

Yuanzheng Tao

STUDENT · SENIOR YEAR

Peking University Apt. 28, Haidian DSTR, Beijing, CHINA

☎ (+86) 188-1170-0129 | ✉ memphis@pku.edu.cn | 🏠 <https://memphis.im/> | 📷 [memphisqrt](#) | 📺 Yuanzheng Tao

Education

Peking University

Beijing, China

B.S. IN COMPUTER SCIENCE (UNDERGRADUATE)

Sept. 2016 - July. 2020

- Selected Courses: Data Structure and Algorithm (91), Practice of Programming in C&C++ (99), Algorithm Design and Analysis (89), Algorithms in Game AI (95), Parallel Programming (97), Introduction to Natural Language Processing (94).

Employment

High-Flyer Quant

Hangzhou, China

SOFTWARE DEVELOP ENGINEER (C++)

Jun. 2020 - now

- Software Develop Engineer.

Research Experience

Melady Lab, University of South California

Los Angeles, USA

SUMMER RESEARCH INTERN (MENTOR: YAN LIU)

Jun. 2019 - Sept. 2019

- Researched Machine Learning Interpretability.
- Conducted algorithm implementation by Python and C++. Implemented Generalized Additive Models (GAM) with gradient boosting and Generalized Additive Models plus Interactions (GA2M) with Fast Interaction Detection by Python. Implemented Binary Decision Tree and Linear Algebra Library (Numpy in C++) by C++.
- Main topic: Combined GAM, GA2M and Neural Network Interactions Detection (NID) algorithm proposed by Michael in Melady Lab. Since NID algorithm can detect higher-order interactions from neural network trained in advance and higher-order interactions can be applied in GAM and GA2M training by back-fitting algorithm or gradient boosting algorithm. To keep interpretability of this model, since independent terms and second-order interaction terms can be displayed in chart and hotspot picture, we trained independent terms and second-order interaction terms by bagging trees and higher-order interaction terms by decision trees.
- Another topic: In order to draw arbitrary hyper planes in feature space rather than the hyper planes parallel to one axis, we applied logistic regression and perpendicular bisector algorithm in decision tree.

Microsoft Research Lab - Asia

Beijing, China

FULL-TIME RESEARCH INTERN (MENTOR: JUSTIN DING)

Jul. 2018 - Dec. 2018

- Researched general and interpretable predictive data analysis.
- Conducted algorithm implementation. Implemented back-fitting algorithm on categorical and numerical dimension.
- Conducted algorithm design and optimization. Applied Nesterov's acceleration and power method to accelerate gradient descent in linear regression to fit categorical dimension data, and generalized additive model with simplified gaussian kernel smoother to fit numerical data.
- Conducted algorithm design, experiments and reports. All codes and experiments are completed by myself.

Publication

Stroke-based Character Reconstruction (under review)

<https://arxiv.org/abs/1806.08990>

THIRD AUTHOR (ZHEWEI HUANG, WEN HENG, YUANZHENG TAO, SHUCHANG ZHOU)

Oct. 2017 - Jun. 2018

- Abstract: By training on our synthetic data, our stroke extractor can achieve excellent reconstruction effect in real world scenarios. Meanwhile, it can also help achieve great ability in defending adversarial attacks of character recognizers.
- Contributed to the algorithm implementation and paper writing.

Selected Honors & Awards

INTERNATIONAL

2017 **Silver Medal (2nd Place)**, ACM International Collegiate Programming Contest (Asia EC final)

Shanghai, China

2015 **Gold Medal (1st Place)**, Asia Pacific Informatics Olympiad

Beijing, China

NATIONAL

2019 **Scholarship**, The Suzhou Gongyeyuan Scholarship (3/63 in my class)

PKU, Beijing

2018 **Scholarship**, The Jingjishijie Scholarship (9/63 in my class)

PKU, Beijing

2016/2017 **3 Gold Medals**, ACM International Collegiate Programming Contest (Urumqi, Nanning, Shenyang regional)

China

2015 **Silver Medal (2nd Place)**, National Olympiad in Informatics

Hangzhou

2015 **Gold Medal (9th Place)**, International Olympiad in Informatics China Team Selection Competition

Beijing

2014-2016 **3 First Prizes (top 0.05%)**, National Olympiad in Informatics in Provinces

Hangzhou

Other Experience

ITMO University (Top 1 university in algorithm competition)

Saint Petersburg, Russia

VISITING STUDENT

Mar. 2018 - Mar. 2018

- Ranked 2nd at the training camp in Algorithms and Data Structure. (The top ranking team got a gold medal at 2018 World Final of ACM-ICPC.)

Skills

Programming Python (Pytorch), C/C++, C#, JAVA, LaTeX, scheme, Pascal

Algorithm Design CodeForces: International Grandmaster (2649 Rating), top 50 in 10k+ Chinese competitors.

Languages Chinese, English (Toefl MyBest 104)