

# Chuhao Xu (许楚豪)

Undergraduate in Computer Science

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## EDUCATION

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<b>Shanghai Jiao Tong University</b>	<b>Shanghai, China</b>
<i>Honors Bachelor of Science (B.Sc. Hons) in Computer Science</i>	Sept.2019 ~ June 2023 (Expected)
<ul style="list-style-type: none"><li>● Member of <b>ACM Honors Class</b>, which is an elite CS program for top 5% talented students</li><li>● TOEFL score: 101 (L: 28, S: 25, R: 24, W: 24)</li><li>● GPA ranking: 13 / 31</li></ul>	

## HONORS AND AWARDS

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Huawei Scholarship ( <b>Top 0.3%</b> , SJTU)	2021
Zhiyuan Honors Scholarship	2019, 2020, 2021
Excellence Scholarship of Shanghai Jiao Tong University	2019, 2020, 2021
The 12 <sup>th</sup> Asia and Pacific Informatics Olympiad (APIO) Silver Medal	2018
The 32 <sup>nd</sup> China's National Olympiad in Informatics (NOI) Silver Medal	2018

## RESEARCH EXPERIENCE

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<b>Undergraduate Researcher</b>	<b>Shanghai, China</b>
<i>Shanghai Jiao Tong University</i> , advised by Prof. Quan Chen	July 2021 ~ June 2023 (Expected)
<ul style="list-style-type: none"><li>● <b>Cloud computing, serverless</b><ul style="list-style-type: none"><li>✧ Doing research on serverless circumstances like <i>cold startup latency, resource allocation, load burst, data transfer and load balance</i>, aiming to <b>solve real world problems in production environment</b>.</li><li>✧ Currently focused on <b>workflow scenarios and lightweight VM solutions</b>. In this work, our group proposed a DAG based workflow optimization method, in order to maximize <i>in-memory data sharing</i> and enable <i>precise scheduling</i>, by dynamically analyzing the inter-function connection feature.</li></ul></li></ul>	
<b>Oxford Tutorial Programme</b>	(remote) <b>Oxford, Oxfordshire, UK</b>
<i>Oxford University</i> , advised by Dr. Odhran O'Donoghue	Feb. 2021 ~ May 2021
<ul style="list-style-type: none"><li>● <b>Artificial intelligence and machine learning</b><ul style="list-style-type: none"><li>✧ Studied the most significant advancements in the recent history of machine learning.</li><li>✧ <b>Brainstormed</b> on a paper of historic significance and compared the method it suggested to a more recent paper during each tutorial, via <b>presentations and discussions</b>.</li><li>✧ Wrote an essay discussing the privacy issues in machine learning.</li></ul></li></ul>	

## SELECTED PROJECTS

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<b>Mx* Compiler</b>	■ Java	2021
<i>Semantic Checking, Code Generation and Optimization, ANTLR</i>		
<ul style="list-style-type: none"><li>● Coursework of “<i>Computer Systems Course Design</i>”</li><li>● Developed a compiler that compiles C-and-Java-like language (Mx*) to RISC-V ASM.</li><li>● Implemented optimizations like function inline, loop invariant code motion and constant</li></ul>		

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 query, transaction and maintenance with privilege management.

## TEACHING EXPERIENCE

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

Fall 2020

**Teaching Assistant** *Computer Systems Course Design*

Fall 2021

## ACTIVITIES

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**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

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

**Technical experience:**

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

**Interests:** Photography, Travelling, Music, Flight Simulation