

Education

2014–2018 **Bachelor**, *Computer Science*, Peking University, Beijing, China.

- 2015–present Research Assistant, Institute of Software, Peking University, Professor Xuanzhe Liu.
- 2017–present Full-time Intern, Machine Learning group, Microsoft Research Asia, Researcher Jiang Bian.
- Major GPA: 3.57

Interests

Machine Learning especially on bridging structural knowledge with statistical models, using representation learning, structural modelling, knowledge graphs and reinforcement learning.

Data Mining especially on addressing real-world problems that entail complex structural data, such as time series, heterogeneous network and spatiotemporal data.

Research Experience

2017.9–present **Semi-smooth Newton Method for Linear Programming.**

- Course project for “Convex Optimization”
- Implement both the gradient-type method and semi-smooth Newton method to minimize each augmented Lagrangian function for solving a standard dual problem.
- Implement the DRS, ADMM and a regularized semi-smooth Newton method for linear programming.

2017.9–present **Automating Web and Android UI beautification.**

- Proposed an intermediate language for the multi-platform UI and the corresponding compilers.
- Extracted structural templates for a generator design by tree-structural clustering.
- Fine-tuned the layout using gan framework, with a cnn-based discriminator and a sequential generator.

2017.3–2017.8 **A Deep Learning Framework for News-oriented Stock Trend Prediction, [1].**

- Intern project at Machine Learning group, Microsoft Research Asia(MSRA).
- Abstracted three principles for imitating the learning process of human beings faced with chaotic financial news, which are: *sequential content dependency*, *diverse influence*, and *efficient learning*.
- Proposed a hybrid attention networks model on both news and temporal level, with a self-paced learning mechanism based on the three principles.
- Full paper published by the International Conference on Web Search and Data Mining (WSDM' 2018).

2016.8–2017.3 **User Behavior Analysis Of Inter-App Navigation, [2].**

- Implemented a background data collection app to conduct a field study.
- Found several time consuming navigation processes using spectral cluster.
- Built a one-class classification model with boosting mechanism to predict users' navigational behavior.
- Currently under review of the Transaction of Mobile Computing (TMC).

2016.7–2016.9 **Optimize Release Strategy for Android Apps, [3].**

- Conducted an in-depth analysis in the release history of 17820 Android apps.
- Revealed several important characteristics of update intervals and their effects.
- Built a classification model to optimize the release opportunity to gain user adoption.

2015.9–2016.7 **Android Application Dynamic Analysis & Deep Link Generator, [4].**

- Used an UI structure based comparison approach to distinguish different pages.
- Learned the transition graph on-the-fly, based on which to trigger further crawling processes.
- Recorded the intent series for replay and deep links generation.
- Short paper published by the International Conference on Software Engineering (ICSE' 2017).

- 2015.9–2016.1 **Snake Combat AI Game Using Alpha-beta Pruning with Neuroevolution Algorithm.**
- Course project for “Practice of Programming”, ranked among top 5 out of 172 competitors
 - Trained an AI to play a double-player combat game “Snake” on botzone platform.
 - Implemented alpha-beta pruning algorithm as the searching skeleton, with a neural network trained by an evolutionary algorithm NEAT to assess the situation.

Awards

- 2017 Outstanding Undergraduate Research Award of Peking University.
2015 Honorable Mention of Interdisciplinary Contest In American Mathematical Modeling.
2015 The Third Price of ACM programming contest in Peking University.
2014 The May Forth Scholarship of Peking University.
2013 The First Price of Chinese Physics Olympiad, Zhejiang District.

Skills

- Programming JAVA(ANDROID), PYTHON, C/C++, MATLAB, \LaTeX
Tools Git, Machine Learning Library (scikit-learn, TensorFlow, Keras), NLP Toolkit(NLTK, Gensim), Optimization Software(Mosek, Gurobi, CVXPY)

Publications

Ziniu Hu, Weiqing Liu, Jiang Bian, Xuanzhe Liu, and Tie-Yan Liu. Listening to chaotic whispers: A deep learning framework for news-oriented stock trend prediction. In *Proceedings of the 11th ACM International Conference on Web Search and Data Mining*.

Ziniu Hu, Yun Ma, Xuanzhe Liu, Qiaozhu Mei, and Jian Tang. Through the castle tunnels: an empirical study of inter-app navigation behaviors of android users. *Submitted to the Transaction of Mobile Computing*.

Sheng Shen, Xuan Lu, and **Ziniu Hu**. Towards release strategy optimization for apps in google play. In *The Ninth Asia-Pacific Symposium on Internetware, Shanghai, China*.

Yun Ma, Xuanzhe Liu, **Ziniu Hu**, Dian Yang, Gang Huang, Yunxin Liu, and Tao Xie. Aladdin: Automating release of android deep links to in-app content. In *Proceedings of the 39th International Conference on Software Engineering Companion*.