Yutong **Xie**

2016 ACM Class · Zhiyuan College

Undergraduate in Computer Science at Shanghai Jiao Tong University

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Education Background

Shanghai Jiao Tong University — *Shanghai, P.R.C.*

Undergraduate in Computer Science Department — *Sep. 2016 – Jun. 2020 (Expected)*

- Member of **ACM Class**, **Zhiyuan College**, an elite CS program for top 5% talented students.
- **Overall GPA 3.81/4.30, Ranking 9/41** (Spring 2018).
- **Mathematical Courses**: Mathematical Analysis (95), Linear Algebra (92), Scientific Computing (96), Probability (93), Probability and Computing (90), Mathematics for the Information Age (93), Mathematical Logic (96).
- **Major Courses**: Machine Learning (94), Computer Vision (100), Programming (95), Programming Practice (97), Data Structure (93), Design and Analysis of Algorithms (93), Operating System (93), Compiler Design and Implementation (90).

Research Interests

My research interests lie in areas that help us understand this world better, including the **Natural Language Understanding** (especially the **Machine Reading Comprehension** and **Knowledge Graph**) as well as other Computer Science's application in **Natural or Social Science**. Besides, I'm also interested in the general areas of **Machine Learning** such as the **Deep Representation Learning** and **Reinforcement Learning**.

Research Experience

Research Intern at Apex Data & Knowledge Management Lab — *SJTU*

Advised by Prof. Yong Yu and Prof. Weinan Zhang — *Oct. 2018 – Jun. 2020 (Expected)*

- Researching on **Multi-Task Learning (MTL)** and **Natural Language Processing (NLP)**.

Research Projects

Visual Rhythm Prediction with Feature-Aligned Network — *MVA 2019*

Yutong Xie, Haiyang Wang, Yan Hao, Zihao Xu — *Accepted*

- Selective course research project of Computer Vision, advised by course instructor Prof. Cewu Lu.
- Proposed a data-driven visual rhythm prediction method, in which several visual features are extracted (including original frames and their residuals, optical flow, scene change, body pose) and then fed into an end-to-end neural network to predict the visual onsets.
- Observed the mis-aligning phenomenon in feature streams, and elaborately designed a feature aligning layer to alleviate this problem.

QA4IE+: A Real-Time Document Level Information Extraction System — *AAAI 2019 Demo*

Lin Qiu, Dongyu Ru, Yunxuan Xiao, **Yutong Xie**, Quanyu Long, Weinan Zhang, Kewei Tu and Yong Yu — *Submitted*

- Aimed at implementing a system which can **extract structured information** from unstructured texts.
- The framework has been designed as a 4-stage pipeline which contains **Named Entity Recognition (NER)**, discovering attribution types in the **Knowledge Base (KB)**, extracting information with **Question Answering (QA) system** and **Named Entity Linking (NEL)**.
- Responsible for the NER part, labeled some evaluation data, and came up with an idea worth experimenting that sequence labeling models instead of sequence generating models might eliminate the constraints of the order of multiple parallel answers.

Highlighted Projects

An Item Recommendation System — *Poster Session*

Selective course project of Machine Learning — *Apr. 2018 – May. 2018*

- Built an item recommendation system with **Factorization Machine (FM)** under the challenging of millions of entries and rating matrix sparsity.
- Tried to iterate between extracting user features and item features with **Auto-Encoder (AE) and Deep Belief Networks (DBN)**, though failed on this sparse dataset, but still understood **unsupervised learning** methods better.
- Improved the performance with **bootstrapping and ensemble**, and understood the **error analysis** in machine learning better.

A Deep Learning Framework — *Github Page*

Selective course project of Programming Practice — *Jul. 2017 – Aug. 2017*

- Implemented in Python and profoundly understood the **principle of machine learning**.
- Supported **automatic differentiation, Adam optimizer, Convolutional Neural Networks (CNN) with droupout** and other features.
- Supported the interface as **TensorFlow** and **parallel execution on GPU**.

A Compiler for Mx*

Github Page

Course project of Compiler Design and Implementation *May. 2018 – Jun. 2018*

- Independently learned the **principle of compilers** and implemented a complete compiler in Java
- Supports to compile a **C-and-Java-like language** Mx* and the procedural or object-oriented programming.
- Designed an **intermediate representation** which helps to translate the abstract semantic tree (AST) into the machine language and optimized the compiler with **register allocation, local value numbering, redundant instruction reducing, function inlining**, etc.

A Train Tickets Booking System

Github Page

Course project of Data Structure *Apr. 2017 – May. 2017*

- Led a small team to build a train tickets booking system which supports operations on users, trains, schemes and tickets.
- Developed the back-end core data structure in C++, and the front-end GUI developed with freshly learned Qt.
- Maintained a detailed development manual.

Teaching Experience

Spr. 2019	**Machine Learning (CS420),** Teaching Assistant	*SJTU*
Fal. 2018	**Introduction to Computer Science (CS120),** Head Teaching Assistant	*SJTU*
Fal. 2017	**Programming (CS122),** Teaching Assistant	*SJTU*

Honors & Awards

Scholarships

Dec. 2018	**Leo Ko-Guan Scholarship**, Leo KoGuan Foundation	*SJTU*
Dec. 2017	**Huawei Scholarship (Top 4 in Zhiyuan College)**, Huawei Technologies Co., LTD.	*SJTU*
2017 – 18	**Shanghai Jiao Tong University Scholarship**, Shanghai Jiao Tong University	*SJTU*
2016 – 18	**Zhiyuan Honorary Scholarship**, Zhiyuan College	*SJTU*

Algorithm Competitions

Dec. 2016	**Second Prize**, The 2016 ACM-ICPC Asia Nha Trang Regional Contest	*Nha Trang, Vietnam*
Nov. 2016	**Bronze Medal, Best Female Team**, The 2016 ACM-ICPC Asia Beijing Regional Contest	*Beijing, P.R.C.*
Oct. 2016	**Silver Medal, Best Female Team**, The 2016 CCPC Hefei Site Contest	*Hefei, P.R.C.*
May. 2015	**Bronze Medal**, The National Olympiad in Informatics (NOI), 2015	*Hangzhou, P.R.C.*
May. 2015	**Bronze Medal**, The Asia-Pacific Informatics Olympiad (APIO), 2015	*Beijing, P.R.C.*
Dec. 2014	**First Prize**, The National Olympiad in Informatics in Provinces (NOIP), 2014	*Chongqing, P.R.C.*

Skills and Other Things

- **Paper Reading List**
- **Programming Languages**: C/C++, Python (PyTorch, TensorFlow, Scikit-Learn, Numpy), Java, Matlab, Verilog HDL.
- **TOEFL Score**: 101/120 (Reading 28, Listening 25, Speaking 22, Writing 26).