YUTONG XIE

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https://yutxie.github.io/aboutme/

Education

Shanghai Jiao Tong University *Sep. 2016 - Jun. 2020 (Expected)*
B.Sc. in Computer Science

- Member of **ACM Class**, an elite CS program for the top 5% talented students.
- Member of **Zhiyuan Honors Program**, a pilot program for training outstanding students in the basic sciences.
- Major GPA 92/100 (third year GPA 94/100) with courses: Computer Vision (score 100, and ranking 1/64), Natural Language Processing (99, 1/21), etc.

Research Interests

My research interests lie in machine learning methods for both explicitly and implicitly structured data, especially for **graph representation learning** and **natural language understanding**. Besides, I'm also interested in general machine learning problems such as **multi-task learning** and **transfer learning**.

Research Experience

Foreseer Group, iSchool, University of Michigan *Jun. 2019 – Present*

- Research Intern advised by Prof. Qiaozhu Mei.
- Researching on graph representation learning and multi-task learning.

Apex Data & Knowledge Management Lab, SJTU *Jun. 2018 – Present*

- Research Intern advised by Prof. Yong Yu and Prof. Weinan Zhang.
- Researching on natural language processing and code comprehension.

Publications & Manuscripts

Code Comprehension Graph for Algorithm Detection from Source Code (Preprint)

- **Y. Xie***, T. Long*, X. Chen, H. Zhao, W. Zhang, Q. Cao, Y. Yu.
- Plan to submit to IJCAI 2020.

Visual Rhythm Prediction with Feature-Aligned Network

- **Y. Xie**, H. Wang, Y. Hao, Z. Xu.
- Proceedings of the 16th IAPR International Conference on Machine Vision Applications Conference (MVA 2019).

QA4IE+: A Real-Time Document Level Information Extraction System (Preprint)

- L. Qiu, D. Ru, Y. Xiao, **Y. Xie**, Q. Long, W. Zhang, K. Tu, Y. Yu.

Research Projects

Molecule Property Prediction *Jun. 2019 – Present*

- Focusing on the expressiveness and generalization ability of current message-passing-style graph neural networks.
- Exploring new architectures and algorithms under the inspiration of the high-order Weisfeiler-Lehman algorithm and various graph similarity metrics.

A General Architecture for Multi-Task Learning *Mar. 2019 – Present*

- Focusing on the problems of current deep multi-task learning architectures (hard parameter sharing and routing-style models), e.g. model complexity is hard to control, hyperparameters tuning is arduous.
- Trying to introduce explicit tradeoffs on both model complexity and the extent to share under the inspiration of traditional regularization-based methods.

Algorithm Detection from Source Code *Jun. 2019 – Sep. 2019*

- Aimed at identifying algorithms in programs.
- Proposed an effective program representation named code comprehension graph that consists of three subgraphs (data flow graph, control flow graph and abstract syntax tree) to capture both syntactic and semantic information.

Visual Rhythm Prediction *Oct. 2018 – Dec. 2018*

- Course project of Computer Vision, advised by Prof. Cewu Lu.
- Proposed a data-driven visual rhythm prediction method, in which several visual features are considered (including frames and residuals, optical flow, scene change, body pose) and integrated by an end-to-end neural network to predict the visual onsets in a sequence labelling manner.

Document Level Information Extraction *Jul. 2018 – Sep. 2018*

- Aimed at implementing a system that can extract structured information from unstructured texts.
- The framework has been designed as a 4-stage pipeline, which first recognizes named entity in articles and selects related relations from a knowledge base, then extracts information with a question answering system, and finally generates reliable tuples with named entity linking.

Course Projects

Simple Database *Apr. 2019 – Jun. 2019*

- Course project of Database Management, advised by Prof. Feifei Li.
- Supported common database management system operations and transaction management mechanisms.

Compiler for Mx* *May. 2018 – Jun. 2018*

- Course project of Compiler Design and Implementation.
- Supported to compile a C-and-Java-like language Mx*.
- Optimized the compiler with register allocation, local value numbering, redundant instruction reducing, function inlining, etc.

Simple Deep Learning Framework *Jul. 2017 – Aug. 2017*

- Course project of Programming Practice.
- Supported automatic differentiation, Adam optimizer, Convolutional Neural Networks, dropout and other features.
- Supported TensorFlow-like interface and parallel computation on GPU.

Train Tickets Booking System *Apr. 2017 – May. 2017*

- Course project of Data Structure.
- Led a small team to build a train ticket booking system that supports operations on users, trains, schemes and tickets with high efficiency.
- Developed the back-end data structures in C++, and the front-end GUI with Qt.

Teaching Experience

CS420: Machine Learning, Teaching Assistant — *Spring 2019*
CS120: Introduction to Computer Science, Head Teaching Assistant — *Fall 2018*
CS151: C++ Programming (A), Teaching Assistant — *Fall 2017*

Honors & Awards

Scholarships

- Leo KoGuan Scholarship (Top 0.2% in SJTU) — *2018, 2019*
- Huawei Scholarship (Top 0.2% in SJTU) — *2017*
- Academic Excellence Scholarship (B) (Top 1.5 % in SJTU) — *2017, 2018*
- Zhiyuan Honors Scholarship (Top 5% in SJTU) — *2016–2018*

Competitions

- Second Prize, ACM-ICPC 2016, Nha Trang — *Dec. 2016*
- Bronze Medal and Best Female Team, ACM-ICPC 2016, Beijing — *Nov. 2016*
- Silver Medal and Best Female Team, CCPC 2016, Hefei — *Oct. 2016*
- Bronze Medal, National Olympiad in Informatics 2015 — *May. 2015*
- Bronze Medal, Asia-Pacific Informatics Olympiad 2015 — *May. 2015*
- First Prize, National Olympiad in Informatics in Provinces 2014 — *Dec. 2014*

Skills

Programming

- Languages: C/C++, Python (PyTorch, TensorFlow, Numpy), Java, Matlab.
- Previous contestant of the International Collegiate Programming Contest (ACM-ICPC), familiar with advanced algorithms and data structures.

English Proficiency

- TOEFL: 101/120 (R28, L25, S22, W26).
- GRE: 322/340 (V153, Q169, W3.0)