Haoyang Wu

Email: haoyangw@umich.edu

Education

University of Michigan *Aug 2025 ~ May 2027 (Expected)*
BSE in Computer Science

Shanghai Jiao Tong University *Aug 2023 ~ Aug 2027 (Expected)*
BE in Mechanical Engineering
*Overall GPA: **3.97/4.0** (rank **1/336**) ; Major GPA:**4.0/4.0** (rank **1/336**)*

Publications

Holistic Surgical Phase Recognition with Hierarchical Input Dependent State Space Models

Haoyang Wu, Tsun-Hsuan Wang, Mathias Lechner, Ramin Hasani, Jennifer A. Eckhof, Ozanan R. Meireles, Guy Rosman, Yutong Ban, Daniela Rus

In submission to *IEEE Transactions on Medical Imaging (TMI)*

Research Experience

Research Intern at Shanghai Jiao Tong University SIRIUS Lab *Jan 2024~*
Project: Surgical Phase Recognition with State Space Models

- Analyzed spatial-temporal and local-global dynamics for long video understanding.
- Developed a temporally consistent feature extractor to enhance focus on salient temporal features.
- Developed HID-SSM, a model that captures both local and global temporal patterns for video-level decision making.
- Established new state-of-the-art with HID-SSM on surgical phase recognition: +2.8% (Cholec80), +4.3% (MICCAI2016), +12.9% (Heichole).
- Analyzed and visualized HID-SSM's temporal selectivity and long-term dependency awareness.
- Composed a draft journal paper and created most accompanying figures.

Advisor: Prof. Yutong Ban

Internship Experience

Assistant Project Manager at Alibaba Group *Jul 2023~Aug 2023*
Project: Automated Navigation System

- Organized group meetings and drafted progress reports; gained experience in project coordination.
- Developed software test plans and test cases to ensure quality control.
- Composed test reports and quality analysis.

Mentor: Lingbo Zhu

Honors & Awards

- **Tang Jun Yuan Scholarship** *Jul 2025*
- **Shanghai Jiao Tong University first class Scholarship** *Dec 2024*
- **John Wu and Jane Sun Sunshine Scholarship** *Nov 2024*
- **2023-2024 National Undergraduate Scholarship** *Sep 2024*
- **UM-SJTU JI Excellent Freshman Scholarship** *Nov 2023*

Exchanges

- **University of Oxford** *Jan 2025*
  Course taken: Artificial Intelligence and Machine Learning
  Grade: A, with 2025 Oxford Winter School Scholarship Award
- **Technical University Berlin** *Jan 2024~Feb 2024*
  Course taken: German Language (Level A1)
  Grade: 1.0 according to the German grading system

Skills

- **Languages**
  C, C++, Python (Specialty in Pytorch, Jax, Triton), Matlab, Wolfram, Latex, HTML
- **Framework**
  Git, Linux
- **Speaks**
  Mandarin, English (TOEFL 113)

Services

- **Reviewer of MICCAI 2025** *Jul 2025*
  - Reviewed two papers in COLAS workshop
- **Teaching Assistant of Course ECE2800J** *Feb 2025~Apr 2025*
  - Lecturer: Prof. Zhongqiang Ren
- **Teaching Assistant of Course ENGL1000** *Aug 2024~Dec 2024*
  - Lecturer: Prof. Christopher David Linforth
- **Student Advisor in UMJI Advising Center** *Mar 2024~*
  - Contribution to Piazza discussions among top 3 advisors in AC history; Organizer of the Freshman Course Selection Workshop, 2024 Fall semester
- **Assistant Admission Officer (Representative of UM-SJTU JI in Beijing)** *Mar 2024~*
  - Attended 5 college fairs in Beijing as the sole official representative of JI, connecting with and providing consultation to over 120 families
  - Participated in refining JI's transfer policy