

JINGRUI HE

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RESEARCH INTEREST

Heterogeneous machine learning, rare category analysis, active learning and semi-supervised learning, with applications in social network analysis, social media analysis, healthcare informatics, manufacturing, and finance informatics.

EDUCATION

Carnegie Mellon University

Pittsburgh, PA

- *Ph.D in Machine Learning, Jul., 2010*
 - Dissertation: "Rare Category Analysis"
 - Advisor: Jaime Carbonell
- *M.Sci. in Machine Learning, Sep., 2008*
 - Thesis: "Rare Category Detection"
 - Advisor: Jaime Carbonell

Tsinghua University

Beijing, China

- *M.Eng. in Pattern Recognition and Intelligent System, Jul., 2005*
 - Thesis: "Machine Learning Methods in Image Retrieval"
 - Advisors: Changshui Zhang and Nanyuan Zhao
- *B.Eng. in Automation, Jul., 2002*

EMPLOYMENT HISTORY

- Associate Professor, University of Illinois at Urbana-Champaign Aug. 2019 – Present
- Associate Professor, Arizona State University Aug. 2018 – Aug. 2019
- Assistant Professor, Arizona State University Aug. 2014 – Jul. 2018
- Assistant Professor, Stevens Institute of Technology Jan. 2013 – Aug. 2014
- Research Staff Member, IBM T.J. Watson Research Center Aug. 2010 – Dec. 2012
- Summer Intern, IBM T.J. Watson Research Center Jun. 2008 – Aug. 2008
- Summer Intern, Microsoft Research Redmond May 2006 – Jul. 2006

AWARDS AND HONORS

- IBM Faculty Award, 2018 IBM
- 24th Capitol Hill Science Exhibition, 2018 CNSF
- IJCAI Early Career Spotlight, 2017 IJCAI
- NSF CAREER award, 2016 NSF
- Springer Knowl. Inf. Syst. (KAIS) on "Bests of ICDM 2016", 2016 Springer
- IBM Faculty Award, 2015 IBM
- IBM Faculty Award, 2014 IBM
- Statistical Analysis and Data Mining on "Bests of SDM 2010", 2010 Wiley
- Frontiers of Computer Science on "Bests of ICDM 2010", 2010 Springer
- IEEE ICDM Contest on Traffic Prediction Runner-up for Task 2 (Jams) and Task 3 (GPS), 2010 IEEE
- IBM Fellowship, 2009 IBM
- IBM Fellowship, 2008 IBM

RESEARCH GRANTS

2014-Present (\$48.72M in total, \$5.1M in personal share as of 8/20/2018)

- *PI* on an NSF grant: “CAREER: III: Modeling the Heterogeneity of Heterogeneity: Algorithms, Theories and Applications” (\$516,441, 2/1/2016 – 1/31/2021, **personal share: \$516,441**)
- *PI* on an NSF grant: “III: Small: Predictive Analysis of Diabetes Dedicated Social Networks” (PI: He, Co-PI: Cook, \$462,560, 8/15/2018 – 7/31/2021, **personal share: \$412,560**)
- *PI* on an AllState grant: “Tools and Algorithms for Complex Cyber-Anomaly Detection” (in contract negotiation, PI: He, Co-PI: Tong, \$570,296, 7/1/2018 – 12/31/2022, **personal share: \$285,147**)
- *Co-Investigator* on a NASA grant: “Information fusion for real-time national air transportation system prognostics under uncertainty” (PI: Liu, Co-Is: Chattopadhyay, Cooke, He, Niemczyk, Tang, Ying, \$9,999,998, 5/1/2017 – 4/30/2022, **personal share: \$1,000,000**)
- *Co-PI* on a DARPA grant: “Complex Analytics of Network of Networks for Modeling of Adversarial Activity” (PI: Tong, co-PIs: He, Bliss, \$2,748,468, 9/8/2017-9/7/2021, **personal share: \$1,181,841**)
- *Co-Investigator* and *Project Lead* on a DHS grant: “Center of Excellence for Accelerating Operational Efficiency (CAOE)” (total expected budget: \$20,000,000, 9/1/2017-8/31/2022, **personal share: \$800,000**)
- *Co-PI* on an ONR grant: “Finding Allies for the War of Words: Mapping the Diffusion and Influence of Counter-radical Muslim Discourse (Addition)” (PI: Woodward, Co-PIs: Corman, Davulcu, He, Warner, \$497,540, 7/1/2015 – 6/30/2016, **personal share: \$74,631**)
- *PI* on an IBM Faculty Award: “Explainable Learning for Financial Forecasting Using Multimodal Data” (\$30,000, **personal share: \$30,000**)
- *PI* on an IBM Faculty Award: “Deep Heterogeneous Models for Cost Reduction in Process Optimization” (\$30,000, **personal share: \$30,000**)
- *PI* on an IBM Faculty Award: “Heterogeneous Learning” (\$25,000, **personal share: \$25,000**)
- *PI* on a New America Grant: “WORDS OF WAR: Political Rhetoric as a Predictor of Armed Conflict” (\$31,665, 7/23/2018 – 10/23/2018, **personal share: \$31,665**)
- *Co-PI* on an Intel gift: “Applied Machine and Deep Learning Course” (PI: Li, Co-PIs: He, Tong, \$30,000, 2017, **personal share: \$9,000**)
- *Co-PI* on a Samsung Electronic Company, Ltd. grant: “Design of Low-Power Hardware Accelerator for Bio-Signal Processing Project” (PI: Vrudhula, Co-PIs: Cao, He, Seo, \$120,001, 5/1/2015 – 4/30/2016, **personal share: \$1,200**)
- *Senior Personnel* on an NSF grant: “CRI: An Energy-Efficient Big Data Research Infrastructure with Heterogeneous Computing and Storage Resources” (PI: Zhao, \$749,999, 9/1/2016-8/31/2019, **personal share: \$67,500**)
- *PI* on an NSF grant: “Support for U.S.-Based Students to Attend the 2016 IEEE International Conference on Data Mining (ICDM 2016)” (\$24,000, 6/15/2016 – 5/31/2017, **personal share: \$24,000**)
- *PI* on a Singapore Management University grant: “ICDM2016 Student Travel Awards” (\$3,000, 12/1/2016 – 6/30/2018, **personal share: \$3,000**)
- *Co-Investigator* on a DARPA grant: “Diagnostic Epigenetics of Infectious agents and Chemical Toxicity (DEPICT)” (in contract negotiation, PI: LaBaer, Co-Is: Borges, He, Lant, Magee, Mangone, Murugan, Park, Varsani, \$12,915,508, 11/1/2018 – 10/31/2022, **personal share: \$645,775**)

2010-2013 (\$15M+ in total)

- *Task lead* on a DARPA grant: “Multi-Aspect Abnormal Behavior Detection”. Contract No. W911NF-11-C-0200 (\$4,789,938, 5/2011-4/2013, PI: Lin, co-PI: Tong)
- *Task lead* on 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: Lin, co-PIs: Wen and Tong)

PUBLICATIONS

Summary

- Book Published: 1
- Invited Book Chapters Published: 2
- Refereed Conference Papers: 73
- Refereed Journal Publications (Published, In Press, and /or Accepted): 19
- Journal Editorials: 3
- Technical Papers (unreferreed): 15
- Intellectual Property: 8 Patents

Books

1. J. He. Analysis of Rare Categories. Springer-Verlag New York, LLC, November 2011.

Book Chapters

1. J. Xiong, Y. Zhu, and J. He. Machine Learning for VLSI Chip Testing and Semiconductor Manufacturing Process Monitoring and Improvement. Machine Learning in VLSI Computer-Aided Design, pp. 233 – 263, 2019.
2. Y. Zhu, and J. He. Social Engineering/Phishing. Encyclopedia of Social Network Analysis and Mining, pp. 1777-1783, 2014.

Refereed Journal Publications

1. P. Yang, Q. Tan, and J. He. Function-on-Function Regression with Mode-Sparsity Regularization. ACM Transactions on Knowledge Discovery from Data 12(3): 36:1-36:23 (2018)
2. H. Lin, S. Gao, D. Gotz, F. Du, J. He, and N. Cao. RCLens: Interactive Rare Category Exploration and Identification. IEEE Transactions on Visualization and Computer Graphics 24(7): 2223-2237 (2018)
3. A. Nelakurthi, A. Pinto, C. Cook, L. Jones, M. Boyle, J. Ye, T. Lappas, and J. He. Should Patients with Diabetes Be Encouraged to Integrate Social Media into Their Care Plan? Future Science OA
4. P. Yang, Q. Tan, Y. Zhu, and J. He. Heterogeneous Representation Learning with Separable Structured Sparsity Regularization. Knowledge and Information Systems (“Bests of ICDM 2016”) 55(3): 671-694 (2018)
5. S. Feng, D. Shen, T. Nie, Y. Kou, J. He, G. Yu. Inferring Anchor Links Based on Social Network Structure. IEEE Access 6: 17340-17353 (2018)
6. Q. Tan, P. Yang, and J. He. Feature Co-Shrinking for Co-Clustering. Pattern Recognition 77: 12-19 (2018)
7. D. Zhou, A. Karthikeyan, K. Wang, N. Cao, and J. He. Discovering Rare Categories from Graph Streams. Data Mining and Knowledge Discovery 31(2): 400-423 (2017)
8. C. Chen, J. He, N. Bliss and H. Tong. Towards Optimal Connectivity on Multi-layered Networks. IEEE Transactions on Knowledge and Data Engineering 29(10): 2332-2346 (2017)
9. P. Yang, H. Davulcu, Y. Zhu, and J. He. A Generalized Hierarchical Multi-Latent Space Model for Heterogeneous Learning. IEEE Transactions on Knowledge and Data Engineering 28(12): 3154-3168 (2016)
10. Y. Zhu, and J. He. Co-clustering Structural Temporal Data with Applications to Semiconductor Manufacturing. ACM Transactions on Knowledge Discovery from Data 10(4): 43:1-43:19 (2016)
11. P. Yang, H. Yang, H. Fu, D. Zhou, J. Ye, T. Lappas, and J. He. Joint Modeling Label and Feature Heterogeneity in Medical Informatics. ACM Transactions on Knowledge Discovery from Data 10(4): 39:1-39:25 (2016)
12. D. Muchlinski, D. Siroky, J. He, and M. Kocher. Comparing Random Forest with Logistic Regression for Predicting Class-imbalanced Civil War Onset Data. Political Analysis 24(1): 87-103 (2016)
13. J. He. Discussion of “Reinforcement Learning Behaviors in Sponsored Search”. Applied Stochastic Models in Business and Industry 32(3): 368 (2016)
14. Y. Zhu, J. He, and R. Lawrence. A General Framework for Predictive Tensor Modeling with Domain Knowledge. Data Mining and Knowledge Discovery 1709-1732 (2015)
15. 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”)

16. J. He, and J. Carbonell. Coselection of Features and Instances for Unsupervised Rare Category Analysis. *Statistical Analysis and Data Mining* 3(6): 417-430 (2010) (“**Bests of SDM 2010**”)
17. F. Wu, C. Zhang, and J. He. An Evolutionary System for Near-regular Texture Synthesis. *Pattern Recognition* 40(8): 2271-2282 (2007)
18. H. Tong, J. He, M. Li, W.-Y. Ma, H.-J. Zhang, C. Zhang. Manifold-Ranking Based Keyword Propagation for Image Retrieval. *EURASIP Journal on Advances in Signal Processing*: 1-10 (2006)
19. 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. P. Yang, Q. Tan, H. Tong, and J. He. Task-Adversarial Co-Generative Nets. *KDD 2019* (acceptance rate of research track: 14%)
2. J. Wu, J. He, and J. Xu. DEMO-Net: Degree-specific Graph Neural Networks for Node and Graph Classification. *KDD 2019* (acceptance rate of research track: 14%)
3. P. Yang, Q. Tan, J. Ye, H. Tong, and J. He. Deep Multi-Task Learning with Adversarial-and-Cooperative Nets. *IJCAI 2019* (acceptance rate: 17.9%)
4. L. Zheng, Y. Cheng, and J. He. Deep Multimodality Model for Multi-task Multi-view Learning. *SDM 2019* (acceptance rate: 22.7%)
5. Y. Zhou, A. Nelakurthi, and J. He. Unlearn What You Have Learned: Adaptive Crowd Teaching with Exponentially Decayed Memory Learners. *KDD 2018* (acceptance rate of research track long presentation: 10.9%)
6. D. Zhou, J. He, H. Yang, and W. Fan. SPARC: Self-Paced Network Representation for Few-Shot Rare Category Characterization. *KDD 2018* (acceptance rate of research track short presentation: 18.4%)
7. J. Li, J. He, and Y. Zhu. E-tail Product Return Prediction via Hypergraph-based Local Graph Cut. *KDD 2018* (acceptance rate of applied data science track oral presentation: 8.1%)
8. Y. Zhu, J. Li, J. He, A. Deshpande, and B. Quanz. A Local Algorithm for Product Return Prediction in E-Commerce. *IJCAI 2018* (acceptance rate: 20.5%)
9. J. Wu, J. He, Y. Liu. ImVerde: Vertex-Diminished Random Walk for Learning Imbalanced Network Representation. *IEEE BigData 2018*
10. D. Zhou, J. He, H. Davulcu, R. Maciejewski. Motif-Preserving Dynamic Local Graph Cut. *IEEE BigData 2018*
11. A. Nelakurthi, R. Maciejewski, J. He. Source Free Domain Adaptation Using an Off-the-Shelf Classifier. *IEEE BigData 2018*
12. 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 [*Student Travel Award*] (acceptance rate of research track: 18.9%)
13. H. Yang, Y. Zhu and J. He. Local Algorithm for User Action Prediction Towards Display Ads. *KDD 2017*: 2091-2099 (acceptance rate of applied data science track: 21.5%)
14. P. Yang, Q. Tan and J. He. Multi-task Function-on-function Regression with Co-grouping Structured Sparsity. *KDD 2017*: 1255-1264 (acceptance rate of research track: 18.9%)
15. A. Nelakurthi, J. He. Finding Cut from the Same Cloth. Cross Network Link Recommendation via Joint Matrix Factorization. *AAAI 2017*: 1467-1473 [*Student Travel Award*] (acceptance rate: 24.6%)
16. 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 2017*: 570-578 [*Student Travel Award*] (acceptance rate: 26%)
17. A. Nelakurthi, H. Tong, R. Maciejewski, N. Bliss and J. He. User-guided Cross-domain Sentiment Classification. *SDM 2017*: 471-479 [*Student Travel Award*] (acceptance rate: 26%)
18. Y. Zhou, L. Ying, and J. He. MultiC2: an Optimization Framework for Learning from Task and Worker Dual Heterogeneity. *SDM 2017*: 579-587 [*Student Travel Award*] (acceptance rate: 26%)
19. Y. Zhu, J. Li, and J. He. Learning from Multi-Modality Multi-Resolution Data: an Optimization Approach. *SDM 2017*: 714-722 (acceptance rate: 26%)
20. J. He. Learning from Data Heterogeneity: Algorithms and Applications. *IJCAI 2017*: 5126-5130 (invited)
21. Y. Zhou, and J. He. A Randomized Approach for Crowdsourcing in the Presence of Multiple Views. *ICDM 2017*: 685-694 [*Student Travel Award*] (acceptance rate: 19.9%)

22. J. Li, Y. Zhu, and J. He. HiMuV: Hierarchical Framework for Modeling Multi-Modality Multi-Resolution Data. ICDM 2017: 267-276 (acceptance rate: 19.9%)
23. D. Zhou, J. He, Y. Cao, J. Seo. Bi-level Rare Temporal Pattern Detection. ICDM 2016: 719-728 [*Student Travel Award*] (acceptance rate: 19.6%)
24. P. Yang and J. He. Heterogeneous Representation Learning with Structured Sparsity Regularization. ICDM 2016: 539-548 [Invited to KAIS SI on "**Bests of ICDM 2016**"] (acceptance rate: 19.6%)
25. P. Yang and J. He. Functional Regression with Mode-Sparsity Constraint. ICDM 2016: 1311-1316 (acceptance rate: 19.6%)
26. Y. Zhou, and J. He. Crowdsourcing via Tensor Augmentation and Completion. IJCAI 2016: 2435-2441 (acceptance rate: 25%)
27. P. Yang and J. He. Model Multiple Heterogeneity via Hierarchical Co-Latent Space Learning. KDD 2015: 1375-1384 (acceptance rate of research track: 19.4%)
28. Y. Zhu, H. Yang, and J. He. Co-Clustering based Dual Prediction for Cargo Pricing Optimization. KDD 2015: 1583-1592 (acceptance rate of research track: 19.4%)
29. P. Yang and J. He. A Graph-based Hybrid Framework for Modeling Complex Heterogeneity. ICDM 2015: 1081-1086 (acceptance rate: 18.2%)
30. 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 (acceptance rate: 18.2%)
31. D. Zhou, K. Wang, N. Cao, and J. He. Rare Category Detection on Time-Evolving Graphs. ICDM 2015: 1135-1140 [*Student Travel Award*] (acceptance rate: 18.2%)
32. D. Yang, J. He, H. Qin, Y. Xiao, and W. Wang. A Graph-based Recommendation across Heterogeneous Domains. CIKM 2015: 463-472 (acceptance rate of long papers: 18.0%)
33. D. Zhou, J. He, K.S. Candan, and H. Davulcu. MUVIR: Multi-View Rare Category Detection. IJCAI 2015: 4098-4104 [*Student Travel Award*] (acceptance rate: 28.8%)
34. P. Yang, J. He, and J.Y. Pan. Learning Complex Rare Categories with Dual Heterogeneity. SDM 2015: 523-531 (acceptance rate: 14.7%)
35. D. Kale, M. Ghazvininejad, A. Ramakrishna, J. He, and Y. Liu. Hierarchical Active Transfer Learning. SDM 2015: 514-522 (acceptance rate: 14.7%)
36. H. Yang, and J. He. Learning with Dual Heterogeneity: A Nonparametric Bayes Model. KDD 2014: 582-590 (acceptance rate of research track: 14.6%)
37. Y. Zhu, and J. He. Co-clustering Structural Temporal Data with Applications to Semiconductor Manufacturing. ICDM 2014: 1121-1126 (acceptance rate: 19%)
38. P. Yang, H. Fu, H. Yang, and J. He. Learning from Label and Feature Heterogeneity. ICDM 2014: 1079-1084 (acceptance rate: 19%)
39. J. He, Y. Liu, and Q. Yang. Linking Heterogeneous Input Spaces with Pivots for Multi-Task Learning. SDM 2014: 181-189 (acceptance rate: 15.4%)
40. D. Zhang, J. He, L. Si, and R. Lawrence. MILEAGE: Multiple Instance LEARNING with Global Embedding. ICML 2013: 82-90 (acceptance rate: 24%)
41. D. Zhang, J. He, and R. Lawrence. MI2LS: Multi-Instance Learning from Multiple Information Sources. KDD 2013: 149-157 (acceptance rate of research track: 17.4%)
42. J. He, W. Shen, P. Divakaruni, L. Wynter, and R. Lawrence. Improving Traffic Prediction with Tweet Semantics. IJCAI 2013: 1387-1393 (acceptance rate: 28%)
43. J. He, H. Tong, Q. Mei and B. Szymanski. GenDeR: A Generic Diversified Ranking Algorithm. NIPS 2012: 1151-1159 (acceptance rate: 25%)
44. J. He, and Y. Zhu. Hierarchical Multi-task Learning with Application to Wafer Quality Prediction. ICDM 2012: 290-298 (acceptance rate: 19.97%)
45. X. Chen, J. He, R. Lawrence, and J. Carbonell. Adaptive Multi-task Sparse Learning with an Application to fMRI Study. SDM 2012: 212-223
46. Y. Zhu, J. He, and R. Lawrence. Hierarchical Modeling with Tensor Inputs. AAAI 2012: 1233-1239 (acceptance rate: 26%)

47. Y. Zhu, R.J. Baseman, J. He, D.D. Restaino, E. Yashchin. Virtual Metrology and Run-to-Run Control in Semiconductor Manufacturing. 18th ISSAT Int. Conf. on Reliability and Quality in Design 2012: 374-378
48. J. He and R. Lawrence. A Graph-based Framework for Multi-Task Multi-View Learning. ICML 2011: 25-32 (acceptance rate: 26%)
49. H. Tong, J. He, Z. Wen, and C.Y. Lin. Diversified Ranking on Large Graphs: an Optimization Viewpoint. KDD 2011: 1028-1036 (acceptance rate of research track: 17.5%)
50. D. Zhang, J. He, Y. Liu, L. Si, and R. Lawrence. Multi-View Transfer Learning with a Large Margin Approach. KDD 2011: 1208-1216 (acceptance rate of research track: 17.5%)
51. J. He, H. Tong, and J. Carbonell. Rare Category Characterization. ICDM 2010: 226-235 [Invited to FCS SI on "**Bests of ICDM 2010**"] (acceptance rate: 19.4%)
52. J. He, and J. Carbonell. Co-Selection of Features and Instances for Unsupervised Rare Category Analysis. SDM 2010: 525-536 [Invited to SAM SI on "**Bests of SDM 2010**"] (acceptance rate: 23.36%)
53. J. He, Y. Liu, and R. Lawrence. Graph-based Transfer Learning. CIKM 2009: 937-946 (acceptance rate of long papers: 14.5%)
54. J. He, and J. Carbonell. Prior-Free Rare Category Detection. SDM 2009: 155-163
55. J. He, Y. Liu, and R. Lawrence. Graph-based Rare Category Detection. ICDM 2008: 833-838 (acceptance rate: 20.0%)
56. J. He, and J. Carbonell. Rare Class Discovery Based on Active Learning. Int. Symposium on Artificial Intelligence and Mathematics 2008 (no page number)
57. J. He, and J. Carbonell. Nearest-Neighbor-Based Active Learning for Rare Category Detection. NIPS 2007: 633-640 (acceptance rate: 22.3%)
58. J. He, and B. Thiesson. Asymmetric Gradient Boosting with Application to Spam Filtering. CEAS 2007 (no page number, acceptance rate of regular papers: 19.0%)
59. J. He, J. Carbonell and Y. Liu. Graph-Based Semi-Supervised Learning as a Generative Model. IJCAI 2007: 2242-2497 (acceptance rate: 34.7%)
60. H. Tong, J. He, M. Li, C. Zhang, W.Y. Ma. Graph Based Multi-modality Learning. ACM Multimedia 2005: 862-871 (acceptance rate: 16%)
61. H. Tong, J. He, M. Li, H.J. Zhang, C. Zhang. A Unified Optimization Based Learning Method for Image Retrieval, CVPR 2005: 230-235 (acceptance rate: 27.9%)
62. H. Tong, M. Li, H.-J. Zhang, C. Zhang, J. He. Learning No-Reference Quality Metric by Examples. The 11th International Multi-Media Modelling Conference (MMM) 2005: 247-254
63. J. He, C. Zhang, N. Zhao and H. Tong. Boosting Web Image Search by Co-Ranking. International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2005: 409-412
64. H. Tong, C. Li, J. He. Internet Traffic Prediction by W-Boost: Classification and Regression. International Symposium on Neural Network (ISNN) 2005: 397-402
65. 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. International Symposium on Neural Network (ISNN) 2005: 476-481
66. J. He, M. Li, H.-J. Zhang, H. Tong, C. Zhang. Manifold-Ranking Based Image Retrieval. ACM Multimedia 2004: 9-16
67. J. He, M. Li, H.J. Zhang, and C. Zhang. Symmetry Feature in Content-Based Image Retrieval. ICIP 2004: 417-420
68. J. He, M. Li, H.J. Zhang, and C. Zhang. W-Boost and Its Application to Web Image Classification. ICPR 2004 148-151
69. 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. Pacific-Rim Conf. on Multimedia (PCM) 2004: 213-220
70. J. He, M. Li, H.-J. Zhang, H. Tong, and C. Zhang. Automatic Peak Number Detection in Image Symmetry Analysis. Pacific-Rim Conference on Multimedia (PCM) 2004: 111-118
71. 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) 2004: 198-205
72. 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)

73. H. Tong, C. Li, J. He. A Boosting-based Framework for Self-similar and Non-linear Internet Traffic Prediction. International Symposium on Neural Network (ISNN) 2004: 931-936

Demos in Conferences

1. C. Xie, D. Yang, J. He, and Y. Xiao. Cross-Site Virtual Social Network Construction. ICDM 2015: 1660-1663

Abstracts

1. A. Nelakurthi, L. Jones, M. Boyle, C. Cook, and J. He. Usage of Social Media for Diabetes Management in a Clinic Based Population. The American Diabetes Association's 7th Scientific Sessions 2017
2. A. Nelakurthi, A. Pinto, C. Cook, J. Ye, T. Lappas, and J. He. Impact of Social Media on Behaviors of Patients with Diabetes. The American Diabetes Association's 76th Scientific Sessions 2016
3. P. Yang, A. Pinto, J. Ye, T. Lappas, and J. He. Association between A1C Improvement and Sentiment in Diabetes Forum Posts. The Obesity Society's Obesity Week 2015
4. A. Nelakurthi, A. Pinto, C. Cook, J. Ye, T. Lappas, and J. He. Sentiment Analysis of Diabetes Forum Data. The Obesity Society's Obesity Week 2015

Workshop Publications

1. P. Jiang, W. Wang, Y. Zhou, J. He, and L. Ying. A Winners-Take-All Incentive Mechanism for Crowd-Powered Systems. ACM SIGMETRICS 2018 Workshop on the Economics of Networks, Systems and Computation (no page number)
2. H. Yang, Y. Zhu, and J. He. User Action Prediction for Computational Advertisement Using Local Graph Algorithms. KDD 2016 Workshop on Mining and Learning with Graphs (no page number)
3. S. Yin, Y. Ma, Y. Liu, C.S. Bae, S.J. Kim, S. Vrudhula, J. He, Y. Cao, and J. Seo. Low-Power ECG Biometric Authentication for Wearable Systems Featuring Sparse Memory Compression. ICML 2016 Workshop on On-Device Intelligence (no page number)
4. P. Yang, and J. He. Learning Representative Features from EMG Data via Deep Non-Negative Tensor Factorization. KDD 2015 Workshop on Data Mining in Bioinformatics (no page number)
5. Y. Zhu, and J. He. A Clustering based Time-Series Analysis Method for Tool Fault Detection in Semiconductor Manufacturing. INFORMS 2014 Workshop on Data Mining and Analytics (no page number)
6. J. He, Q. He, G. Swirszcz, Y. Kamarianakis, R. Lawrence, W. Shen, and L. Wynter. Ensemble-based method for Task 2: Predicting Traffic Jam. ICDM 2010 Workshop on Traffic Prediction for Intelligent GPS Navigation: 1363-1365
7. W. Shen, Y. Kamarianakis, L. Wynter, J. He, Q. He, R. Lawrence, G. Swirszcz. Traffic Velocity Prediction Using GPS Data: IEEE ICDM Contest Task 3 Report. ICDM 2010 Workshop on Traffic Prediction for Intelligent GPS Navigation: 1369-1371
8. 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 (no page number)
9. J. He, H. Tong, M. Li, W.Y. Ma and C. Zhang. Multiple random walk and its application in content-based image retrieval. ACM Multimedia Workshop on Multimedia Information Retrieval 2005: 151-158
10. J. He, H. Tong, M. Li, H.J. Zhang, and C. Zhang. Mean Version Space: a New Active Learning Method for Content-based Image Retrieval. ACM Multimedia Workshop on Multimedia Information Retrieval 2004: 15-22

Patents

1. Graph-based Transfer Learning. J. He, R. Lawrence, and Y. Liu. US9477929B2, US Grant
2. Run-to-Run Control Utilizing Virtual Metrology in Semiconductor Manufacturing. R. Baseman, J. He, E. Yashchin, and Y. Zhu. US9299623B2, US Grant
3. Method and System for Wafer Quality Predictive Modeling based on Multi-Source Information with Heterogeneous Relatedness. Y. Zhu, J. He, and R. Baseman. US9176183B2, US Grant
4. Finding a Top-k Diversified Ranking List on Graphs. J. He, R. Konuru, C.Y. Lin, H. Tong, and Z. Wen. US9009147B2, US Grant

5. Graph-based Framework for Multi-task Multi-view Learning. J. He, D. Gondek, R. Lawrence, and E. Vijil. US8990128B2, US Grant
6. Method and Apparatus for Hierarchical Wafer Quality Predictive Modeling. R. Baseman, J. He, and Y. Zhu. US8732627B2, US Grant
7. Measuring the Goodness of a Top-k Diversified Ranking List. J. He, R. Konuru, C.Y. Lin, H. Tong, and Z. Wen. US20130046769A1, US Application
8. System and Method for Automated Labeling of Text Documents Using Ontologies. J. He, R. Lawrence, P. Melville, V. Sindhvani, and V. Chenthamarakshan. US20130018828A1, US Application

INVITED TALKS

1. **“Taming Data Heterogeneity: Towards a Unified Framework”**
 - Invited talk at UIUC, 2018
2. **“Taming Data Heterogeneity: Algorithms and Applications”**
 - Invited talk at Stony Brook University, 2018
3. **“Seeking Common Ground: Learning from Data Heterogeneity”**
 - Invited talk at Dartmouth College, 2018
 - Invited talk at American Express, 2018
4. **“Learning from Data Heterogeneity: Algorithms and Applications”**
 - Invited talk at IJCAI 2017 Early Career Spotlight, 2017
 - Invited talk at Fudan University, 2017
 - Invited talk at Northeast University, 2017
 - Invited talk at Nanjing University, 2017
 - Invited talk at Alibaba, 2017
5. **“Rare Category Analysis for Rich Data”**
 - Keynote talk at IJCAI 2017 Workshop on AI Applications in E-Commerce, 2017
6. **“Rare Categories Analysis and Applications”**
 - Invited talk at State Farm, 2017
7. **“Detecting Complex Rare Categories in Big Data: Theory and Applications”**
 - Invited talk at Banner Alzheimer’s Institute, 2015
8. **“Heterogeneous Learning: Algorithms and Applications”**
 - Keynote talk at BigMine 2015 in conjunction with KDD 2015, 2015
9. **“Using Dedicated Social Networks to Predict Diabetes Clinical Markers”**
 - Invited talk at Mayo Clinic Arizona, 2015
10. **“Learning from Data Variety”**
 - Invited talk at American Express, 2015
11. **“Learning from Complex Data: A Holistic Perspective”**
 - Invited talk at Arizona State University Faculty Talk Series, 2015
 - Invited talk to Samsung Research, 2015
12. **“Heterogeneous Learning”**
 - Invited talk at Fudan University, China, 2014
 - Invited talk at Nanjing University, China, 2014
 - Invited talk at the CCF Advanced Disciplines Lectures on Machine Learning, China, 2014
 - Invited talk at Chinese Academy of Sciences, Institute of Software, China, 2014
 - Invited talk at Tsinghua University, China, 2014
13. **“Detecting Complex Rare Categories in Big Data: Theory and Applications”**
 - Invited talk at Arizona State University, 2014
 - Invited talk at the City University of New York, 2013
 - Invited talk at Google Research New York, 2013

- Invited talk at NEC Labs America, 2013
- Invited talk at Thomson Reuters, 2013
- Invited talk at Case Western University, 2013

14. “Heterogeneity Meets Rarity: Mining Multi-Faceted Diamond”

- Invited talk at Columbia University, 2013
- Invited talk at Temple University, 2012
- Invited talk at the City University of New York, 2012
- Invited talk at Carnegie Mellon University, 2012
- Invited talk at Drexel University, 2012
- Invited talk at Indiana University, 2012
- Invited talk at Stevens Institute of Technology, 2012
- Invited talk at Rutgers University, 2012

15. “Rare Category Analysis”

- Invited talk at University of Michigan, 2010
- Invited talk at University of Southern California, 2010
- Invited talk IBM T.J. Watson Research Center, 2010
- Yahoo! Labs, 2010

TEACHING AND MENTORING

Summary & Highlights

- Post-doc Researchers: 1
- Ph.D. Students: 1 Graduated and 8 Current
- M.S. Students: 1 Graduated
- Undergraduate Students (Research): 5
- High-School Students (Research): 2
- Student Fellowships and Awards: 12
- Average Teaching Evaluation Score for Undergraduate Courses taught at ASU: 4.31
- Average Teaching Evaluation Score for Graduate Courses taught at ASU: 4.18

Course Instructor

- CSE 575 Statistical Machine Learning, ASU (Spring 2018 with 128 enrolled students, Fall 2016 with 104 enrolled students, Spring 2015 with 113 enrolled students)
- CSE 310 Data Structures and Algorithms, ASU (Fall 2017 with 80 enrolled students, Fall 2015 with 124 enrolled students)
- CS 559 Machine Learning: Fundamentals and Applications, Stevens Institute of Technology (Fall 2013)
- CS 347 Software Development Process, Stevens Institute of Technology (Spring 2014, Spring 2013)

Teaching Assistant

- 10701 Machine Learning, Instructor: Carlos Guestrin (Fall 2007)
- 10702 Statistical Machine Learning, Instructor: Larry Wasserman (Spring 2008)

Conference Tutorial Instructor

- Analysis of Complex Rare Categories, IEEE Big Data 2018
- Heterogeneous Learning: Recent Advance and Future Studies, IJCAI 2017

Thesis Committee Chair

- Zhi Nie (ASU, Ph.D): Machine Learning Methods for Diagnosis, Prognosis and Prediction of Long-term Treatment Outcome of Major Depression (graduated in 2017)
- Dawei Zhou (ASU, Ph.D student)

- Yao Zhou (ASU, Ph.D student)
- Xu Liu (ASU, Ph.D student)
- Arun Nelakurthi Reddy (ASU, Ph.D student)
- Jun Wu (ASU, Ph.D student)
- Xue Hu (ASU, Ph.D student)
- Lecheng Zheng (ASU, Ph.D student)
- Dongqi Fu (ASU, Ph.D student)
- Zhiqiang Li (Stevens Institute of Technology, MS): Rare Category Detection for Social Network Analytics (graduated in 2014)

Thesis Committee

- Weichao Ma (ASU, Ph.D): Model Based Automatic and Robust Spike Sorting for Large Volumes of Multi-channel Extracellular Data (graduated in 2019)
- Bashar Haddad (ASU, Ph.D): BagStack Classification for Data Imbalance Problems with Application to Defects Detection and Labeling in Semiconductor Units (graduated in 2019)
- Zhen Chen (ASU, Ph.D): Diffusion in Networks: Source Localization, History Reconstruction and Real Time Network Robustification (graduated in 2018)
- Juhua Hu (Simon Fraser University, Ph.D): Subspace Clustering Methods for Understandable Information Organization (graduated in 2017)
- Qingyang Li (ASU, Ph.D): Scaling up Large-scale Sparse Learning and Its Application to Medical Imaging (graduated in 2017)
- Yafeng Lu (ASU, Ph.D): Methodologies in Predictive Visual Analytics (graduated in 2017)
- Tao Yang (ASU, Ph.D): Structured Sparse Methods for Imaging Genetics (graduated in 2016)
- Robert Trevino (ASU, Ph.D): Big Data Analysis of Bacterial Inhibitors in Parallelized Cellomics - A Machine Learning Approach (graduated in 2016)
- Söm Shahapurkar (ASU, Ph.D): Crossing the Chasm: Deploying Machine Learning Analytics in Dynamic Real-World Scenarios (graduated in 2016)
- Hana Alostad (ASU, Ph.D): Directional Prediction of Stock Prices using Breaking News on Twitter (graduated in 2016)
- Shuo Xiang (ASU, Ph.D): Simultaneous Variable and Feature Group Selection in Heterogeneous Learning: Optimization and Applications (graduated 2014)
- Hong Wang (ASU, Ph.D student)
- Jaydeep Chakraborty (ASU, Ph.D student)
- Trevor Barron (ASU, MS): Adaptive Curvature for Stochastic Optimization (graduated in 2019)
- Haichao Yu (ASU, MS): Multi-layered HITS on Multi-sourced Networks (graduated in 2018)
- Harsh Dani (ASU, MS): Sentiment Informed Cyberbullying Detection in Social Media (graduated in 2017)
- Ruiyue Peng (ASU, MS): TiCTak: Target-Specific Centrality Manipulation on Large Networks (graduated in 2017)
- Rongyu Lin (ASU, MS): MASON: Real-time NBA Matches Outcome Prediction (graduated in 2017)
- Lingfan Zhu (ASU, MS): Adaptive Sampling and Learning in Recommendation Systems (graduated in 2015)

Student Mentoring

- Kaan Aksoy (ASU, undergraduate student); topic: Deep Neural Networks for Multi-Task Multi-View Learning (2017-present, supported by NSF REU grant)
- Ernest Reginald Dela Cruz (ASU, undergraduate student); topic: Time-Evolving Graph-Embedding (2018-present, supported by NSF REU grant)
- Jack Fleitman (ASU, undergraduate student); topic: Sentiment Analysis on Disease-Dedicated Social Networks (2018-present, supported by NSF REU grant)
- Kevin Clark (ASU, undergraduate student); topic: Exploring the Teaching Dimension in Crowdsourcing (2017, supported by NSF REU grant)

- John Kevin Cava (ASU, undergraduate student); topic: Deep Learning for Modeling Heterogeneous Data (2014-2016)
- Hung-Hsuan Hsu (High school student); topic: Sentiment Analysis (2015)
- Tyler Ruan (High school student); topic: House Price Prediction (2015)
- Dan Zhang (Purdue, Ph.D); topic: Multi-View Multi-Instance Learning (2013)
- Xi Chen (Carnegie Mellon University, Ph.D); topic: Sparse Learning and Applications (2012)

Student Awards (The Students were under my advising at the time of recognition)

- KDD 2019 Student Travel Award (Dawei Zhou, Ph.D Student)
- KDD 2019 Student Travel Award (Jun Wu, Ph.D Student)
- KDD 2018 Student Travel Award (Dawei Zhou, Ph.D Student)
- KDD 2018 Student Travel Award (Yao Zhou, Ph.D Student)
- KDD 2017 Student Travel Award (Dawei Zhou, Ph.D Student)
- ICDM 2017 Student Travel Award (Yao Zhou, Ph.D Student)
- AAI 2017 Student Travel Award (Arun Nelakurthi, Ph.D Student)
- SDM 2017 Student Travel Award (Arun Nelakurthi, Ph.D Student)
- SDM 2017 Student Travel Award (Yao Zhou, Ph.D Student)
- ICDM 2016 Student Travel Award (Dawei Zhou, Ph.D Student)
- IJCAI 2015 Student Travel Award (Dawei Zhou, Ph.D Student)
- ICDM 2015 Student Travel Award (Dawei Zhou, Ph.D Student)

PROFESSIONAL ACTIVITIES AND SERVICE

Summary & Highlights

- International/national conferences committees: 50+
- Member of editorial board: 3
- Peer reviewer for journals: 17

ASU Committees

- Big Data Systems Faculty Search Committee, CIDSE ASU (2017)
- Big Data Faculty Search Committee, CIDSE ASU (2015)
- Ph.D Admission Committee (CSE), CIDSE, ASU (2014-2015)

Journal Editorial Board Memberships

- Editorial Board Member, Data Mining and Knowledge Discovery
- Editorial Board Member, Data Mining and Management of Frontiers in Big Data
- Editorial Board Member, Data in Brief (Elsevier)

Officer of a National/International Scientific Organization

- Grant Selection Committee, SIGKDD KDD Impact Program, 2018
- Publication Chair, The International Machine Learning Society, 2015

Conference Organizing Committee

- PC Vice-Chair for IEEE BigData 2019
- Workshop Co-Chair for CIKM 2019
- Workshop Co-Chair for IEEE BigData 2018
- Program Co-Chair for WSDM Workshop: GTA³ 2018: Workshop on Graph Techniques for Adversarial Activity Analytics
- Publicity Chair for ICML 2017
- Social Networking Co-chair for KDD 2017
- Poster Co-Chair for IEEE BigData 2017

- Open House Chair for IJCAI 2016
- Publicity Chair for ICML 2016
- Sponsorship Co-Chair for ICDM 2016
- Program Co-Chair in SDM Workshop on Heterogeneous Learning 2015
- Program Co-Chair for SDM Workshop on Adaptive Learning On-a-chip: Hardware and Algorithms 2015
- Publicity Chair for ICML 2015
- Poster Co-Chair for ICDM 2015
- Doctoral Consortium Co-chair for IEEE BigData 2014
- Publicity Chair for ICML 2014
- Program Co-chair in SDM Workshop on Heterogeneous Learning 2014
- Session chair in the 31st International Conference on Machine Learning (ICML) 2014
- Program Chair of World Statistics Congress Special Topic Session on Statistical Techniques in Heterogeneous Learning 2013
- Publicity Chair for ICML 2013
- Publications Co-chair for KDD 2013
- Publicity Chair for ICML 2012
- Publications Co-chair for KDD 2012

Program Committee in Conferences

- Area Chair in the AAAI Conference on Artificial Intelligence (AAAI) 2019
- Senior Program Committee, International Joint Conference on Artificial Intelligence (IJCAI) 2019
- Program Committee, International Conference on Learning Representations (ICLR) 2019
- Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS) 2019
- Program Committee in the International Conference on Machine Learning (ICML) 2019
- Senior Program Committee in the AAAI Conference on Artificial Intelligence (AAAI) 2018
- Senior Program Committee, International Joint Conference on Artificial Intelligence and European Conference on Artificial Intelligence (IJCAI-ECAI) 2018
- Senior Program Committee in the International World Wide Web Conference (WWW) 2018
- Program Committee in the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2018
- Program Committee in the International Conference on Machine Learning (ICML) 2018
- Program Committee, International Conference on Artificial Intelligence and Statistics (AISTATS) 2018
- Program Committee, International Conference on Learning Representations (ICLR) 2018
- Program Committee in the Pacific Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2018
- Program Committee, International Conference on Database Systems for Advanced Applications (DASFAA) 2018
- Program Committee in the Asian Conference on Machine Learning (ACML) 2018
- Program Committee, International Conference on Database Systems for Advanced Applications (DASFAA) 2018
- Senior Program Committee in the AAAI Conference on Artificial Intelligence (AAAI) 2017
- Senior Program Committee in the International Joint Conference on Artificial Intelligence (IJCAI) 2017
- Senior Program Committee in the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2017
- Program Committee in the International Conference on Machine Learning (ICML) 2017
- Program Committee in the IEEE International Conference on Data Mining (ICDM) 2017
- Program Committee in the ACM International Conference on Web Search and Data Mining (WSDM) 2017
- Program Committee in the International World Wide Web Conference (WWW), 2017
- Program Committee in the International Conference on Artificial Intelligence and Statistics (AISTATS) 2017
- Program Committee in the ACM International Conference on Information and Knowledge Management (CIKM) 2017
- Program Committee in the Asian Conference on Machine Learning (ACML) 2017

- Program Committee in the International Conference on Database Systems for Advanced Applications (DASFAA) 2017
- Program Committee in the IEEE International Conference on Big Knowledge (ICBK) 2017
- Program Committee in the IEEE International Conference on Data Science and Advanced Analytics (DSAA) 2017
- Senior Program Committee in the AAAI Conference on Artificial Intelligence (AAAI) 2016
- Senior Program Committee in the International Joint Conference on Artificial Intelligence (IJCAI) 2016
- Program Committee in the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2016
- Program Committee in the International Conference on Machine Learning (ICML) 2016
- Program Committee in the IEEE International Conference on Data Mining (ICDM) 2016
- Program Committee in the Pacific Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2016
- Program Committee in the ACM International Conference on Information and Knowledge Management (CIKM) 2016
- Program Committee in the International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2016
- Senior Program Committee in the AAAI Conference on Artificial Intelligence (AAAI) 2015
- Senior Program Committee in the International Joint Conference on Artificial Intelligence (IJCAI) 2015
- Program Committee in the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2015
- Senior Program Committee in the SIAM International Conference on Internet on Data Mining (SDM) 2015
- Program Committee in the IEEE International Conference on Data Mining (ICDM) 2015
- Program Committee in the ACM International Conference on Web Search and Data Mining (WSDM) 2015
- Program Committee in the Pacific Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2015
- Program Committee in the ACM International Conference on Information and Knowledge Management (CIKM) 2015
- Program Committee in the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2014
- Program Committee in the International Conference on Machine Learning (ICML) 2014
- Program Committee in the IEEE International Conference on Data Mining (ICDM) 2014
- Program Committee in the SIAM International Conference on Internet on Data Mining (SDM) 2014
- Program Committee in the Pacific Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2014
- Program Committee in the IEEE International Conference on Data Mining (ICDM) 2013
- Program Committee in the SIAM International Conference on Internet on Data Mining (SDM) 2013
- Program Committee in the Pacific Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2013
- Program Committee in the IEEE International Conference on Data Mining (ICDM) 2012

Reviewer

- NSF Panel (2016, 2017, 2018)
- Neural Information Processing Systems (NIPS 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019)
- Pacific Symposium on Biocomputing (PSB) 2015
- Book Review for Cambridge University Press, Pearson Publishing
- Book Proposal Review for Springer
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Transactions on Multimedia
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Journal on Intelligent Systems
- ACM Transactions on Knowledge Discovery from Data (TKDD)
- ACM Transactions on Information Systems (TOIS)
- Journal of Artificial Intelligence Research
- Springer Journal on Data Mining and Knowledge Discovery (DMKD)
- Springer Journal on Multimedia Systems

- Springer Journal on Knowledge and Information Systems
- Neural Computation
- Journal of Computer Science and Technology
- Signal, Image and Video Processing
- International Journal of Information Technology & Decision Making
- Pattern Recognition
- Applied Stochastic Models in Business and Industry
- Social Network Analysis and Mining
- PLOS One

Other Committees

- Lead SAO Judge on behalf of AAAI at Intel ISEF (2016)

REFERENCES – UPON REQUEST