

# Wang Kailing

☎ (+xx) xxx xxxx xxxx • ✉ wangkailing151@sjtu.edu.cn • 🌐 Loping151

## Education

### Shanghai Jiao Tong University

September 2021 – June 2025

*Major in Artificial Intelligence(Honor Class)*

GPA: **3.97**/4.3

Average Score: **91.44**/100

Rank: 12/94 (**13%**)

Related Coursework:

- Mathematical Analysis (H) I&II
  - Data Structure (H)
  - Linear Algebra (H)
  - Computer Vision
- \* (H) stands for (Honor)

## Projects

### PPG Signal-based Shared Device Identification System

October 2021

*Teamwork Competition (4 Members), Instructor: Prof. Guoxing Wang(SJTU)*

- Developed a real-time authentication system using PPG signal technology with enhanced accuracy and reliability.
- IEEE Student Design Competition (ISCAS) R10 Winner and World Winner, 2022

### Contemporary Undergraduate Mathematical Contest in Modeling

September 2022

*Teamwork Competition (as Leader), Instructor: Prof. Xiaofeng Gao(SJTU)*

- Proposed a mathematical model for simulating ships in wave conditions using MATLAB.
- Received **National First Prize** and **First Prize** in Shanghai Chapter.

### Fundus Classification

November 2022

*Inclass Competition, Artificial Intelligence Practice Based on Medical Images*

- Developed a light yet robust model based on the novel ConvNeXT architecture.
- Team Leader and Programmer. **Rank 1** out of 11 Groups.

### Melting Port Prison Dilemma

May 2024

*Inclass Competition, Game Theory and Multi-Agent Learning*

- Developed a rule-based agent with probability-based dynamic rule and efficient image processing.
- Implemented independently. **Rank 1** out of 6 Groups.

## Honors

### Zhiyuan Honors Scholarship

2021, 2022

- ¥ 5000, received as part of the Honor Program.

### Shaoqiu Scholarship

2022

- ¥ 10000, received for achieving significant success in academic competitions.

## Publications

### Neural LerPlane Representations for Fast 4D Reconstruction of Deformable Tissues

2022

*Chen Yang, Kailing Wang, Yuehao Wang, Xiaokang Yang, Wei Shen*

International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Vancouver, BC, Canada, 2023.

- Used 2D factorization methods to differentiate static and dynamic elements, with innovative sampling techniques for handling occlusion and motion variations.
- Demonstrated the success of this approach on DaVinci robotic surgery footage, achieving a significant optimization time reduction by over **100x**.
- MICCAI 2023 **Young Scientist Award, Oral**

## **Efficient Deformable Tissue Reconstruction via Orthogonal Neural Plane**

2023

*Chen Yang, Kailing Wang, Yuehao Wang, Qi Dou, Xiaokang Yang, Wei Shen*

IEEE Trans. Medical Imaging, 2024.

- Made notable advancements in rendering quality, inference speed, and adaptability, and introduced MForplane, an adaptation of Forplane for monocular videos used in many surgical procedures.
- Expanded evaluation using the public Hamlyn dataset to demonstrate the robustness and scalability of our method, and developed a tissue reconstruction dataset based on the Hamlyn dataset.

## **EndoGSLAM: Real-Time Dense Reconstruction and Tracking in Endoscopic**

2024

### **Surgeries using Gaussian Splatting**

*Kailing Wang\*, Chen Yang\*, Yuehao Wang, Sikuang Li, Yan Wang, Qi Dou, Xiaokang Yang, Wei Shen*

International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Marrakesh, Morocco, 2024.

- Developed a real-time camera localization and scene reconstruction system for endoscopes using 3D Gaussian Splatting and SLAM technologies.
- Allows real-time visualization of reconstruction results during operations, providing powerful intraoperative visualization for surgeons.

## **Extracurriculars**

---

### **Teaching Assistant**

- CAMP1205 Python Basics, 2024 Summer, SJTU

### **Volunteer**

- Empowerment (Zhu Fei) Plan, 12 hours, 2023
- 9-th College Students' "Internet+" Innovation and Entrepreneurship Competition, 4 hours, 2023