# Tiancheng Jiao

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## EDUCATION

**University of Michigan** *Ann Arbor, MI*
**B.S.E. in Computer Engineering** *Sept 2023 - May 2025 (Expected)*
**Overall GPA:** 3.84/4.0
**Core Courses:** *Data Structure & Algorithm (A), Intro to Computer Organization (A), Foundations of Computer Science (A), Computer Networks (A+), Database Management Systems (A), Web Design, Development, Accessibility (A), Statistics & AI (in progress), Software Engineering (in progress)*
**Awards & Honors:** University Honors (Dec 2023 & May 2024); Dean's List (Dec 2023 & Apr 2024)

**University of Michigan - Shanghai Jiao Tong University Joint Institute** *Shanghai, China*
**B.E. in Electrical and Computer Engineering** *Sept 2021 - Aug 2025 (Expected)*
**Overall GPA:** 3.45/4.0
**Core Courses:** *Discrete Math, Programming and Elementary Data Structures, Intro to Logic Design*

## PUBLICATIONS

**Building a Literature Knowledge Base Towards Transparent Biomedical AI**
Yuanhao Huang, Zhaowei Han, Xin Luo, Xuteng Luo, Yijia Gao, Meiqi Zhao, Feitong Tang, Yiqun Wang, Jiyu Chen, Chengfan Li, Xinyu Lu, Jiahao Qiu, Feiyang Deng, **Tiancheng Jiao**, et al., Jie Liu
doi: https://doi.org/10.1101/2024.09.22.614323

**ChemPerturb-Seq Screen to Identify the Hormone Cocktail Enhancing Human Beta Cell Survival After Subcutaneous Transplantation**
J. Jeya Vandana, Jiajun Zhu, Alice Maria Giani, Tuo Zhang, Lauretta Lacko, Dongliang Leng, Leland Taylor, Brian Lee, Zhaowei Han, **Tiancheng Jiao**, et al.
Journal: Nature Biotechnology (Under review)

## PATENT

**An Automatic Measurement Tool for the Offset Amount between the Center of Pillar and the Center of the Same Group of Foundation Bolts in a Power Grid Construction Site Based on Computer Vision Technology, Shanghai Jiao Tong University** (Application in Progress)

## RESEARCH EXPERIENCE

**Liu Lab, University of Michigan** *Ann Arbor, MI*
*Research Assistant, Supervisor: Prof Jie Liu* *Apr 2024 - Present*

- Developed 2 AI-powered websites for bioinformatics research projects: ChemPerturbDB and COVID-Lung CosMX, integrated AI assistant into the websites to improve user-friendliness
- Analyzed biological data using Python and large language models to do further research
- Applied reinforcement learning techniques and large language models to generate and optimize biological hypotheses
- Optimized bioinformatics workflows for higher efficiency and better user experience by creating websites and connecting them to large language models
- Developed an expert matching system for ISSCR (International Society for Stem Cell Research)
- Contributed to two research papers

**Data-informed Design and Intelligent Systems Laboratory, SJTU** *Shanghai, China*

*Research Assistant, Supervisor: Prof Youyi Bi* *Jun 2022 - Jun 2023*

**Next Generation AGV Intelligent Scheduling System Based on Artificial Intelligence**

- Designed an AGV scheduling system with openTCS
- Utilized Python to develop an API for the scheduling program
- Improved the routing strategy to avoid crashing and increase efficiency
- The patent application is under preparation

**Optical Imaging Laboratory, Shanghai Jiao Tong University** *Shanghai, China*

*Research Assistant, Supervisor: Sung-Liang Chen* *Apr 2022 - Feb 2023*

**Study on Intelligent Detection Algorithm Based on Camera Calibration and Object Recognition**

- Led a five-member team to initiate a project to reduce the deviation of the previous algorithm
- Leveraged Python to develop a new algorithm, which significantly increased the precision of circle center identification and simplified the process
- Working on patent preparation and application procedure

## PROJECT EXPERIENCE

**Thread Library for Operating Systems (*Course: Intro to Operating Systems*)** *Sept 2024 - Oct 2024*

- Developed a thread library using C++
- Supported mutexes, conditional variables, and thread management

**Primary/Backup Key/Value Service (*Course: Intro to Distributed Systems*)** *Sept 2024 - Oct 2024*

- Developed a viewservice to tell the clients the available machines to send requests
- Designed an algorithm to synchronize between primary and backup servers to ensure data correctness when some servers fail

**Computer Game Development *(Course: Intro to Engineering)*** *May 2022 - Aug 2022*

- BrickNite: developed a game to break the bricks, with a killing boss bonus and tools selection after passing each level
- Rhythm Gunner: applied Elm to develop a music game where players can shoot enemies with the rhythm of the music

**Independent GitHub Projects** *Jan 2022 - Present*

- **courseSelector:** developed an automatic course selection tool for students at UM-SJTU Joint Institute to use multiple threads for real-time course availability check and selection
- **auto-duo:** automatically approved each Duo push request, no need to click on the cellphone
- **py-html-graph:** developed a high-performance interactive Numpy line chart viewer (which could support multi-variable, zoom and pan), a good supplement for the awful matplotlib
- **openai-playground:** applied other openai-compatible API services in OpenAI Playground to test and debug other chatting AI services easily
- **direct-mmap:** developed Numpy memory-mapped array with direct I/O without sequential read caching, which increased the speed of random read by 200-900% in different cases

## EXTRACURRICULAR EXPERIENCE

*Core Member,* **Alternate Reality Initiative, UMich** *Aug 2023 - Present*

*Core Member,* **Quantitative Investment Society, UMich** *Aug 2023 - Present*

*Core Member,* **Michigan Data Science Team, UMich** *Aug 2023 - Dec 2023*

## SKILLS

**Languages:** English (fluent), Mandarin (native)

**Programming languages:** Python, C++, C, Java, SQL, JavaScript, Go

**Other Tools:** VS Code, PyTorch, OpenCV, Git, Docker