

# HANGFENG HE

<https://hornhehhf.github.io>  $\diamond$  [hangfeng@seas.upenn.edu](mailto:hangfeng@seas.upenn.edu)

## RESEARCH INTERESTS

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My research interests include machine learning and natural language processing, with a focus on moving beyond scale-driven learning. Specifically, I work on incidental supervision for natural language understanding, the interpretability of deep neural networks, reasoning in natural language, structured data modeling, and question answering.

## EDUCATION

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### University of Pennsylvania

2017 - Present

Ph.D. in Computer and Information Science

Advisor: Dan Roth and Weijie Su

### Peking University

2013 - 2017

B.S. (*Summa Cum Laude*) in Computer Science

## PREPRINTS

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1. Shuxiao Chen, Koby Crammer, **Hangfeng He**, Dan Roth, and Weijie Su (**alphabetical order**). Weighted Training for Cross-Task Learning. In Arxiv, 2021.
2. Matteo Sordello, **Hangfeng He**, and Weijie Su. Robust Learning Rate Selection for Stochastic Optimization via Splitting Diagnostic. In Arxiv, 2019.

## PUBLICATIONS

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1. Cong Fang, **Hangfeng He**, Qi Long, and Weijie Su (**alphabetical order**). Layer-Peeled Model: Toward Understanding Well-Trained Deep Neural Networks. In PNAS, 2021. To appear.
2. **Hangfeng He**, Mingyuan Zhang, Qiang Ning, and Dan Roth. Foreseeing the Benefits of Incidental Supervision. In EMNLP, 2021. To appear.
3. Zhun Deng, **Hangfeng He**, and Weijie Su. Toward Better Generalization Bounds With Locally Elastic Stability. In ICML, 2021.
4. Ayal Klein, Jonathan Mamou, Valentina Pyatkin, Daniela Brook Weiss, **Hangfeng He**, Dan Roth, Luke Zettlemoyer, and Ido Dagan. QANom: Question-Answer driven SRL for Nominalizations. In COLING, 2020.
5. Shuxiao Chen, **Hangfeng He**, and Weijie Su (**alphabetical order**). Label-Aware Neural Tangent Kernel: Toward Better Generalization and Local Elasticity. In NeurIPS, 2020.
6. Zhun Deng, **Hangfeng He**, Jiaoyang Huang, and Weijie Su. Towards Understanding the Dynamics of the First-Order Adversaries. In ICML, 2020.
7. **Hangfeng He**, Qiang Ning, and Dan Roth. QuASE: Question-Answer Driven Sentence Encoding. In ACL, 2020.
8. Soham Dan, **Hangfeng He**, and Dan Roth. Understanding Spatial Relations through Multiple Modalities. In LREC, 2020. (short papers)
9. **Hangfeng He** and Weijie Su. The Local Elasticity of Neural Networks. In ICLR, 2020.
10. Qiang Ning, **Hangfeng He**, Chuchu Fan, and Dan Roth. Partial or Complete, Thats The Question. In NAACL-HLT, 2019.

11. Jingjing Xu, **Hangfeng He**, Xu Sun, Xuancheng Ren, and Sujian Li. Cross-Domain and Semi-Supervised Named Entity Recognition in Chinese Social Media: A Unified Model. In TASLP, 2018.
12. Federico Fancellu, Adam Lopez, Bonnie Webber, and **Hangfeng He**. Detecting negation scope is easy, except when it isn't. In EACL, 2017. (short papers)
13. **Hangfeng He** and Xu Sun. F-Score Driven Max Margin Neural Network for Named Entity Recognition in Chinese Social Media. In EACL, 2017. (short papers)
14. **Hangfeng He** and Xu Sun. A Unified Model for Cross-Domain and Semi-Supervised Named Entity Recognition in Chinese Social Media. In AAAI, 2017.

## RESEARCH EXPERIENCE

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- **National Engineering Laboratory for Video Technology, Peking University**
- Advisor: Tingting Jiang. Oct. 2016 - May 2017.
- **Institute for Language, Cognition and Computation, University of Edinburgh**
- Advisor: Bonnie Webber, Jul. 2016 - Sept. 2016.
- **Institute of Computational Linguistics, Peking University**
- Advisor: Xu Sun, Oct. 2015 - Jun. 2016.

## TEACHING EXPERIENCE

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- Teaching Assistant, CIS 419/519 Applied Machine Learning
- Instructor: Dan Roth, Spring 2018 and Fall 2019

## PROFESSIONAL SERVICE

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- **Reviewer:** ICML (2021), NeurIPS (2020), ACL (2019-2021), EMNLP (2019), NAACL (2019)

## HONORS & AWARDS

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- Outstanding Undergraduate in Peking University, 2017
- Weiling Scholarship, 2016
- Jianeng Scholarship, 2015
- May Fourth Scholarship, 2014