Research Publications - Data Mining Research Group at CS, UIUC

2019

1. Shuochoa Yao, Ailing Piao, Wenjun Jiang, Yiran Zhao, Huajie Shao, Shengzhong Liu, Dongxin Liu, Jinyang Li, Tianxi Wang, Shaohuan Hu, Lu Su, Jiawei Han and Tarek Abdelzaher, “STF Nets: Learning Sensing Signals from the Time-Frequency Perspective with Short-Time Fourier Neural Networks”, in Proc. the Web Conf. 2019 (WWW’19), San Francisco, CA, May 2019

2. Carl Yang, Huy Hoang Do, Tomas Mikolov and Jiawei Han “Place Deduplication with Embeddings”, in Proc. the Web Conf. 2019 (WWW’19), San Francisco, CA, May 2019

3. Honglei Zhuang, Timothy Hanratty, and Jiawei Han, “Aspect-Based Sentiment Analysis with Minimal Guidance”, in Proc. 2019 SIAM Int. Conf. on Data Mining (SDM’19), Calgary, Alberta, Canada, May 2019

4. Sha Li, Chao Zhang, Dongming Lei, Ji Li, Jiawei Han, “GeoAttn: Fine-Grained Localization of Social Media Messages via Attentional Memory Network”, in Proc. 2019 SIAM Int. Conf. on Data Mining (SDM’19), Calgary, Alberta, Canada, May 2019

5. Qi Zhu, Xiang Ren, Jingbo Shang, Yu Zhang, Ahmed El-Kishky and Jiawei Han, “Integrating Local Context and Global Cohesiveness for Open Information Extraction”, in Proc. 2019 ACM Int. Conf. on Web Search and Data Mining (WSDM’19), Melbourne, Australia, Feb. 2019

6. Jiaming Shen, Ruiilang Lyu, Xiang Ren, Michelle Vanni, Brian Sadler, Jiawei Han, “Mining Entity Synonyms with Efficient Neural Set Generation”, in Proc. 2019 AAAI Conf. on Artificial Intelligence (AAAI-19), Honolulu, Hawaii, Jan. 2019

7. Yu Meng, Jiaming Shen, Chao Zhang and Jiawei Han, “Weakly-Supervised Hierarchical Text Classification”, in Proc. 2019 AAAI Conf. on Artificial Intelligence (AAAI-19), Honolulu, Hawaii, Jan. 2019

8. Xuan Wang, Yu Zhang, Xiang Ren, Yuhao Zhang, Marinika Zitnik, Jingbo Shang, Curtis Langlotz, and Jiawei Han, “Cross-type Biomedical Named Entity Recognition with Deep Multi-Task Learning”, Bioinformatics (accepted), Oct. 2018 (to appear 2019)

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2. Jingbo Shang, Jialu Liu, Meng Jiang, Xiang Ren, Clare R Voss, Jiawei Han, “Automated Phrase Mining from Massive Text Corpora”, IEEE Transactions on Knowledge and Data Engineering, 30(10): 1825-1837 (2018)

3. Jingbo Shang, Meng Jiang, Wenzhuong Tong, Jinfeng Xiao, Jian Peng, Jiawei Han, “DPPred: An Effective Prediction Framework with Concise Discriminative Patterns”, IEEE Transactions on Knowledge and Data Engineering, 30(7): 1226-1239 (2018)

4. Chenguang Wang, Yangqiu Song, Haoan Li, Ming Zhang, Jiawei Han, “Unsupervised meta-path selection for text similarity measure based on heterogeneous information networks”, Data Mining and Knowledge Discovery, 32(6): 1735-1767 (2018)

5. Chao Zhang, Dongming Lei, Quan Yuan, Honglei Zhuang, Lance M. Kaplan, Shaowen Wang, Jiawei Han, “GeoBurst+: Effective and Real-Time Local Event Detection in Geo-Tagged Tweet Streams”, ACM Transactions on Intelligent Systems and Technology (TIST) 9(3): 34:1-24 (2018)

6. Wei Shen, Jiawei Han, Jianyong Wang, Xioajie Wang, Zhengyu Yang, “SHINE+: A General Framework for Domain-Specific Entity Linking with Heterogeneous Information Networks”, IEEE Transactions on Knowledge and Data Engineering, 30(2): 353-366 (2018)

7. Xuan Wang, Yu Zhang, Qi Li, Cathy Wu, and Jiawei Han, “PENNER: Pattern-enhanced Nested Named Entity Recognition in Biomedical Literature”, Proc. 2018 Int. Conf. on Bioinformatics and Biomedicine (BIBM’18), Madrid, Spain, Dec. 2018

8. Qi Li, Xuan Wang, Yu Zhang, Fei Ling, Cathy Wu, and Jiawei Han, “Pattern Discovery for Wide-Window Open Information Extraction in Biomedical Literature”, Proc. 2018 Int. Conf. on Bioinformatics and Biomedicine (BIBM’18), Madrid, Spain, Dec. 2018

9. Shi Zhi, Fan Yang, Zheyi Zhu, Qi Li, Zhaoran Wang, and Jiawei Han, “Dynamic Truth Discovery on Numerical Data”, in Proc. of 2018 IEEE Int. Conf. on Data Mining (ICDM’18), Singapore, Nov. 2018

10. Carl Yang, Yichen Feng, Pan Li, Yu Shi, and Jiawei Han, “Meta-Graph Based HIN Spectral Embedding: Methods, Analyses, and Insights”, in Proc of 2018 IEEE Int. Conf. on Data Mining (ICDM’18), Singapore, Nov. 2018

11. Fangbo Tao, Chao Zhang, Xiuxi Chen, Meng Jiang, Tim Hanratty, Lance Kaplan, and Jiawei Han, “Doc2Cube: Allocating Documents to Text Cube without Labeled Data”, in Proc of 2018 IEEE Int. Conf. on Data Mining (ICDM’18), Singapore, Nov. 2018

12. Doris Xin, Ahmed El-Kishky, De Liao, Brandon Norick, and Jiawei Han, “Active Learning on Heterogeneous Information Networks: A Multi-armed Bandit Approach”, in Proc of 2018 IEEE Int. Conf. on Data Mining (ICDM’18), Singapore, Nov. 2018

13. Jingbo Shang, Liyuan Liu, Xiaotao Gu, Xiang Ren, Teng Ren and Jiawei Han, “Learning Named Entity Tagger using Domain-Specific Dictionary”, in Proc. of 2018 Conf. on Empirical Methods in Natural Language Processing (EMNLP’18), Brussels, Belgium, Oct. 2018

14. Liyuan Liu, Xiang Ren, Jingbo Shang, Xiaotao Gu, Jian Peng and Jiawei Han, “Efficient Contextualized Representation: Language Model Pruning for Sequence Labeling”, in Proc. of 2018 Conf. on Empirical Methods in Natural Language Processing (EMNLP’18), Brussels, Belgium, Oct. 2018

15. Quan Yuan, Xiang Ren, Wenqi He, Chao Zhang, Xinhe Geng, Lifu Huang, Heng Ji, Chin-Yew Lin and Jiawei Han, “Open-Schema Event Profiling for Massive News Corpora”, in Proc. of 2018 ACM Int. Conf. on Information and Knowledge Management (CIKM’18), Turin, Italy, Oct. 2018

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17. Jingbo Shang, Jiaming Shen, Tianhang Sun, Xingbang Liu, Anja Gruenheid, Flip Korn, Adam Lelkes, Cong Yu and Jiawei Han, “Investigating Rumor News Using Agreement-Aware Search”, in Proc. of 2018 ACM Int. Conf. on Information and Knowledge Management (CIKM’18), Turin, Italy, Oct. 2018
18. Carl Yang, Mengxiong Liu, Frank He, Xikun Zhang, Jian Peng, and Jiawei Han, "Similarity Modeling on Heterogeneous Networks via Automatic Path Discovery", in Proc. of 2018 European Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD’18), Dublin, Ireland, Sept. 2018.

19. Carl Yang, Mengxiong Liu, Vincent W. Zheng and Jiawei Han, "Node, Motif and Subgraph: Leveraging Network Functional Blocks Through Structural Convolution", in Proc. of 2018 IEEE/ACM Int. Conf. on Social Networks Analysis and Mining (ASONAM’18), Barcelona, Spain, Aug. 2018.

20. Xuan Wang, Yu Zhang, Qi Li, Yinyin Chen and Jiawei Han, "Open Information Extraction with Meta-pattern Discovery in Biomedical Literature", in Proc. of 2018 ACM Conf. on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB’18), Washington, DC, August 2018.

21. Jingbo Shang, Chao Zhang, Jiaming Shen, Jiawei Han, "Towards Multidimensional Analysis of Text Corpora", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), (Conference Tutorial), London, UK, Aug. 2018.

22. Jingbo Shang, Qi Zhu, Jiaming Shen, Xuan Wang, Xiaotao Gu, Lance Kaplan, Timothy Harratty and Jiawei Han, "AutoNet: Automated Network Construction and Exploration System from Domain-Specific Corpora", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), (demo paper), London, UK, August 2018.

23. Jiaming Shen*, Jinfeng Xiao*, Yu Zhang, Carl Yang, Jingbo Shang, Jinda Han, Saurabh Sinha, Peipei Ping, Richard Weinshilboum, Zhiyong Lu and Jiawei Han, "AutoNet: Automated Network Construction and Exploration System from Domain-Specific Corpora", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), (demo paper), London, UK, August 2018.

24. Hanwen Zha, Jiaming Shen, Keqian Li, Warren Greiff, Michelle Vanni, Jiawei Han and Xifeng Yan, "FTS: Faceted Taxonomy Construction and Search for Scientific Publications", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), (demo paper), London, UK, August 2018.

25. Carl Yang, Xiaolin Shi, Jie Luo and Jiawei Han, "I Know You’ll Be Back: Interpretable New User Clustering and Churn Prediction on a Mobile Social Application", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), London, UK, August 2018.

26. Chao Zhang, Fangbo Tao, Xiuli Chen, Jiaming Shen, Meng Jiang, Brian Sadler, Michelle Vanni and Jiawei Han, "TaxoGen: Constructing Topical Concept Taxonomy by Adaptive Term Embedding Clustering", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), London, UK, August 2018.

27. Qi Li, Meng Jiang, Xikun Zhang, Meng Qu, Timothy Hanratty, Jing Gao and Jiawei Han, "TruePIE: Discovering Reliable Patterns in Pattern-Based Information Extraction", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), London, UK, August 2018.

28. Jiaming Shen, Zeqiu Wu, Dongming Lei, Chao Zhang, Xiang Ren, Michelle T. Vanni, Brian M. Sadler and Jiawei Han, "HiExpan: Task-Guided Heterogeneous Network Construction by Hierarchical Tree Expansion", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), London, UK, August 2018.

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30. Yuchen Li, Zhengzhi Lou, Yu Shi and Jiawei Han, "Temporal Motifs in Heterogeneous Information Networks", in Proc. of 2018 Int. Workshop on Mining and Learning with Graphs (MLG’18), co-located with KDD’18, London, UK, August 2018.

31. Yuning Mao, Xiang Ren, Meng Qu, Jiawei Han, "SetSearch+: Entity-Set-Aware Search and Mining for Scientific Literature", in Proc. of 2018 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’18), London, UK, August 2018.

32. Jiaming Shen, Jinfeng Xiao, Xinwei He, Jingbo Shang, Saurabh Sinha and Jiawei Han, "Entity Set Search of Scientific Literature: An Unsupervised Ranking Approach", in Proc. of 2018 ACM SIGIR Conf. on Research and Development in Information Retrieval (SIGIR’18), Ann Arbor, MI, July 2018.

33. Ahmed El-Kishky, Frank Xu, Aston Zhang, Stephen Macke and Jiawei Han, "Entropy-Based Subword Mining for Word Embeddings", in Proc. of the 2nd Workshop on Subword and Character Level Models in NLP (SCLem’18) (at NAACL 2018), New Orleans, LA, June 2018.

34. Yu Shi, Huan Gui, Qi Zhu, Lance Kaplan,Jiawei Han, "AspEM: Embedding Learning by Aspects in Heterogeneous Information Networks," Proc. of 2018 SIAM Int. Conf. on Data Mining (SDM’18), San Diego, CA, May 2018.

35. Meng Qu, Xiang Ren, Yu Zhang, and Jiawei Han, "Weakly-supervised Relation Extraction by Pattern-enhanced Embedding Learning", in Proc. of 2018 Int. Conf. on World-Wide Web (WWW’18), Lyon, France, Apr. 2018.

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37. Carl Yang, Chao Zhang, Jiawei Han, Xuewen Chen, Jieping Ye, "Did You Enjoy the Ride: Understanding Passenger Experience via Heterogeneous Network Embedding", Proc. of 2018, IEEE International Conference on Data Engineering (ICDE’18), Paris, France, April 2018.

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39. Chao Zhang, Mengxiong Liu, Zhengchao Liu, Carl Yang, Luming Zhang, Jiawei Han, "Spatiotemporal Activity Modeling Under Data Scarcity: A Graph-Regularized Cross-Modal Embedding Approach", in Proc. of 2018 AAAI Conf. on Artificial Intelligence (AAA’18), New Orleans, LA, Feb. 2018.

40. Wanzheng Zhu, Chao Zhang, Shuchao Yao, Xiaobin Gao, Jiawei Han, "A Spherical Hidden Markov Model for Semantics-Rich Human Mobility Modeling", in Proc. of 2018 AAAI Conf. on Artificial Intelligence (AAA’18), New Orleans, LA, Feb. 2018.

41. Zeqiu Wu, Xiang Ren, Frank F. Xu, Ji Li and Jiawei Han, "Indirect Supervision for Relation Extraction using Question-Answer Pairs", in Proc. of 2018 ACM Int. Conf. on Web Search and Data Mining (WSDM’18), Los Angeles, CA, Feb. 2018.

42. Meng Qu, Jian Tang, and Jiawei Han, "Curriculum Learning for Heterogeneous Star Network Embedding via Deep Reinforcement Learning", in Proc. of 2018 ACM Int. Conf. on Web Search and Data Mining (WSDM’18), Los Angeles, CA, Feb. 2018.

43. Jiawei Han, "On the Power of Massive Text Data", (keynote speech), in Proc. of 2018 ACM Int. Conf. on Web Search and Data Mining (WSDM’18), Los Angeles, CA, Feb. 2018.

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2. Meng Qu, Jian Tang, Jingbo Shang, Xiang Ren, Ming Zhang, Jiawei Han, "An Attention-based Collaboration Framework for Multi-View Network Representation Learning", in Proc. of 2017 ACM Int. Conf. on Information and Knowledge Management (CIKM’17), Singapore, Nov. 2017

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5. Shi Zhi, Yichen Sun, Jialu Liu, "ClaimVerify: A Real-time Claim Verification System Using the Web and Fact Databases" (system demo), in Proc. of 2017 ACM Int. Conf. on Information and Knowledge Management (CIKM’17), Singapore, Nov. 2017

6. Mengxiong Liu, Zhengchao Liu, Chao Zhang, Keyang Zhang, Quan Yuan, Tim Hanratty and Jiawei Han, "Urbanity: A System for Interactive Exploration of Urban Dynamics from Streaming Human Sensing Data" (system demo), in Proc. of 2017 ACM Int. Conf. on Information and Knowledge Management (CIKM’17), Singapore, Nov. 2017

7. Huan Gui, Jiulu Liu, Fangbo Tao, Meng Jiang, Brandon Norick, Lance Kaplan and Jiawei Han, "Embedding Learning with Events in Heterogeneous Information Networks", in Proc. of 2017 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’17), Halifax, Nova Scotia, Canada, Aug. 2017

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9. Meng Jiang, Xiang Ren and Jiawei Han, "Automatic Synonym Discovery with Knowledge Bases", in Proc. of 2017 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’17), Halifax, Nova Scotia, Canada, Aug. 2017

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12. XiuLi Ma, Guanyu Zhou, Jingbo Shang, Jingjing Wang, Jian Peng, and Jiawei Han, "Detection of Complexes in Biological Networks through Diversified Dense Subgraphs Mining", Journal of Computational Biology, 24 (9): 923–941, 2017

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14. Li Fu, Jonathan May, Xiaoman Pan, Heng Ji, Xiang Ren, Jiawei Han, Lin Zhao, James A. Hendler, "Liberal Entity Extraction: Rapid Construction of Fine-Grained Entity Typing Bases", Big Data. 5(1):19-31, 2017

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<td>1. Huan Gui, Jialu Liu, Fangbo Tao, Meng Jiang, Brandon T. Norick, and Jiawei Han, &quot;Large-Scale Embedding Learning in Heterogeneous Event Data&quot;, in Proc. of 2016 Int. Conf. on Data Mining (ICDM’16), Barcelona, Spain, Dec. 2016.</td>
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<td>2. Xiang Ren, Wenqi He, Meng Qu, Lifu Huang, Heng Ji, and Jiawei Han, &quot;AFET: Automatic Fine-Grained Entity Typing by Hierarchical Partial-Label Embedding&quot;, in Proc. of 2016 Conf. on Empirical Methods in Natural Language Processing (EMNLP’16), Austin, TX, Nov. 2016</td>
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<td>3. Meng Jiang, Peng Cui, and Jiawei Han, &quot;Data-Driven Behavioral Analytics: Observations, Representations and Models&quot;, in Proc. of 2016 ACM Int. Conf. on Information and Knowledge Management (CIKM’16) (conference tutorial), Indianapolis, IN, Oct. 2016</td>
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<td>4. Tarique Siddiqui, Xiang Ren, Aditya Parameswaran and Jiawei Han, &quot;FacetGist: Collective Extraction of Document Facets in Large Technical Corpora&quot;, in Proc. of 2016 ACM Int. Conf. on Information and Knowledge Management (CIKM’16), Indianapolis, IN, Oct. 2016</td>
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<td>5. Hongkun Yu, Jingbo Shang, Meichun Hsu, Malú Castellanos and Jiawei Han, &quot;Data-Driven Contextual Valence Shifter Quantification for Multi-Theme Sentiment Analysis&quot;, in Proc. of 2016 ACM Int. Conf. on Information and Knowledge Management (CIKM’16), Indianapolis, IN, Oct. 2016</td>
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<td>6. Qian Cheng, Jingbo Shang, Joshua Juen, Jiawei Han and Bruce Schatz, “Mining Discriminative Patterns to Predict Health Status for Cardiopulmonary Patients”, in Proc. of 2016 ACM Conf. on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB’16), Seattle, WA, Oct. 2016</td>
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<td>7. Fangbo Tao, Honglei Zhuang, Chi Wang Yu, Qi Wang, Taylor Cassidy, Lance Kaplan, Clare Voss, Jiawei Han, “Multi-Dimensional, Phrase-Based Summarization in Text Cubes”, Data Eng. Bulletin 39(3), Sept. 2016, pp. 74-84.</td>
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<td>8. Di Lu, Clare R. Voss, Fangbo Tao, Xiang Ren, Rachel Guan, Rostyslav Korolov, Tongtao Zhang, Dongang Wang, Hongzhi Li, Taylor Cassidy, Heng Ji, Shih-Fu Chang, Jiawei Han, William Wallace, James Hendler, Me Si and Lance Kaplan, “Cross-media Event Extraction and Recommendation”, in Proc. of 2016 Annual Conf. of the North American Chapter of the Association for Computational Linguistics (NAACL), 2016. [Demo System]</td>
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<td>10. Rostyslav Korolov, Di Lu, Jingjing Wang, Guangyuo Zhou, Claire Bonial, Clare Voss, Lance Kaplan, William Wallace, Jiawei Han and Heng Ji, “On Predicting Social Unrest Using Social Media”, in Proc. of 2016 IEEE/ACM Int. Conf. on Advances in Social Networks Analysis and Mining (ASONAM’16), San Francisco, CA, Aug. 2016</td>
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<td>12. Meng Jiang, Christos Faloutsos, Jiawei Han, “CatchTartan: Representing and Summarizing Dynamic Multicontextual Behaviors”, in Proc. of 2016 ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD’16), San Francisco, CA, Aug. 2016</td>
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<td>14. Mengting Wan, Xiangyu Chen, Lance Kaplan, Jiawei Han, Jing Gao, Bo Zhao, “From Truth Discovery to Trustworthy Opinion Discovery: An Uncertainty-Aware Quantitative Modeling Approach”, in Proc. of 2016 ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD’16), San Francisco, CA, Aug. 2016</td>
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