

Jiahao Zhang

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EDUCATION

University of Toronto (*Toronto, ON, 2019-present*)

Honours Bachelor of Science, Computer Science Specialist & Statistics Major

- Excellent grades with **Cumulative GPA 4.0**

Academic Excellence Awards and Scholarships:

- **Dean's List Scholar** in 2019-2020 Session, 2020-2021 Session
- **University of Toronto Scholar** in 2020-2021 Session
- **New College Council In-Course Scholarship** in 2021-2022 session

SKILLS & ABILITIES

Technical Skills

- Programming languages: **Java, Python, C/C++, R, SQL, Bash, Swift, Assembly**
- Ability to operate/use: **LaTeX, Office, NumPy, PyTorch, SciPy, OpenCV, Open3D, CRC cards, UML diagrams**
- Knowledgeable with **Algorithms, Data Structures, Computation Theory, Machine Learning Theory and Applications, Image Understandings, Version Control and Testing**
- Strong knowledge of **Statistical and Data Analysis methods**
- Proficient in using **Database System**

Interpersonal Skills

- Strong **Leadership** and excellent **communication and teaching skills**

Languages

- **English** (Proficient), **Chinese** (Native)

RESEARCH INTERESTS

I'm broadly interested in **machine learning** and **deep learning**, especially in 3D learning tasks, computer vision and image understandings. Besides, I am also interested in **data science** and modelling, especially for topics including **computational statistics, causal inference** and **statistical genetics**.

PROJECTS

Let's Make Pizza, Programmed the iOS version in **Swift**

- Made the Android and iOS version of the card game for Family Pastimes Co-operative Games
- Implemented various key functionalities and gained **organization** and **time management skills** as part of the iOS team, programmed with Xcode 10

Smart Conference System, Programmed in **Java** utilizing **Swing** and **AWT**

- Manages conferences in different situations, designed for different types of user with several functionalities and features
- Carried out the **SOLID principles of design** and **Clean Architecture** organization with **Object-Oriented Design**
- Implemented both Text GUI and Swing GUI
- Focused on the **Message System** programming, **GUI** programming and **Testing**

Analysis of Public Art in Toronto, implemented with **PostgreSQL** and analyzed with **R** utilizing tidyverse

- Analysis of real open data for public art distribution in Toronto
- Utilized **database system** with **SQL** to store information and perform queries
- In-depth further analysis with **statistical methods** including linear regression, mean, standard deviation, etc.
- Effective presentation with excellent performance

Online Education Services & Diagnostic Questions Correctness Prediction, implemented with **Python** utilizing NumPy

- Evaluate several **machine learning algorithms** using KNN, IRT model, Neural Networks and Ensemble
- Meticulous report with analysis of different algorithms and performance
- Participated in Kaggle Competition with the entire class, ranked top 10

PUBLICATIONS

- SPIDR: SDF-Based Neural Point Fields for Illumination and Deformation
Ruofan Liang, **Jiahao Zhang**, Haoda Li, Chen Yang, Nandita Vijaykumar
Submitted to ICLR 2023, currently under review
- A Comparison of Combustion Properties in Biomass–Coal Blends Using Characteristic and Kinetic Analyses
Yalin Wang, Beibei Yan, Yu Wang, **Jiahao Zhang**, Xiaozhong Chen, Rob J. M. Bastiaans
MDPI, 2021.

WORK EXPERIENCE

English Teacher/Tutor – Puxin Education (Jinan, China, 2020-2021)

- Help many students succeed in Chinese Senior High School Entrance Examination and College Entrance Examination

Computer Science/Discrete Mathematics Tutor – Easy Education (Toronto, Canada, 2021-2022)

- Help students understand complex topics and explain with comprehensive exercises
- Teaching subjects include **Intro to Discrete Mathematics**, **Intro to Computer Science**

Teaching Assistant – CSC209H5S Software Tools and Systems Programming - University of Toronto Mississauga (Toronto, Canada, 2022)

- Hold office hours to answer questions, grading and exam invigilating

Teaching Assistant – GEIG1415 Introduction to Discrete Mathematics & GENS1400 Probability and Statistics – Feng Chia University Summer School (Toronto, Canada & China, 2022)

- Hold office hours to answer questions, grading tests and quizzes
- Hold large-size class discussions and tutorial review sessions

Research Assistant – University of Toronto Systems & Networks Research Group (Toronto, Canada, 2022)

- Supervised by Professor Nandita Vijaykumar
- Participated in research group led by Ruofan Liang, topics relating to **Deep Learning**, **Computer Graphics & Computer Vision**
- Effectively proposed methods to improve the **editability** of the popular deep learning algorithm NeRF and paper submitted to ICLR 2023

Research Student – University of Toronto Department of Statistical Science (Toronto, Canada, 2022)

- Supervised by Professor Osvaldo Espin-Garcia
- Aims to extend the breath of simulations performed for PANPRS model for polygenic risk prediction, ongoing