Wang Kailing

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Education

Shanghai Jiao Tong University   **September 2021 – June 2025**
Bachelor of Engineering in Artificial Intelligence(Honor Class)
GPA: **4.004**/4.3
Average Score: **92.04**/100
Rank: 9/95 (**9%**)

The University of Hong Kong   **September 2025 – Current**
Phd Student

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.

Hornors

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.

HKU Presidential PhD Scholar Programme   **2025-Current**
- Details

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