# Hangfeng He

Address: 250 Hutchison Rd, Rochester, NY 14620, USA

Tel: (267) 602-9517     Email: hangfeng.he@rochester.edu

## Research Interests

My research interests include machine learning and natural language processing, with a focus on incidental supervision for natural language understanding, interpretability of deep neural networks, and reasoning in natural language.

## Academic Positions

**University of Rochester**, Rochester, NY, USA                    2022-present
Assistant Professor in Computer Science and Data Science

## Education

**University of Pennsylvania**, Philadelphia, PA, USA      2017-2022 (expected)
Ph.D. in Computer and Information Science
Advisors: Dan Roth and Weijie Su
**Peking University**, Beijing, China                    2013-2017
B.S. in Computer Science, *Summa Cum Laude*

## Publications

1. Shuxiao Chen, Koby Crammer, **Hangfeng He**, Dan Roth, and Weijie Su (**alphabetical order**). 2022. Weighted Training for Cross-Task Learning. In *International Conference on Learning Representations (ICLR). Oral presentation.*

2. Cong Fang, **Hangfeng He**, Qi Long, and Weijie Su (**alphabetical order**). 2021. Exploring Deep Neural Networks via Layer-Peeled Model: Minority Collapse in Imbalanced Training. In *Proceedings of the National Academy of Sciences (PNAS). Direct submission.*

3. **Hangfeng He**, Mingyuan Zhang, Qiang Ning, and Dan Roth. 2021. Foreseeing the Benefits of Incidental Supervision. In *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP).*

4. Zhun Deng, **Hangfeng He**, and Weijie Su. 2021. Toward Better Generalization Bounds With Locally Elastic Stability. In *International Conference on Machine Learning (ICML).*

5. Ayal Klein, Jonathan Mamou, Valentina Pyatkin, Daniela Brook Weiss, **Hangfeng He**, Dan Roth, Luke Zettlemoyer, and Ido Dagan. 2020. QANom: Question-Answer driven SRL for Nominalizations. In *Proceedings of the 28th International Conference on Computational Linguistics (COLING).*

6. Shuxiao Chen, **Hangfeng He**, and Weijie Su (**alphabetical order**). 2020. Label-Aware Neural Tangent Kernel: Toward Better Generalization and Local Elasticity. In *Advances in Neural Information Processing Systems (NeurIPS).*

7. Zhun Deng, **Hangfeng He**, Jiaoyang Huang, and Weijie Su. 2020. Towards Understanding the Dynamics of the First-Order Adversaries. In *International Conference on Machine Learning (ICML).*

8. **Hangfeng He**, Qiang Ning, and Dan Roth. 2020. QuASE: Question-Answer Driven Sentence Encoding. In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL).*

9. Soham Dan, **Hangfeng He**, and Dan Roth. 2020. Understanding Spatial Relations through Multiple Modalities. In *Proceedings of the 12th Language Resources and Evaluation Conference (LREC). Short papers.*

10. **Hangfeng He** and Weijie Su. 2020. The Local Elasticity of Neural Networks. In *International Conference on Learning Representations (ICLR).*

11. Qiang Ning, **Hangfeng He**, Chuchu Fan, and Dan Roth. 2019. Partial or Complete, That's The Question. In *Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*.

12. Jingjing Xu, **Hangfeng He**, Xu Sun, Xuancheng Ren, and Sujian Li. 2018. Cross-domain and semisupervised named entity recognition in chinese social media: A unified model. In *IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP)*.

13. Federico Fancellu, Adam Lopez, Bonnie Webber, and **Hangfeng He**. 2017. Detecting negation scope is easy, except when it isn't. In *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL). Short papers.*

14. **Hangfeng He** and Xu Sun. 2017. F-Score Driven Max Margin Neural Network for Named Entity Recognition in Chinese Social Media. In *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL). Short papers*.

15. **Hangfeng He** and Xu Sun. 2017. A Unified Model for Cross-Domain and Semi-Supervised Named Entity Recognition in Chinese Social Media. In *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*.

16. **Hangfeng He**, Federico Fancellu, and Bonnie Webber. 2017. Neural Networks for Negation Cue Detection in Chinese. In *Proceedings of the Workshop Computational Semantics Beyond Events and Roles (SemBEaR)*.

## Preprints

1. Matteo Sordello, **Hangfeng He**, and Weijie Su. 2019. Robust Learning Rate Selection for Stochastic Optimization via Splitting Diagnostic. In *arXiv preprint*.

# Professional Service

**Senior Program Committee Member**
AAAI (2023)
**Program Committee Member**
ACL (2019-2021), EMNLP (2019), NAACL (2019)
**Conference Reviewer**
ACL Rolling Review (2021), ICML (2021), NeurIPS (2020)

# Invited Talks

**Local Elasticity: A Phenomenological Approach Toward Understanding Deep Learning**

Invited Talk at uOttawa TML seminar, November, 2021

**Incidental Supervision for Natural Language Understanding**

Invited Talk at USC/ISI AI Seminar, October, 2021