JINGWEI ZUO

Tsinghua University, P.R. China
+86 159-5290-6186 | e: zuojw21@mails.tsinghua.edu.cn

EDUCATION

Tsinghua University Beijing, China
B.Sc. in **Mathematics and Physics** & B.Eng. in **Electrical Engineering (dual degree)** Sept. 2021 – June 2025

- GPA: **3.93**/4.00
- Exchange student to Northeastern University, MA, USA from Sept. to Dec. 2023, got grade **A** on all four courses
- Got an **A+** in *Fundamentals of Computer Program Design*, **A** in *Computer Organization and Architecture*, *Data Structures*, *Machine Learning*, *as well as Computer Networks*
- Earn an award in courses such as *Software Programming Training*, *Android Programming*, and *Embedded System Design*
- A- or more in *Calculus*, *Linear Algebra*, and *Probability and Stochastic Processes*

PUBLICATIONS

AgentVerse: Facilitating Multi-Agent Collaboration and Exploring Emergent Behaviors
Weize Chen, Yusheng Su, Jingwei Zuo, Cheng Yang, Chenfei Yuan, Chen Qian, Chi-Min Chan, Yujia Qin, Yaxi Lu, Ruobing Xie, Zhiyuan Liu, Maosong Sun, Jie Zhou. In Proceedings of ICLR, 2024

RESEARCH EXPERIENCE

Massachusetts Institute of Technology EECS (Hanlab) Cambridge, MA, USA
Research Assistant to Prof. Song Han Oct. 2023 –Present

- Now working on cutting-edge research of LLM pruning and efficient AI
- Advised by Ph.D. student Guangxuan Xiao

Tsinghua University (THU Natural Language Processing Lab) Beijing, China
Research Assistant to Prof. Zhiyuan Liu Mar. 2023 – Aug. 2023

AGENTVERSE: Facilitating Multi-Agent Collaboration and Exploring Emergent Behaviors

- A cutting-edge AI framework enabling *multiple agents* to *collaborate* like human teams, optimizing *problem-solving* in diverse fields such as text understanding and software development
- Implemented *dynamic role assignment*, inspired by human group dynamics
- Conducted *extensive experiments* in text understanding, reasoning, coding, tool utilization, and embodied AI to validate the framework's effectiveness
- Analyzed agent interactions within the framework, revealing *emergent sociological behaviors* such as volunteer behaviors and conformity behaviors
- Released the project code publicly on GitHub, facilitating further research and development in the field of autonomous agent collaboration

PROJECT EXPERIENCES

1. **NeRF Octree Optimization** June 2023

- Utilized *Octree* data structure to optimize the memory consumption and time efficiency of NeRF rendering
- Up to *4x* memory optimization compared to *voxel* storage and the rendering time is equivalent
- Got a better command of pytorch and the idea of how to make an AI model more efficient

2. Markov Chain Application in Tennis Competitions Dec. 2022

- Course project of *Probability and Stochastic Processes*, here is the report(in Chinese).
- Personally a tennis superfan and merged my passion for tennis with mathematical analysis.
- Utilized *Markov Chain* analysis to demonstrate the *stabilizing effect* of tennis's multi-game per set and multi-point per game rules on player performance.

3. **Wordinary: Comprehensive Learning Suite for Language Learners** July 2021 – Feb. 2022

- A multifaceted educational software tool designed to enhance *vocabulary building* for English learners, focusing on *high-frequency word extraction*, *quiz generation*, and *standard pronunciation audio creation*
- Engineered the software using Python 3 for backend processing and C# .NET for a user-friendly interface, ensuring compatibility with Windows systems
- Innovated by introducing customizable features for varied educational needs, such as setting benchmarks for word extraction adaptable for exams like CET-4, TOEFL, or GRE
- Actively managed and updated the project on GitHub, demonstrating continuous improvement and engagement with the user community

Selected Awards and Honors

- **Comprehensive Scholarship** (Excellent across academics, sports, arts, volunteer, and social practices) 2021–2022
- **Academic Excellence Scholarship** 2022–2023
- "TI Cup" Digital System Innovation Design Competition (Third Prize) Oct. 2022
  Designed self-tracking algorithms on microcontrollers and also intelligent algorithms to find the best route
- "Xindong" Vehicle Competition (Third Prize) Jan. 2022
  Developed a self-tracking mini-vehicle using a microcontroller, incorporating PID control methods and camera-based tracking for enhanced autonomous navigation

Skills

- High proficiency in Python with two years' experience of using numpy, matplotlib, and pytorch
- Advanced coding skills, proficient in developing complex algorithms and solutions across multiple programming languages such as C, C++, C#, Java, and Python
- Fluent in English and Mandarin (Native), enabling effective communication in diverse cultural and technical environments
- Two years of tennis playing experience