Rui Yin

yinrui2000@outlook.com | frickyinn.github.io

Education

The University of Hong Kong   Sept 2022 – Jan 2023
- Master in Science, Computer Science | Withdrawn

Sun Yat-sen University   Sept 2018 – June 2022
- Bachelor of Engineering, Software Engineering | GPA: 3.6/4.0

Research Interests

3D Vision, Visual Relocalization, 6DoF Pose Estimation, Monocular Depth Estimation, Model Compression

Publications

SRPose: Two-view Relative Pose Estimation With Sparse Keypoints

Rui Yin, Yulun Zhang, Zherong Pan, Jianjun Zhu, Cheng Wang, Biao Jia
ECCV, 2024
[project page](#)

Identifying Spatial Domain by Adapting Transcriptomics With Histology Through Contrastive Learning

Yuansong Zeng*, **Rui Yin***, Mai Luo, Jianing Chen, Zixiang Pan, Yutong Lu, Weijing Yu, Yuedong Yang
Briefings in Bioinformatics, 2023

Spatial Transcriptomics Prediction From Histology Jointly Through Transformer and Graph Neural Networks

Yuansong Zeng, Zhuoyi Wei, Weijiang Yu, **Rui Yin**, Yuchen Yuan, Bingling Li, Zhonghui Tang, Yutong Lu, Yuedong Yang
Briefings in Bioinformatics, 2022

Experience

Hanglok-Tech   Shenzhen, China
Research Assistant   Aug 2023 – Present

3D Vision | Advisor: Dr. Biao Jia, Prof. Yulun Zhang
- Publish *SRPose: Two-view relative pose estimation with sparse keypoints*.
- Calibrate keypoints' coordinates with camera intrinsics within networks to obtain precise positional information.
- Utilize prior knowledge of descriptor similarities to guide cross-attention module.

Model Quantization | Advisor Dr. Haotong Qin, Prof. Yulun Zhang
- Proposing a new binarization framework for compressing CNNs/ViTs in dense prediction tasks, including monocular depth estimation and semantic segmentation.

Laboratory of Data Discovery for Health, The University of Hong Kong   Hong Kong SAR
Research Assistant | Adivsor: Prof. Joshua Ho   Oct 2022 – Jan 2023
- Construct temporal neural network to denoise and process lung and heart sounds, assisting and deploying remote diagnosis applications.

AI4science Lab, Sun Yat-sen University   Guangzhou, China
Research Intern | Advisor: Prof. Yuedong Yang   Apr 2020 – Sept 2022
Multimodal, Bioinformatics:
- Publish *Identifying spatial domain by adapting transcriptomics with histology through contrastive learning*.
- Employ multimodal contrastive learning to classify and cluster spatial transcriptomics data.
- Publish *Spatial transcriptomics prediction from histology jointly through transformer and graph neural networks*.

- Construct hybrid architecture of GNNs and transformers to predict spatial transcriptomics from histological images.

Selected Projects

Visual 6DoF Pose Estimation of Surgical Robotic Arms Shenzhen, China

Advisor: Dr. Biao Jia Aug 2023 - Nov 2023

- Perform 6DoF pose estimation through CAD model and differentiable rendering for dual surgical robotic arms.
- Achieve real-time object pose tracking using only RGB inputs.

NUS SOC 2021 Summer Workshop, National University of Singapore Singapore

Advisor: Dr. Tan Zi Qing May 2021 - Aug 2021

- Develop intelligence of things (IoT) applications for COVID-19 epidemic prevention and entrance access control.
- Deploy human face and mask detection models on the cloud server and the embedded system.

National Training Program of Innovation and Entrepreneurship Guanzhou, China

Advisor: Prof. Yuedong Yang Apr 2020 - Nov 2020

- Construct semi-supervised learning model on medical images to utilize unlabeled data, improving lesion classification and segmentation accuracy.

Skills

Programming Languages: Python, C/C++, Matlab
Tools and Frameworks: PyTorch, Git, LaTeX