

Qiang (John) Ning

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Research interest: machine learning, natural language understanding, computer vision, and signal processing.

EDUCATION

- **University of Illinois at Urbana-Champaign**, Urbana, IL Aug. 2016 – Expected in 2019
Ph.D. Candidate in Electrical and Computer Engineering
Natural language understanding and machine learning; thesis advisor Prof. Dan Roth
- **University of Illinois at Urbana-Champaign**, Urbana, IL Aug. 2013 – July. 2016
M.S. in Electrical and Computer Engineering; GPA: 4.0/4.0
Signal processing and brain imaging; thesis advisor Prof. Zhi-Pei Liang
- **Tsinghua University**, Beijing, China Aug. 2009 – July. 2013
Bachelor in Electronics Engineering; GPA: 91/100
Computer vision; thesis advisor Prof. Shengjin Wang
- **Tsinghua University**, Beijing, China Aug. 2010 – July. 2013
Bachelor in Economics; GPA: 90/100

EXPERIENCE

- **Cognitive Computation Group**, Urbana, IL Aug. 2016 – Now
Research Assistant
 - **Advisor:** Prof. Dan Roth
 - **Temporal understanding:** Understanding time in NLP has long been challenging. Its basic components are understanding the time expressions (e.g., yesterday) and temporal relations between events (e.g., before, and after). I published a series of papers on this topic, improving the temporal relation extraction performance from the conventional low 30's to high 60's, and have created an online demo for public use. Specifically, I am working on structured learning, common sense, data collection, and their applications on both temporal understanding and other NLP tasks.
- **Facebook, Inc.**, Seattle, WA May 2017 – Aug. 2017
Intern in Ads Ranking
 - **Mentors:** Bailey Zhang and Junbiao Tang
 - **RSVP:** is a type of advertisements that encourage users' engagement. My new production models improved the ads score (long-term revenue) of RSVP by 10% and the overall ads score by 0.4%.
 - **Conversion Rate Calibration:** is crucial for quick responses to drifts in user behaviors. My new production model based on gradient-boosted decision trees and sparse neural nets improved the overall ads score by 0.7%.
- **University of Illinois at Urbana-Champaign**, Urbana, IL Aug. 2013 – Jul. 2016
Research Assistant
 - **Advisor:** Prof. Zhi-Pei Liang
 - **Magnetic Resonance Spectroscopic Imaging:** I developed nuisance signal removal and metabolite quantification techniques for SPICE, a non-invasive tool for high-resolution metabolic imaging of the brain.
- **University of Southern California**, Los Angeles, CA Jun. 2012 – Aug. 2012
Research Intern in the Computational Behavior Group
 - **Advisors:** Prof. Yu-Han Chang and Prof. Rajiv Maheswaran
 - **GAMBIT:** I did early explorations in applying machine learning techniques to discover patterns in the geospatial data of campus shuttles, with the goal of assisting human users in behavior prediction and anomaly detection.
- **Microsoft Research Asia**, Beijing, China Mar. 2012 – Jun. 2012
Research Intern in the Mobile and Sensing Systems Group
 - **Advisor:** Dr. Guobin (Jacky) Shen
 - **Walkie Markie:** I helped develop an Android app to reproduce the feasibility test that Wi-Fi fingerprints can be used for indoor localization and reconstruction of building maps. I also optimized the filtering algorithm so that the localization variance reduced from 4 to 1.5 meters.

Undergrad Research Assistant

- **Advisor:** Prof. Jiangtao Wen
- **Image Super-resolution:** I discovered statistically significant improvement using analysis sparse prior instead of the commonly used synthesis sparse prior, which led to a paper in *IEEE Signal Processing Letters*.

SELECTED PUBLICATIONS

1. E. Graves, **Q. Ning**, and P. Basu. “An information theoretic model for summarization, and some basic results.” *IEEE ISIT*, 2019. [**Understanding text summarization from information theory**]
2. **Q. Ning**, H. He, C. Fan, and D. Roth. “Partial Or Complete, That’s The Question.” *NAACL*, 2019. [**Incidental supervision**]
3. **Q. Ning**, B. Zhou, Z. Feng, H. Peng, and D. Roth. “CogCompTime: A Tool for Understanding Time in Natural Language.” *EMNLP (demo track)*, 2018. [**A state-of-the-art tool for understanding time in language**]
4. **Q. Ning**, H. Wu, and D. Roth. “A Multi-Axis Annotation Scheme for Event Temporal Relations.” *ACL*, 2018. [**A new dataset with approx. 20% improvement in inter-annotator agreement**]
5. **Q. Ning**, Z. Feng, H. Wu, and D. Roth. “Joint Reasoning for Temporal and Causal Relations.” *ACL*, 2018.
6. **Q. Ning**, Z. Yu, C. Fan, and D. Roth. “Exploiting Partially Annotated Data in Temporal Relation Extraction.” **SEM (short paper)*, 2018. [**Incidental supervision and its implications on human annotations**]
7. **Q. Ning**, H. Wu, H. Peng, and D. Roth. “Improving Temporal Relation Extraction with a Globally Acquired Statistical Resource.” *NAACL*, 2018. [**A knowledge-base encoding temporal common sense**]
8. **Q. Ning**, Z. Feng, and D. Roth. “A Structured Learning Approach to Temporal Relation Extraction.” *EMNLP*, 2017. [**A case study of structured learning on temporal reasoning**]
9. **Q. Ning**, C. Ma, F. Lam, and Z.-P. Liang. “Spectral Quantification for High-Resolution MR Spectroscopic Imaging with Spatiospectral Constraints.” *IEEE Transactions on Biomedical Engineering (TBME)*, 2016. [**Brain anatomy guided metabolite measuring and theoretical analysis via the Cramér-Rao bound**]
10. **Q. Ning**, C. Ma, F. Lam, B. Clifford, and Z.-P. Liang. “Removal of Nuisance Signal from Sparsely Sampled ¹H-MRSI Data Using Physics-based Spectral Bases.” *24 th Annual ISMRM Scientific Meeting and Exhibition*, 2016. [**Cleaning the overwhelming nuisance signals resulting from accelerated brain imaging**]
11. C. Ma, F. Lam, **Q. Ning**, C. Johnson, and Z.-P. Liang. “High-resolution ¹H-MRSI of the brain using short-TE SPICE.” *Magnetic Resonance in Medicine (MRM)*, 2016. [**Significantly accelerating brain imaging**]
12. **Q. Ning**, C. Ma, and Z.-P. Liang. “Spectral Estimation for Magnetic Resonance Spectroscopic Imaging with Spatial Sparsity Constraints.” *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2015.
13. **Q. Ning**, C. Ma, C. Johnson, and Z.-P. Liang. “Towards Short-TE MR Spectroscopic Imaging: Spectral Decomposition and Removal of Baseline Signals.” *IEEE Conference on Engineering in Medicine and Biology Society (EMBC)*, 2014.
14. **Q. Ning**, K. Chen, L. Yi, C. Fan, Y. Lu, and J. Wen. “Image Super-Resolution via Analysis Sparse Prior.” *IEEE Signal Processing Letters (SPL)*, 2013. [**Super-resolution via compressed sensing**]

AWARDS

- **List of Teachers Ranked as Excellent by Their Students:** for ECE120, UIUC, 2017
- **The YEE Fellowship:** College of Engineering, UIUC, 2015-2016
- **Finalist for the Best Paper Award:** IEEE ISBI, New York, 2015
- **Academic Excellence Scholarship:** Tsinghua University, Beijing, China, 2012, 2010
- **Excellence in Science and Technology Scholarship:** Tsinghua University, Beijing, China, 2012
- **National Scholarship:** Tsinghua University, Beijing, China, 2011
- **First Prize in National Physics Olympiad:** Shaanxi Section, China, 2008

TEACHING

- **Teaching assistant for Machine Learning (CS446; Spring 2017) and Introduction to Computing (ECE120; Fall 2016):** Responsible for lectures in weekly discussion sessions, office hours, homeworks, and exams.