Tao Jin

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Education

Ph.D. Student, Computer Science 2018 Feb. - now
University of Virginia Charlottesville, VA, U.S.

B.Eng., Computer Science 2012 Sept. - 2017 June
Zhejiang University Hangzhou, Zhejiang, China
Graduation Honors: *Zhijun He* Honor, Excellent Student Awards

Publications

- Hao Lou, **Tao Jin**, Yue Wu, Pan Xu, Farzad Farnoud, Quanquan Gu: *Active Ranking without Strong Stochastic Transitivity* [NeurIPS'22]
- Yue Wu*, **Tao Jin***, Hao Lou, Pan Xu, Farzad Farnoud, Quanquan Gu: *Adaptive Sampling for Heterogeneous Rank Aggregation from Noisy Pairwise Comparisons* [AISTATS'22]
- **Tao Jin***, Pan Xu*, Quanquan Gu, Farzad Farnoud: *Rank Aggregation via Heterogeneous Thurstone Preference Models* [AAAI'20, Oral]
- Chenghao Liu, **Tao Jin**, Steven Hoi, Jianling Sun, Peilin Zhao: *Collaborative Topic Regression for Online Recommender Systems: An Online and Bayesian Approach* [ACML'16, Machine Learning Journal]

Experience

Graduate Research Assistant 2018 Feb. - now
Computer Science Department, University of Virginia *Advisor: Prof. Farzad Farnoud*

- Ranking problems with noisy pairwise comparisons:

  Proposed Heterogeneous rank aggregation (HRA) models to optimize the sample complexity when information sources has various levels of reliability.

  Studied convergence properties of the HRA model when alternating gradient descent is applied, as well as its estimation error lower and upper bound.

  Developed several active/adaptive learning strategies for noisy ranking problems under multi-armed bandit and dueling bandit settings.
- Generic and genetic data compression and/or deduplication:

  Developed a data deduplication algorithm based on the Lempel-Ziv decomposition.
- Genetic mutation and antibiotics resistance (AMR) prediction and knowledge discovery:

  Given a limited amount of data, constructed a Hidden Markov Model based on history of genetic evolutions of bacteria exposed to a sequence of drugs to discover the relationship between genetic mutation and drug resistance.

  Predicted AMR efficiently using correlation between genotype and phenotype to perform feature selection.

Computer Vision Scientist 2017 Feb. - 2018 Feb.
Momenta Technology Ltd. *Supervisor: Dr. Shaoqing Ren*

- *Lead a team of 4 engineers and 8 data operation interns.*
- Developed traffic light and traffic sign detection and tracking algorithm for autonomous driving with iterative data collection and model training cycle.

  Co-worked with general data operation team to set up labeling rules, operation strategy and management tactics. Delivered million-scale training data in 6 months for model training.

  Improved key point/landmark detection model as front-end for mapping and localization.

  Tailored detection network structures to meet computational requirements for both embedded devices and servers.
- Reproduced Mask-RCNN work using Momenta's deep learning framework.
- Integrated traffic light and traffic sign detection and tracking algorithm into Momenta's autonomous driving system and showed success in road test.

Visiting Research Student 2015 Sept. - 2016 June
School of Information Systems, Singapore Management University *Advisor: Prof. Steven HOI*

- Proposed and developed an online Bayesian learning method for recommendation with side information.
- Assisted development and deployment of FoodAi. Trained and tuned deep learning algorithm for food recognition. Developed backend of web server with rate limit to process the request and designed a frontend user interface.
- Implemented and deployed an application using neural network to transfer artistic effects.
- Implemented ResNet with caffe and mxnet, available at *Github: ResNet.*

Skills

Programming Languages: Python, C/C++. Frameworks: tensorflow, pytorch, caffe. Experienced user of Linux and Git.