

# Hao Sun

MASTER STUDENT · COMPUTER VISION · MEDICAL IMAGE PROCESSING

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*"Aut Caesar, aut nihil."*

## Summary

I am currently a master student at Tokyo Institute of Technology, supervised by Prof. Kenji SUZUKI. I received my B.Eng degree from the School of Computer Science and Technology, Zhejiang University in 2021. At that time, I am also a member of Chu Kochen Honors College. During the university, I also minored in Religious Philosophy, Zhejiang University. Now my main research interest lies in medical image processing, dose reduction for CT.

## Work Experience

### Fenlai Intelligent Co.,Ltd.

ShenZhen, China

COMPUTER VISION ALGORITHM ENGINEER (INTERNSHIP)

Mar.2021 - Jun.2021

- Smart gym based on computer vision technology. I am responsible for the overall architecture design and algorithm implementation of the group exercise project, and realize the multi-person real-time group exercise scoring and action correction system.
- Edge deployment of deep learning models and load balancing system.

### Hikvision Co.,Ltd.

HangZhou, China

COMPUTER VISION ALGORITHM ENGINEER (INTERNSHIP)

Sep.2021 - Oct.2021

- Investigate video-based pedestrian re-identification technology.

### Oppo Japan research center Co.,Ltd.

Yokohama, Japan

COMPUTER VISION ALGORITHM ENGINEER (INTERNSHIP)

Mar.2023 - Jul.2023

- Investigate unsupervised optical flow solutions and design deployable real-time unsupervised optical flow algorithms.

## Honors & Awards

### INTERNATIONAL

2022 **IIR Research Fellow**, Institute of Innovative Research (IIR), Tokyo Institute of Technology

Tokyo, Japan

### DOMESTIC

2018 **2nd Scholarship**, Zhejiang University

HangZhou, China

## Publication

- Generating simulated fluorescence images for enhancing proteins from optical microscopy images of cells using massive-training artificial neural networks, SPIE2023

## Research Project

### 3D hair modeling from 2D sketches

Zhejiang University CAD/CG Lab

RESEARCHER

2020.7

- Given a 3D bust model as reference, our sketching system takes as input a user-drawn sketch (consisting of hair contour and a few strokes indicating the hair growing direction within a hair region), and automatically generates a 3D hair model, matching the input sketch.

### Virtual high dose CT image reconstruction based on paired low dose and high dose CT image

Kenji Suzuki Laboratory

RESEARCHER

2021.12

- Use paired CT images to train Massive Training Artificial Neural Network to reduce artifacts and noise in low-dose CT images, enhance image quality, and assist doctors in diagnosis. Our main contribution is to propose a multi-scale image reconstruction method and propose a loss evaluation criterion on the latent space vector.

## Fluorescence Images for Enhancing Proteins

*Kenji Suzuki Laboratory*

RESEARCHER

2022.4

- Fluorescent staining is a commonly used method in biology to observe the state of cells, but unfortunately most of the dyes used in fluorescent staining will affect cells (mostly lethal), which is not conducive to long-term observation of cells. We propose a method that can reconstruct the fluorescent staining map of two proteins in cells from the DIC image of the cell. Since the acquisition of DIC image is harmless to the cell, compared with the direct acquisition of the fluorescent staining map, our method enables long-term observation of some proteins in cells.

## Education

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### ZheJiang University

*HangZhou, China*

B.ENG IN COMPUTER SCIENCE AND ENGINEERING

*Sep. 2017 - Jul.2021*

- Selected as a member of Chu Kochen Honors College and won the 2rd scholarship of Zhejiang University.

### Tokyo Institute of Technology

*Tokyo, Japan*

M.ENG IN INFORMATION AND COMMUNICATION ENGINEERING

*Sep. 2021 - Jul.2023*

- Research Fellow from Institute of Innovative Research(IIR)