical Aggregate Information about Moving Objects.” *IEEE Data Eng. Bull.* 25, no. 2 (2002): 10–17.

Conferences

39. Khalilia, Mohammed, Myung Choi, Amelia Henderson, Sneha Iyengar, Mark L. Braunstein and **Jimeng Sun**. Clinical Predictive Modeling Development and Deployment through FHIR Web Services, AMIA 2015
40. Chen, Robert, Hang Su, Yi Zhen, Mohammed Khalilia, Daniel Hirsch, Michael Thompson, Tod Davis, Yue Peng, Sizhe Lin, Javier Tejedor-Sojo, Elizabeth Searles and **Jimeng Sun**. Cloud-based Predictive Modeling System and its Application to Asthma Readmission Prediction, AMIA 2015
41. Li, Jiajia, Casey Battaglini, Ioakeim Perros, **Jimeng Sun**, and Richard W. Vuduc. “An Input-Adaptive and in-Place Approach to Dense Tensor-Times-Matrix Multiply.” In *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis, SC 2015, Austin, TX, USA, November 15-20, 2015*, edited by Jackie Kern and Jeffrey S. Vetter, 76:1–76:12. ACM, 2015. doi:10.1145/2807591.2807671.

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42. Wang, Yichen, Robert Chen, Joydeep Ghosh, Joshua C. Denny, Abel Kho, You Chen, Bradley A. Malin, and **Jimeng Sun**. “Rubik: Knowledge Guided Tensor Factorization and Completion for Health Data Analytics.” In Proceedings of the 21th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining. KDD '15. ACM, 2015.
43. Ng, Kenney, **Jimeng Sun**, Jianying Hu, and Fei Wang. “Personalized Predictive Modeling and Risk Factor Identification Using Patient Similarity.” AMIA Joint Summits on Translational Science Proceedings AMIA Summit on Translational Science 2015 (2015): 132–36.
44. Tang, Jie, Zhanpeng Fang, and **Jimeng Sun**. “Incorporating Social Context and Domain Knowledge for Entity Recognition.” In Proceedings of the 24th International Conference on World Wide Web, WWW 2015, Florence, Italy, May 18-22, 2015, edited by Aldo Gangemi, Stefano Leonardi, and Alessandro Panconesi, 517–26. ACM, 2015. doi:10.1145/2736277.2741135.
45. Ho, Joyce C., Joydeep Ghosh, and **Jimeng Sun**. “Marble: High-Throughput Phenotyping from Electronic Health Records via Sparse Nonnegative Tensor Factorization.” In The 20th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD '14, New York, NY, USA - August 24 - 27, 2014. doi:10.1145/2623330.2623658.
46. Ho, Joyce C., Joydeep Ghosh, and Jimeng Sun. “Extracting Phenotypes from Patient Claim Records Using Nonnegative Tensor Factorization.” In Brain Informatics and Health - International Conference, BIH 2014, Warsaw, Poland, August 11-14, 2014, Proceedings, 8609:142–51. Lecture Notes in Computer Science. Springer, 2014. doi:10.1007/978-3-319-09891-3_14.
47. Jiayu Zhou, Yashu Liu, **Jimeng Sun**, Hu, Jianying, and Jieping Ye. “Patient Risk Prediction Model via Top-K Stability Selection.” In Proceedings of the 13th SIAM International Conference on Data Mining, May 2-4, 2013. Austin, Texas, USA, 55–63. SIAM, 2013. doi:10.1137/1.9781611972832.7.
48. Tang, Jie, Sen Wu, and **Jimeng Sun**. “Confluence: Conformity Influence in Large Social Networks.” In The 19th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD 2013, Chicago, IL, USA, August 11-14, 2013, 347–55. ACM, 2013. http://doi.acm.org/10.1145/2487575.2487691.
49. Wu, Sen, **Jimeng Sun**, and Jie Tang. “Patent Partner Recommendation in Enterprise Social Networks.” In Sixth ACM International Conference on Web Search and Data Mining, WSDM 2013, Rome, Italy, February 4-8, 2013, 43–52. ACM, 2013. http://doi.acm.org/10.1145/2433396.2433404.
50. Zhou, Jiayu, Zhaosong Lu, **Jimeng Sun**, Lei Yuan, Fei Wang, and Jieping Ye. “FeaFiner: Biomarker Identification from Medical Data through Feature Generalization and Selection.” In The 19th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD 2013, Chicago, IL, USA, August 11-14, 2013, 1034–42. ACM, 2013. http://doi.acm.org/10.1145/2487575.2487671.
51. Gotz, David, Harry Stavropoulos, **Jimeng Sun**, and Fei Wang. “ICDA: A Platform for Intelligent Care Delivery Analytics.” AMIA (2012): 264–73.
52. Hu, Jianying, Fei Wang, **Jimeng Sun**, Robert Sorrentino, and Shahram Ebadollahi. “A Healthcare Utilization Analysis Framework for Hot Spotting and Contextual Anomaly Detection.” 2012 (2012): 360–69.
53. Kang, U., Hanghang Tong, and **Jimeng Sun**. “Fast Random Walk Graph Kernel.” In Proceedings of the Twelfth SIAM International Conference on Data Mining, Anaheim, California, USA, April 26-28, 2012, 828–38. SIAM / Omnipress, 2012. doi:10.1137/1.9781611972825.71.
54. Luo, Dijun, Fei Wang, **Jimeng Sun**, Marianthi Markatou, Jianying Hu, and Shahram Ebadollahi. “SOR: Scalable Orthogonal Regression for Low-Redundancy Feature Selection and Its Healthcare Applications.” In Proceedings of the Twelfth SIAM International Conference on Data Mining, Anaheim, California, USA, April 26-28, 2012, 576–87. SIAM / Omnipress, 2012. doi:10.1137/1.9781611972825.50.
55. Miao, Gengxin, Ziyu Guan, Louise E. Moser, Xifeng Yan, Shu Tao, Nikos Anerousis, and **Jimeng Sun**. “Latent Association Analysis of Document Pairs.” In The 18th ACM SIGKDD International Conference on

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- Knowledge Discovery and Data Mining, KDD '12, Beijing, China, August 12-16, 2012, edited by Qiang Yang, Deepak Agarwal, and Jian Pei, 1415–23. ACM, 2012. <http://doi.acm.org/10.1145/2339530.2339752>.
56. Perer, Adam, and **Jimeng Sun**. “MatrixFlow: Temporal Network Visual Analytics to Track Symptom Evolution during Disease Progression.” AMIA 2012 (2012): 716–25.
 57. Sondhi, Parikshit, **Jimeng Sun**, Hanghang Tong, and ChengXiang Zhai. “SympGraph: A Framework for Mining Clinical Notes through Symptom Relation Graphs.” In The 18th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD '12, Beijing, China, August 12-16, 2012, , 1167–75. ACM, 2012. <http://doi.acm.org/10.1145/2339530.2339712>.
 58. **Sun, Jimeng**, Jianying Hu, Dijun Luo, Marianthi Markatou, Fei Wang, Shahram Edabollahi, Steven E. Steinhubl, Zahra Daar, and Walter F. Stewart. “Combining Knowledge and Data Driven Insights for Identifying Risk Factors Using Electronic Health Records.” AMIA 2012 (2012): 901–10.
 59. Tang, Jie, Sen Wu, **Jimeng Sun**, and Hang Su. “Cross-Domain Collaboration Recommendation.” In The 18th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD '12, Beijing, China, August 12-16, 2012, 1285–93. ACM, 2012. <http://doi.acm.org/10.1145/2339530.2339730>.
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Patents

1. Patent number: 7505876, Systems and methods for simultaneous summarization of data cube streams

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2. Patent number: 7853545, Preserving privacy of one-dimensional data streams using dynamic correlations
3. Patent number: 8204988, Content-based and time-evolving social network analysis
4. Patent number: 7840516, Preserving privacy of one-dimensional data streams by perturbing data with noise and using dynamic autocorrelation
5. Patent number: US8583586 B2, Mining temporal patterns in longitudinal event data using discrete event matrices and sparse coding

Advising Students

Georgia Tech

PhD students

- Kunal Malhotra, Fall 2010 – present (co-advised with Prof. Sham Nevathe)
- Robert Chen, 2014 – present, MD-PhD Emory/GT, Phenotyping from electronic health records and predictive modeling
- Hang Su, 2014 – present, PhD student
- Zhaoming Wu, 2014 – present, PhD student
- Ioakeim (Joachim) Perros, 2014 – present, PhD student
- Edward Choi, 2014 – present, PhD student
- Yuyu Zhang, 2015 – present, PhD student

Postdocs

- Taha Bahadori, 2015 –present
- Mohammed Khalilia, 2014 – 2015

IBM Research

- Joyce Ho, University of Texas at Austin, 2013, Unsupervised Phenotyping using Tensor Factorization
- Jiayu Zhou, Arizona State University, 2012, Stable Feature Selection and its applications in healthcare analytics
- Parikshit Sondhi, University of Illinois at Urbana-Champaign, 2011, Text mining on Clinical data
- Dijun Luo, University of Texas at Arlington, 2011, Feature Selection and predictive modeling on clinical data
- Lei Li, Carnegie Mellon University, 2010, Time series analysis on ECG data
- Nan Cao, Hong Kong University of Science & Technology, 2010, Visualization on healthcare data
- U Kang, Carnegie Mellon University, 2010, Graph mining on big data using Hadoop
- Duo Zhang, University of Illinois at Urbana-Champaign, 2009, Text mining on IT support data
- Yu-Ru Lin, Arizona State University, 2008, Social Media Analytics using Tensor analysis
- Christos Boutsidis, Rensselaer Polytechnic Institute, 2008, Column selection algorithm and its application to IT support data