

EDUCATION**Tsinghua University, Beijing, China** *School of Software* 09/2016 – 07/2021

Major in Software Engineering,

- Overall GPA: **3.67/4.0** **88.7/100**
- Major GPA: **3.71/4.0** **89.5/100**
- Programming: Python, C++, Java; Verilog, Assembly; Qt, Latex
- Research Interests: Computer Vision, Transfer Learning, Machine Learning

Selected Highlight Courses and Scores

Linear Algebra	4.0	Principles of Compilation	4.0
JAVA and Object-Oriented Programming	4.0	Formal Language and Automata	4.0
Fundamentals of Computer Graphics	4.0	Introduction to Data Science	4.0
Introduction to Machine Learning	4.0	Principles of Database Systems	4.0
Deep Learning	4.0	Student Research Training	4.0(A+)

Awards and Honors

Scholarship for Academic Excellence, Tsinghua	2018&2019&2020
Member of Tsinghua University Initiative Scientific Research Program (funding: 30,000 ¥)	2019
1 st Prize in Student Research Training Program, Tsinghua	2019
2 nd Prize in Software Design Contest, Tsinghua	2018

PUBLICATION**Pose Recognition with Cascade Transformers (CVPR 2021)**

Ke Li*, Shijie Wang*, Xiang Zhang*, Yifan Xu, Weijian Xu, Zhuowen Tu

(*co-first author)

RESEARCH**Pose Recognition with Cascade Transformers** 07/2020 – 11/2020*Supervised by Prof. [Zhuowen Tu](#), University of California, San Diego*

- Presented a regression-based 2D human pose recognition method using cascade Transformers consisting of a person detection Transformer and a keypoint detection Transformer named Pose Regression TRansformers (PRTR).
- PRTR achieves SOTA compared to other existing regression-based methods on the challenging COCO dataset.
- The work (first author) has been submitted to CVPR 2021.

Study of Transferability of Deep Neural Network for Regression (Ongoing) 05/2020 - present*Supervised by Associate Prof. [Mingsheng Long](#), Tsinghua University*

- The knowledge learned from the classification task can be partly used for regression, for the backbone networks, the lower layers have better transferability than upper layers.
- We analyzed the difference between classification and regression and the reason why regression task is hard to transfer. The state space is the essential difference between classification and regression.
- Replacing Batch Normalization with Instance Normalization can improve the transferability of DNN significantly, indicating regression transfer has some similarity with style transfer like a single image domain adaptation problem.
- Designing baseline models and doing more confirmatory experiments.

Transferable Attention for Domain Adaptation 07/2019 - 10/2019*Supervised by Associate Prof. [Mingsheng Long](#), Tsinghua University*

- Presented the dimensional symmetry attention model for domain adaptation to improve the transferability of DNN.
- Used domain discriminative method to generate dimensional symmetry transferable attention: spatial, channel-wise and instance-wise transferable attention.
- Made transferable attention a standard and plug-in module suited for different domain adaptation models such as DANN and CDAN in different dataset like Office-Home and DomainNet, exceeding SOTA in some tasks on these datasets.

Self-Supervised Learning for Action Recognition by Hierarchical Order Prediction Network 12/2018 – 2/2019*Cooperated with Doctoral Student [Zhangjie Cao](#), Stanford University*

- Learnt about classic method for action prediction such as Two-Stream and C3D, read some papers about unsupervised learning method for video such as Order Prediction Network (OPN).
- Presented the Hierarchical Order Prediction Network, using pyramid-shaped temporal sequence sorting structure focusing on short-term frame and long-term segment sequences order to learn video features self-supervisedly.
- Compared with single frame-wise sequence sorting structure, the accuracy of action recognition got improved from 53.2 to 53.5 on UCF-101 dataset.

INTERNSHIP

Kwai Inc. | *Machine Learning Intern of MultiMedia Understanding Group*

07/2019 – 08/2020

- Kwai is one of the largest social media company in China.
- Built a **multimodal** machine learning model with multi-frame feature, text feature and audio feature for video content review, resulting in great improvement in F-score; our model has been put into practical use.
- Accumulated machine learning life cycle and big data system development experience, including data wrangling, feature engineering and model deployment.

SELECTED COURSE PROJECT

San Francisco Crime Classification

- Complete adequate work in data exploration, feature engineering and visualization to prove model performance.
- Build different models including XGBoost, LGBM and KNN and use Bayesian Optimization to optimize hyperparameters.

Wechat Game: Doodle Gold Miner

- Course project for course Web Front-end Technology. Using wechat dev-tools and Cocos Creator.
- I work on UI design, main logic for the game, designing animation in game, wechat open domain ranking board, level system and store system. I invited about 40 people to play the demo version.

C To LLVM Compiler

- Course project for course Principles of Compilation. Designing a compiler frontend to convert C language to LLVM IR.
- Use python and Antlr, the compiler supports most grammar in C, such as structure and array, some test codes are attached.

FTP Project & RTP Project

- Both are projects for course Computer Network.
- In the FTP project, I complete a FTP server according to [RFC 959](#) and a FTP client with user-friendly GUI with support for resuming from break-point. The FTP server is compatible with many widely-used FTP clients like FileZilla.
- In the RTP project, I complete an RTP server according to [RFC 1889](#) and a streaming media player client. The server and client support multiple video formats like avi, flv, mp4 and iso, lyrics display and speed modification.

EXTRACURRICULAR ACTIVITIES

- Vice president of Microsoft Club in Tsinghua University, member of Microsoft Summer Camp, 2019.
- Member of football team in school of Software Engineering and department of Electronic Engineering.
- Champion of Yuehan Ma Campus Football Cup, 2018.