

Liang Wu

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Research Interests

Areas: Learning to Rank, Sparse Learning, Relational Learning, Representation Learning.

Applications: Web, Social and E-commerce Search, Recommender System, Spam Detection, Query Suggestion, Computational Advertising, Software Program Retrieval.

Impact: Citations: 290, H-Index: 10.

AWARDS

KDD Cup 2012, 3rd Place on the Leaderboard (**3/163**), CTR Prediction of Search Sponsored Ads.
Student Travel Award for ICDM'14, WSDM'16, SDM'17, SIGIR'18

PROFESSIONAL EXPERIENCE

Machine Learning Data Scientist April 2019 - Present
Airbnb, San Francisco, CA

- Search and recommender systems.

Intern Data Scientist (Machine Learning Algorithms) May 2018 - August 2018
Airbnb, San Francisco, CA
Mentor: Dr. Mihajlo Grbovic

- Proposed an unbiased learning-to-rank framework to handle non-i.i.d data for Airbnb's search engine, and results (online and offline) were submitted to a related conference.

Data Science Intern May 2017 - August 2017
Etsy, Brooklyn, NY
Mentor: Dr. Liangjie Hong

- Devised a learning-to-rank algorithm to directly optimize revenue of a product search engine, and results were published as a regular paper at SIGIR 2018.

Research Intern September 2013 - July 2014
NEC Labs, Beijing, China
Mentor: Dr. Bo Liu

- Developed a system to represent semantic of software source codes, and results were published as a regular paper in ICDM 2014.

Research Intern August 2012 - May 2013
Microsoft Research Asia, Beijing, China
Mentor: Dr. Bin Cao

- Designed an algorithm to recommend search queries with user intents, and results were published as a poster paper in WWW 2014.

Research Intern April 2012 - August 2012
Nokia Research Center, Beijing, China
Mentor: Dr. Alvin Chin

- Designed a recommender system to push coupons to cellphone users, which was published as a regular paper in DASFAA 2013.

EDUCATION

PhD, Computer Science and Engineering
Arizona State University, Tempe, AZ
GPA 4.06/4.0
Advisor: Dr. Huan Liu
August 2014 - March 2019

MSc, Computer Science
University of Chinese Academy of Sciences, Beijing, China
Advisor: Dr. Yuanchun Zhou
September 2011 - July 2014

BSc, Computer Science
Beijing University of Posts and Telecommunications, Beijing, China
September 2007 - July 2011

ACADEMIC ACTIVITIES

Program Committee: SIGIR'19'18, KDD'19'18, WSDM'19, AAAI'19'18, PAKDD'18, BigData'19'18.
Journal Reviewer: TKDE, TKDD, TOIS, TIST, SNAM, DMKD, WWW J, Intelligent Systems, IRJ.

PROGRAMMING LANGUAGES

Java, Python, C/C++, C#(.Net), SQL, Hive.

TUTORIALS

Liang Wu, Filippo Menczer, and Huan Liu, Mining Misinformation in Social Media: Understanding Its Rampant Spread, Harm, and Intervention. IEEE International Conference on Data Mining (**ICDM 2017**), November 18 - November 21, 2017. New Orleans, LA.

Liang Wu, Fred Morstatter, and Huan Liu, Mining Misinformation in Social Media: Diffusion, Detection and Intervention. (**SBP 2016**), June 28 - July 1, 2016. Washington, D.C.

PUBLICATIONS

Books and Book Chapters

Liang Wu, Xia Hu, and Huan Liu, “Exposing Social Spammers - A Data Mining Perspective”, Cambridge University Press, 2019 (In Preparation).

Liang Wu, and Huan Liu, “Detecting Crowdturfing in Social Media”, Encyclopedia of Social Network Analysis and Mining, Springer, 2017.

Liang Wu, Fred Morstatter, Xia Hu, Huan Liu, “Mining Misinformation in Social Media”, Big Data in Complex and Social Networks, Chapman and Hall/CRC, 2016.

Conference Papers

Liang Wu, Diane Hu, Liangjie Hong, Huan Liu. “Turning Clicks into Purchases: Revenue Optimization for Product Search in E-Commerce”, ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR 2018**), July 8-12, 2018. Ann Arbor, Michigan, USA.

Liang Wu, Jundong Li, Fred Morstatter, Huan Liu. “Toward Relational Learning with Misinformation”, In SIAM International Conference on Data Mining (**SDM 2018**), San Diego, CA, USA, May 2018.

Liang Wu, and Huan Liu. “Revealing Fake-News Footprints: Characterizing Social Media Messages by How They Propagate”, In ACM International Conference on Web Search and Data Mining (**WSDM 2018**), Los Angeles, CA, USA, February 2018.

Liang Wu, Xia Hu, Fred Morstatter, and Huan Liu. “Adaptive Spammer Detection with Sparse Group Modeling”. In 11th International AAAI Conference on Web and Social Media (**ICWSM 2017**), Montreal, Canada, May, 2017.

Liang Wu, Xia Hu, and Huan Liu. “Early Identification of Personalized Trending Topics in Microblogging”, poster paper. In 11th International AAAI Conference on Web and Social Media (**ICWSM 2017**), Montreal, Canada, May, 2017.

Liang Wu, Xia Hu, Fred Morstatter, and Huan Liu. “Detecting Camouflaged Content Polluters”, poster paper. In 11th International AAAI Conference on Web and Social Media (**ICWSM 2017**), Montreal, Canada, May, 2017.

Liang Wu, Jundong Li, Xia Hu, and Huan Liu. “Gleaning Wisdom from the Past: Early Detection of Emerging Rumors in Social Media”, In SIAM International Conference on Data Mining (**SDM 2017**), Houston, USA, April 2017.

Liang Wu, Xia Hu, and Huan Liu. “Relational Learning with Social Status Analysis”, In ACM International Conference on Web Search and Data Mining (**WSDM 2016**), San Francisco, USA, February 2016.

Liang Wu, Liang Du, Bo Liu, Guandong Xu, Yong Ge, Yanjie Fu, Jianhui Li, Yuanchun Zhou, and Hui Xiong. “Heterogeneous Metric Learning with Content-based Regularization for Software Artifact Retrieval”, In IEEE International Conference on Data Mining (**ICDM 2014**), pp. 610-619, Shen Zhen, China, December 2014.

Liang Wu, Alvin Chin, Guandong Xu, Liang Du, Xia Wang, Kangjian Meng, Yonggang Guo, and Yuanchun Zhou. “Who Will Follow Your Shop? Exploiting Multiple Information Sources in Finding Followers.” In Database Systems for Advanced Applications (**DASFAA 2013**), 2013.

Liang Wu, Yuanchun Zhou, Fei Tan, Fenglei Yang, and Jianhui Li. “Generating Syntactic Tree Templates for Feature-based Opinion Mining.” In Advanced Data Mining and Applications (**ADMA 2011**), pp. 1-12. Springer Berlin Heidelberg, 2011.

Jundong Li, **Liang Wu**, Harsh Dani, and Huan Liu. “Unsupervised Personalized Feature Selection.”. The 32nd AAAI Conference on Artificial Intelligence (**AAAI 2018**), Feb 2-7, 2018. New Orleans, LA, USA.

Jundong Li, Kewei Cheng, **Liang Wu**, and Huan Liu. “Streaming Link Prediction on Dynamic Attributed Networks.” The 11th ACM International Conference on Web Search and Data Mining (**WSDM 2018**), Feb 6-8, 2018. Los Angeles, California, USA.

Jundong Li, **Liang Wu**, Osmar R. Zaiane, and Huan Liu. “Toward Personalized Relational Learning”. SIAM International Conference on Data Mining (**SDM 2017**), April, 2017. Houston, Texas.

Justin Sampson, Fred Morstatter, **Liang Wu**, and Huan Liu. “Leveraging the Implicit Structure within Social Media for Emergent Rumor Detection” In The 25th ACM International Conference on Information and Knowledge Management (**CIKM 2016**), Indianapolis, Indiana, USA, 24 - 28 October, 2016.

Fred Morstatter, **Liang Wu**, Tahora H. Nazer, Kathleen M. Carley, and Huan Liu. “Bot Detection: The Importance of Recall” In The 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (**ASONAM 2016**), San Francisco, CA, USA, 18 - 21 August, 2016.

Jundong Li, Xia Hu, **Liang Wu**, and Huan Liu. “Robust Unsupervised Feature Selection on Networked Data”. SIAM International Conference on Data Mining (**SDM 2016**), May 5-7, 2016. Miami, Florida.

Qi Hu, Keke Cai, Weishan Dong, **Liang Wu**, Guanqun Zhang, and Heyuan Huang. “Content Mapping Recommendation for IT Compliance Automation”. 17th International Workshop on the Web and Databases (**WebDB 2014**), 2014.

Qiuxiang Dong, Zhi Guan, **Liang Wu**, and Zhong Chen. “Fuzzy Keyword Search Over Encrypted Data in the Public Key Setting.” In Web-Age Information Management (**WAIM 2013**), pp. 729-740, 2013.

Journal Papers

Liang Wu, Fred Morstatter, and Huan Liu. “SlangSD: Building and Using a Sentiment Dictionary of Slang Words for Short-Text Sentiment Classification.” Journal of Language Resources and Evaluation (2018).

Fred Morstatter, **Liang Wu**, Uraz Yavanoglu, Stephen S. Corman, and Huan Liu. “Identifying Framing Bias in Online News.” ACM Transactions on Social Computing.

Yuanchun Zhou, Mingjie Tang, Weike Pan, Jianhui Li, Weihang Wang, Jing Shao, **Liang Wu**, Qiang Yang, and Baoping Yan. “Bird Flu Outbreak Prediction via Satellite Tracking.” IEEE Intelligent System Magazine, (2014).

Yuwei Wang, Yuanchun Zhou, Ying Liu, Ze Luo, Danhuai Guo, Jing Shao, Fei Tan, **Liang Wu**, Jianhui Li, Baoping Yan. A grid-based clustering algorithm for wild bird distribution, Frontiers of Computer Science 7(4): 475-485 (2013).

Workshop Papers

Liang Wu, Fred Morstatter, Daniel J. Baird, Justin Sampson, Kai Shu, and Huan Liu. “Integrating Interactive and Computational Approaches for News Understanding” In SBP Grand Data Challenge, International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction (SBP 2016), June 28 - July 1, 2016. Washington, D.C.

Liang Wu, Bin Cao, Yuanchun Zhou, and Jianhui Li. “Improving Query Suggestion through Noise Filtering

and Query Length Prediction”. Companion publication of the International Conference on World Wide Web (WWW 2014): 399-400.

Liang Wu, Alvin Chin, Yuanchun Zhou, Xia Wang, Kangjian Meng, Yonggang Guo, and Jianhui Li. “Context-aware Prediction of User’s First Click.” In KDD 2012 Workshop on Context Discovery and Data Mining, ACM, 2012.

Bo Liu, **Liang Wu**, Qiuxiang Dong, and Yuanchun Zhou. “Large-scale Heterogeneous Program Retrieval through Frequent Pattern Discovery and Feature Correlation Analysis”. IEEE BigData 2014.

Bo Liu, **Liang Wu**, Jianqiang Li, and Ji-Jiang Yang. “Exploiting Incremental Reasoning in Healthcare Based on Hadoop and Amazon Cloud”, In Workshops at AAAI 2014.

INTELLECTUAL PROPERTY DISCLOSURES

Liang Wu, and Huan Liu. “Method and Apparatus for Detecting Fake News by Learning How It Spreads in a Social Media Network”, Filed, US Provisional Patent, M18-220P, 2018.

Liang Wu, Xia Hu and Huan Liu. “Systems and Methods for Predicting Social Status of Social Network Users”, Filed, US Provisional Patent, M16-240P, 2016.

Bo Liu, **Liang Wu** and Jianqiang Li. “Multitask Conditional Random Fields for Sequential Prediction.” Filed, China Patent, CN201410056862.6, 2014.

Bo Liu and **Liang Wu**. “Method and System on Semantic-based Code Program Retrieval.” Filed, China Patent, CN201410042833.4, 2014.

Bo Liu, **Liang Wu**, Weisong Hu and Xiaowei Liu. “Method and System for Multi-task Air Quality Prediction.” Filed, CN201410475151.2, China Patent, 2014.

Bo Liu, **Liang Wu**, Weisong Hu and Xiaowei Liu. “Method and System for Air Quality Index Prediction.” Filed, CN201410474871.7, China Patent, 2014.

REFERENCES

Available Upon Request