Research Publications - Data Mining Research Group at CS, UIUC

2019

1. Shuochao Yao, Ailing Piao, Wenjun Jiang, Yiran Zhao, Huajie Shao, Shengzhong Liu, Dongxin Liu, Jinyang Li, Tianxi Wang, Shaohan Hu, Lu Su, Jiawei Han and Tarek Abdelzaher, “STFNNets: 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, Ruiliang 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, Yuhaoh 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)

2018

1. Xiang Ren and Jiawei Han, Mining Structures of Factual Knowledge from Text: An Effort-Light Approach, Morgan & Claypool Publishers, 2018. (Ren’s thesis: 2018 ACM SIGKDD Dissertation Award)
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, Wenzhu 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, Qian 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, Xiaojie Wang, Zhenglu 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, Xiusi 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 Li, 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 Li, 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, Wengu He, Chao Zhang, Xinhe Geng, Lilu 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
16. Yu Meng, Jiaming Shen, Chao Zhang and Jiawei Han, “Weakly-Supervised Neural Text Classification”, in Proc of 2018 ACM Int. Conf. on Information and Knowledge Management (CIKM’18), Turin, Italy, Oct. 2018
17. Jingbo Shang, Jiaming Shen, Tianhang Sun, Xingbang Liu, Anja Gruenheid, Filip 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
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.

3. Chenguang Wang, Yangqiu Song, Haoan Li, Yizhou Sun, Ming Zhang, Jiawei Han, "Second-Order Heterogeneous Information Network Similarity for Text", in Proc. of 2017 ACM Int. Conf. on Information and Knowledge Management (CIKM’17), Singapore, Nov. 2017.

4. Quan Yuan, Jingbo Shang, Xin Cao, Chao Zhang, Xinhe Geng, Jiawei Han, "Detecting Multiple Periods and Periodic Patterns in Event Time Sequences", in Proc. of 2017 ACM Int. Conf. on Information and Knowledge Management (CIKM’17), Singapore, Nov. 2017.

5. Sheng Zhi, Yichen Sun, Jiayi Liu, Chao Zhang, Jiawei Han, "ClaimVerif: A Real-time Claim Verification System Using the Web and Fact Databases", 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, Jialu Liu, Fangbo Tao, Meng Jiang, Brandon Norick, Lance Kaplan and Jiawei Han, "Embedding Learning with Events in Heterogeneous Information Networks", IEEE Transactions on Knowledge and Data Engineering, 29(11): 2419-2441, 2017.

8. Jiaming Shen, Zegiu Wu, Dongming Lei, Jingbo Shang, Xiang Ren, Jiawei Han, "SetExpan: Corpus-based Set Expansion via Context Feature Selection and Rank Ensemble", in Proc. of 2017 European Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD’17), Skopje, Macedonia, Sept. 2017.

9. Liyun Liu, Xiang Ren, Qi Zhu, Shi Zhi, Huan Gui, Heng Ji and Jiawei Han, "Heterogeneous Supervision for Relation Extraction: A Representation Learning Approach", in Proc. of 2017 Conf. on Empirical Methods in Natural Language Processing (EMNLP’17), Copenhagen, Denmark, Sept. 2017.

10. Honglei Zhuang, Chi Wang, Fangbo Tao, Lance Kaplan and Jiawei Han, "Identifying Semantically Deviating Outlier Documents", in Proc. of 2017 Conf. on Empirical Methods in Natural Language Processing (EMNLP’17), Copenhagen, Denmark, Sept. 2017.

11. Meng Qu, Jian Tang, Jingbo Shang, Taylor Cassidy, Xiang Ren, Lance Kaplan, Timothy Hanratty and Jiawei Han, "MetaPAD: Meta Pattern Building Structured Databases of Factual Knowledge from Massive Text Corpora", in Proc. of 2017 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’17), Halifax, Nova Scotia, Canada, Aug. 2017.

12. Yu Shi, Po-Wei Chan, Honglei Zhuang, Huan Gui and Jiawei Han, "PReP: Path-Based Reliability from a Probabilistic Perspective 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.

13. Meng Qu, Jian Tang, Jiawei Han 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.

14. Carl Yang, Lanxiao Bai, Chao Zhang, Quan Yuan and Jiawei Han, "Bridging Collaborative Filtering and Semi-Supervised Learning: A Neural Approach for POI recommendation", in Proc. of 2017 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’17), Halifax, Nova Scotia, Canada, Aug. 2017.

15. Chao Zhang, Liyuan Liu, Dongming Lei, Quan Yuan, Honglei Zhuang, Tim Hanratty and Jiawei Han, "TrioVecEvent: Embedding-Based Online Local Event Detection in Geo-Tagged Tweet Streams", in Proc. of 2017 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’17), Halifax, Nova Scotia, Canada, Aug. 2017.

16. Chao Zhang, Keyang Zhang, Quan Yuan, Fangbo Tao, Luming Zhang, Tim Hanratty, Jiawei Han, "ReAct: Online Multimodal Embedding for Recency-Aware Spatiotemporal Activity Modeling", in Proc. of 2017 ACM SIGIR Conf. on Research & Development in Information Retrieval (SIGIR’17), Tokyo, Japan, Aug. 2017.

17. Jingbo Shang, Xiang Ren, Meng Jiang, and Jiawei Han, "Mining Entity-Relation-Attribute Structures from Massive Text Data" (conference tutorial), in Proc. of 2017 ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD’17), Halifax, Nova Scotia, Canada, August 2017.

18. Chao Zhang, Dongming Lei, Quan Yuan, Honglei Zhuang, Lance Kaplan, Shaowen Wang, Jiawei Han, "GeoBurst+: Effective and Real-Time Local Event Detection in Geo-Tagged Tweet Streams", accepted by ACM Transactions on Intelligent Systems and Technology (ACM TIST), 2017.

19. Xiuli Ma, Guangyu 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.

20. Xiang Ren, Jiaming Shen, Meng Qu, Xuan Wang, Zegiu Wu, Qi Zhu, Meng Jiang, Fangbo Tao, Saurabh Sinha, David Liem, Peipei Ping, Richard Weishelboum and Jiawei Han, "LifeNet: A Structured Network-Based Knowledge Exploration and Analytics System for Life Sciences", Proc. of 2017 Annual Meeting of the Association for Computational Linguistics (ACL’17), (system demo), Vancouver, Canada, July 2017.


22. Xiang Ren, Meng Jiang, Jingbo Shang and Jiawei Han, "Building Structured Databases of Factual Knowledge from Massive Text Corpora" (conference tutorial), Proc. of 2017 ACM SIGMOD Int. Conf. on Management of Data (SIGMOD’17), June 2017.


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25. Chao Zhang, Keyang Zhang, Quan Yuan, Haoruo Peng, Yu Zheng, Tim Hanratty, Shaowen Wang and Jiawei Han, "Regions, Periods, Activities: Uncovering Urban Dynamics via Cross-Modal Representation Learning", in Proc. of 2017 World-Wide Web Conf. (WWW’17), Perth, Australia, Apr. 2017.

26. Xiang Ren, Meng Jiang, Jingbo Shang and Jiawei Han, "Constructing Structured Information Networks from Massive Text Corpora" (conference tutorial), Proc. of 2017 World-Wide Web Conf. (WWW’17), Perth, Australia, Apr. 2017.

27. Chao Zhang, Quan Yuan, and Jiawei Han, "Bringing Semantics to Spatiotemporal Data Mining: Challenges, Methods, and Applications" (Conference tutorial), Proc. of 2017 IEEE Int. Conf. on Data Engineering (ICDE’17), San Diego, California, Apr. 2017.

28. Xiang Ren, Yuanhua Lv, Kuansan Wang and Jiawei Han, "Comparative Document Analysis for Large Text Corpora", in Proc. of 2017 ACM Int. Conf. on Web Search and Data Mining (WSDM’17), Cambridge UK, Feb. 2017.

29. Quan Yuan, Wei Zhang, Chao Zhang, Xinhe Geng, Gao Cong and Jiawei Han, "Periodic Region Detection for Mobility Modeling of Social Media Users", in Proc. of 2017 ACM Int. Conf. on Web Search and Data Mining (WSDM’17), Cambridge UK, Feb. 2017.

30. Wenjun Jiang, Chenglin Miao, Lu Su, Qi Li, Shaohan Hu, Shiguang Wang, Jing Gao, Hengchang Liu, Tarek F. Abdelzaher, Jiawei Han, Xue Liu, Yan Gao, and Lance Kaplan, "Towards Quality Aware Information Integration in Distributed Sensing Systems", in IEEE Transactions on Parallel and Distributed Systems, 2017.
1. Huan Gui, Jialu Liu, Fangbo Tao, Meng Jiang, Brandon T. Norick, and Jiawei Han, "Large-Scale Embedding Learning in Heterogeneous Event Data", in Proc. of 2016 Int. Conf. on Data Mining (ICDM'16), Barcelona, Spain, Dec. 2016.

2. Xiang Ren, Wenqi He, Meng Qu, Lifu Huang, Heng Ji, and Jiawei Han, "AFET: Automatic Fine-Grained Entity Typing by Hierarchical Partial-Label Embedding", in Proc. of 2016 Conf. on Empirical Methods in Natural Language Processing (EMNLP'16), Austin, TX, Nov. 2016

3. Meng Jiang, Peng Cui, and Jiawei Han, "Data-Driven Behavioral Analytics: Observations, Representations and Models", in Proc. of 2016 ACM Int. Conf. on Information and Knowledge Management (CIKM'16) (conference tutorial), Indianapolis, IN, Oct. 2016

4. Tarique Siddiqui, Xiang Ren, Aditya Parameswaran and Jiawei Han, "FacetGist : Collective Extraction of Document Facets in Large Technical Corpora", in Proc. of 2016 ACM Int. Conf. on Information and Knowledge Management (CIKM’16), Indianapolis, IN, Oct. 2016

5. Hongkun Yu, Jingbo Shang, Meichun Hsu, Malú Castellanos and Jiawei Han, "Data-Driven Contextual Valence Shifter Quantification for Multi-Theme Sentiment Analysis", in Proc. of 2016 ACM Int. Conf. on Information and Knowledge Management (CIKM’16), Indianapolis, IN, Oct. 2016

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

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.

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, Mei 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]

9. Huan Gui, Haishan Liu, Xiangui Meng, Amol Bhasin, Jiawei Han, "Downsize Management in Recommender Systems", in Proc. of 2016 IEEE/ACM Int. Conf. on Advances in Social Networks Analysis and Mining (ASONAM’16), San Francisco, CA, Aug. 2016

10. Rostyslav Korolov, Di Lu, Jingjing Wang, Guangyu 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

11. Chao Zhang, Keyang Zhang Quan Yuan, Luming Zhang, Tim Hanratty, and Jiawei Han, "GMove: Group-Level Mobility Modeling Using Geo-Tagged Social Media", in Proc. of 2016 ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD’16), San Francisco, CA, Aug. 2016

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

13. Xiang Ren, Wenqi He, Meng Qu, Clare R. Voss, Heng Ji, Jiawei Han, "Label Noise Reduction in Entity Typing by Heterogeneous Partial-Label Embedding", in Proc. of 2016 ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD’16), San Francisco, CA, Aug. 2016

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

15. Jing Gao, Qi Li, Bo Zhao, Wei Fan, and Jiawei Han, "Mining Reliable Information from Passively and Actively Crowdsourced Data" (conf. tutorial), in Proc. of 2016 ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD’16), San Francisco, CA, Aug. 2016

16. Xiang Ren, Wenqi He, Ahmed El-Kishkhy, Clare R. Voss, Heng Ji, Meng Qu and Jiawei Han, "Entity Typing: A Critical Step for Mining Structures from Massive Unstructured Text", in Proc. of 2016 Int. workshop on Mining and Learning with Graphs (MLG’16), colocated with KDD’16, San Francisco, CA, Aug. 14, 2016

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23. Jingbo Shang, Jian Peng, and Jiawei Han, "MACFP: Maximal Approximate Consecutive Frequent Pattern Mining under Edit Distance", in Proc of 2016 SIAM Int. Conf. on Data Mining (SDM’16), Miami, FL, May 2016

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25. Lingxiao Wang, Xiang Ren, Quanquan Gu, "Precision Matrix Estimation in High Dimensional Gaussian Graphical Models with Faster Rates", Proc. of 2016 Int. Conf. on Artificial Intelligence and Statistics (AISTATS’16), Cadiz, Spain, May 9 - 11, 2016

26. Xiang Ren, Ahmed El-Kishkhy, Chi Wang, and Jiawei Han, "Automatic Entity Recognition and Typing in Massive Text Corpora", (Conference tutorial), 2016 Int. World-Wide Web Conf. (WWW’16), Montreal, Canada, April 2016

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