

Binxuan Huang

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RESEARCH INTERESTS

Natural Language Processing, Knowledge Graph, Social Network Analysis, Machine Learning

EDUCATION

Carnegie Mellon University	<i>Pittsburgh, U.S.</i>
Ph.D., Computer Science	<i>2020</i>
Zhejiang University	<i>Hangzhou, China</i>
B.S., Physics	<i>2015</i>
B.E., Computer Science	<i>2015</i>

EXPERIENCE

Applied Scientist *Amazon, 2020.6 - Present*

- Building an automatic knowledge extraction system for every product in the world.

Applied Scientist Intern *Amazon Alexa AI, 2019.5 - 2019.8*

Mentor: Dr. Han Wang

- Proposed a novel multi-grained matching approach to improve Alexa's NLU performance with knowledge graph [InterSpeech'20].
- Developed an entity linking system and achieved the state-of-the-art result on a public dataset.
- Successfully applied the linking system over the entire Amazon music knowledge graph with both engineering and research effort.

Research Assistant *CASOS, Carnegie Mellon University, 2015-2020*

Advisor: Prof. Kathleen M. Carley

- Proposed multiple methods for semantic modeling sentence pairs, with an application on aspect-level sentiment classification [EMNLP'19, EMNLP'18, SBP-BRiMS'18].
- Modeling social media users with various types of features, eg. text, categorical features, network, for user attributes prediction [EMNLP'19, TNSE'18, SBP-BRiMS'17, CIKM'17].
- Developed a high throughput tweet collection system. Collected and analyzed more than 40 billion tweets (16TB after compression) from 20 million users using Spark [ASONAM'19, ASONAM'17]

Research Assistant *AI Lab, Zhejiang University, 2014-2015*

Advisor: Prof. Xiaogang Jin

- Conducted research on analyzing Wikipedia editing pattern.

PUBLICATIONS

Peer-Reviewed Papers

- **Binxuan Huang**, Han Wang, Tong Wang, Yue Liu, Yang Liu. “Entity Linking for Short Text Using Structured Knowledge Graph via Multi-grained Text Matching.” INTERSPEECH, 2020 (To appear)
- Sumeet Kumar, **Binxuan Huang**, Ramon Alfonso Villa Cox, and Kathleen M. Carley. “An anatomical comparison of fake-news and trusted-news sharing pattern on Twitter.” Computational and Mathematical Organization Theory, 2020
- **Binxuan Huang** and Kathleen M. Carley. “Discover Your Social Identity from What You Tweet: A Content Based Approach.” In Disinformation, Misinformation, and Fake News in Social Media: Emerging Research Challenges and Opportunities, 2020.
- **Binxuan Huang**, and Kathleen M. Carley. “Syntax-Aware Aspect Level Sentiment Classification with Graph Attention Networks.” In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2019.
- **Binxuan Huang**, and Kathleen M. Carley. “A Hierarchical Location Prediction Neural Network for Twitter User Geolocation.” In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2019.
- **Binxuan Huang**, and Kathleen M. Carley. “A Large-Scale Empirical Study of Geotagging Behavior on Twitter.” In Proceedings of the International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2019
- **Binxuan Huang**, and Kathleen M. Carley. “Residual or Gate? Towards Deeper Graph Neural Networks for Inductive Graph Representation Learning.” NeurIPS Graph Representation Learning Workshop, 2019.
- **Binxuan Huang**, and Kathleen M. Carley. “Location Order Recovery in Trails with Low Temporal Resolution.” IEEE Transactions on Network Science and Engineering (TNSE) ,2018.
- **Binxuan Huang**, and Kathleen Carley. “Parameterized convolutional neural networks for aspect level sentiment classification.” In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), 2018.
- **Binxuan Huang**, Yanglan Ou, and Kathleen M. Carley. “Aspect level sentiment classification with attention-over-attention neural networks.” In International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation (SBP-BRIMS), 2018.
- **Binxuan Huang**, and Kathleen M. Carley. “On predicting geolocation of tweets using convolutional neural networks.” In International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation (SBP-BRIMS), 2017.
- Yu Zhang, Wei Wei, **Binxuan Huang**, Kathleen M. Carley, and Yan Zhang. “RATE: Overcoming Noise and Sparsity of Textual Features in Real-Time Location Estimation.” In Proceedings of the Conference on Information and Knowledge Management (CIKM), 2017
- Felicia Natali, Kathleen M. Carley, Feida Zhu, and **Binxuan Huang**. “The role of different tie strength in disseminating different topics on a microblog.” In Proceedings of the International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2017

Technical Reports

- William Frankenstein, **Binxuan Huang**, and Kathleen M. Carley. “NATO Trident Juncture on Twitter: Public Discussion.” Available at SSRN 2720320 (2016).

Preprints

- **Binxuan Huang**, and Kathleen M. Carley. "Disinformation and Misinformation on Twitter during the Novel Coronavirus Outbreak." arXiv preprint arXiv:2006.04278 (2020).
- Tai-Long He, Dylan Jones, **Binxuan Huang**, Yuyang Liu, Kazuyuki Miyazaki, Zhe Jiang, E. Charlie White, Helen M. Worden, and John R. Worden. "Recurrent U-net: Deep learning to predict daily summertime ozone in the United States." arXiv preprint arXiv:1908.05841 (2019).
- Yujie Qian, Jie Tang, Zhilin Yang, **Binxuan Huang**, Wei Wei, and Kathleen M. Carley. "A probabilistic framework for location inference from social media." arXiv preprint arXiv:1702.07281 (2017).

TALKS

- A Large-Scale Empirical Study of Geotagging Behavior on Twitter, ASONAM 2019
- Syntax-Aware Aspect Level Sentiment Classification with Graph Attention Networks, Amazon Alexa AI, 2019/06
- Aspect Level Sentiment Classification with Attention-over-Attention Neural Networks, SBP-BRiMS 2018
- A Large-Scale Empirical Study of Geotagging Behavior on Twitter, CASOS Summer Institute, 2018/06
- On Predicting Geolocation of Tweets Using Convolutional Neural Networks, SBP-BRiMS 2017

TEACHING

Teaching Assistant, Dynamic Network Analysis	<i>Spring, 2017 & 2018</i>
Teaching Assistant, CASOS Summer Institute	<i>June, 2016 & 2017 & 2018</i>
Teaching Assistant, Introduction to Computing System	<i>Summer, 2014</i>

PROFESSIONAL SERVICE

- Reviewer for Journal of Computational Social Science (JCSO) 2020
- Reviewer for International AAAI Conference on Web and Social Media (ICWSM) 2019 & 2020
- Reviewer for Computational and Mathematical Organization Theory 2018 & 2020
- PC member for Web Science Conference 2020
- Reviewer for Annual Meeting of the Association for Computational Linguistics (ACL) 2020
- Reviewer for journal Social Network Analysis and Mining 2019 & 2020
- PC member for International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS) 2019 & 2020
- Reviewer for Annual Conference of the North American Chapter of the ACL (NAACL) 2019
- Reviewer for IEEE Intelligent Systems 2019
- Reviewer for the journal of Neural Network 2019
- Reviewer for IEEE Access 2019
- Reviewer for IEEE Transactions on Network Science and Engineering 2018
- Reviewer for International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS) 2018

AWARDS AND HONORS

SBP-BRiMS Travel Grant	<i>2017 & 2018</i>
GuSH Research Grant Awards	<i>2016</i>
National Scholarship of China (Top 2%, twice)	<i>2012 & 2013</i>
First-Class Scholarship for Outstanding Students (Top 3%, twice)	<i>2012 & 2013</i>
First-Class Scholarship for Outstanding Merits (Top 3%, twice)	<i>2012 & 2013</i>
Excellent Student Awards (Top 3%)	<i>2013</i>
First Prize of the National Talents Training Base (Top 3%)	<i>2012</i>
Scholarship for Excellence in Arts and Sports	<i>2012</i>

GRADUATE COURSEWORK

Introduction to Machine Learning, Intermediate Statistics, Probabilistic Graphical Models, Dynamic Network Analysis, Computational Modeling, Convex Optimization, Deep Reinforcement Learning & Control, Deep Learning

TECHNICAL SKILLS

- Programming: Python(Extensive), C/C++, Java, Matlab
- Tools: Pytorch, Tensorflow, Spark, SQL, GraphFrames, Latex