# Chuhao Xu

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## EDUCATION

**Shanghai Jiao Tong University** **Shanghai, China**
*Honors Bachelor of Science (B.Sc. Hons) in Computer Science* Sept.2019 ~ June 2023 (Expected)

- Member of **ACM Honors Class**, which is an elite CS program for top 5% talented students
- GPA ranking: 13 / 31
- TOEFL score: 101

## HONORS AND AWARDS

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|---|---|
| Huawei Scholarship (**Top 0.3%**, SJTU) | 2021 |
| Zhiyuan Honors Scholarship | 2019, 2020, 2021 |
| Excellence Scholarship of Shanghai Jiao Tong University | 2019, 2020, 2021 |
| The 12th Asia and Pacific Informatics Olympiad (APIO) Silver Medal | 2018 |
| The 35th China's National Olympiad in Informatics (NOI) Silver Medal | 2018 |

## RESEARCH EXPERIENCE

**Undergraduate Researcher** **Shanghai, China**
*Shanghai Jiao Tong University*, advised by Prof. Quan Chen July 2021 ~ June 2023 (Expected)

- **Cloud computing, serverless**
  - ✧ Doing research on serverless circumstances like *cold startup latency, resource allocation, load burst, data transfer and load balance*, aiming to **solve real world problems in production environment**.
  - ✧ Currently focused on **workflow scenarios and lightweight VM solutions**. In this work, our group proposed a DAG based workflow optimization method, in order to maximize *in-memory data sharing* and enable *precise scheduling*, by dynamically analyzing the inter-function connection feature.

**Oxford Tutorial Programme** (remote) **Oxford, Oxfordshire, UK**
*Oxford University*, advised by Ph.D. Student Odhran O'Donoghue Feb. 2021 ~ May 2021

- **Artificial intelligence and machine learning**
  - ✧ Studied the most significant advancements in the recent history of machine learning.
  - ✧ **Brainstormed** on a paper of historic significance and compared the method it suggested to a more recent paper during each tutorial, via **presentations and discussions**.
  - ✧ Wrote an assay discussing the privacy issues in machine learning.

## SELECTED PROJECTS

**Mx* Compiler** ■ Java 2021
*Semantic Checking, Code Generation and Optimization, ANTLR*

- Coursework of *"Computer Systems Course Design"*
- Developed a compiler that compiles C-and-Java-like language (Mx*) to RISC-V ASM.

- Implemented optimizations like function inline, loop invariant code motion and constant propagation.

**RISC-V CPU** ■ Verilog 2020

*Computer Architecture, FPGA Programming*

- Coursework of *"Computer Systems (1)"*
- Designed a RISC-V CPU that supports RV32I Instruction set (2.1-2.6 in RISC-V user manual).
- Implemented a 5-stage pipelined structure with iCache, dCache, and branch prediction.
- Used Vivado to generate bitstream and program the Basys3 FPGA board.

**AcmOS - a RISC-V teaching operating system** ■ C 2021

*Synchronization Primitive, Context Switch, Memory Management*

- Coursework of *"Computer Systems (2)"*
- Designed a RISC-V operating system based on an existing teaching-specific framework.
- Implemented key features like synchronization primitive, memory management, context switch, processes and threads.

**Chinese Poetry Generation Model** ■ Python 2021

*Machine Learning, Data Analysis*

- Coursework of *"Machine Learning"*
- Designed a LSTM based Chinese poetry generation model with improved data processing, advanced prediction planning and premium result evaluation.
- Won **second** place in the poster session in class.

**Web Ticket System** ■ HTML, Python 2020

*Frontend, Flask*

- Coursework of *"Data Structure"*
- Designed a frontend of train ticket Management System, supporting multi-user queries, transactions and maintenance with privilege management.

## TEACHING EXPERIENCE

**Teaching Assistant** *Computer Systems Course Design* Fall 2021

**Teaching Assistant** *The Great Ideas in Computer Science* Fall 2020

## ACTIVITIES

**League Branch Secretary** 2021

Shanghai College students **public service advertising** Competition bronze medal 2020

**Volunteer** of Shanghai Teenager Algorithm Competition, *organized by Shanghai Computer Society* 2019

**Star of bass** in the university chorus 2019

## SKILLS AND INTERESTS

**Programming:** C++ / Python / Java / Verilog / MATLAB / R

**Technical experience:**

- Web: Flask / Bootstrap
- System & Database: Mininet / Docker / Qemu / Redis
- Other: LaTeX / Markdown / PyTorch / Vivado