

# ChengAo Shen

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## EDUCATION

### University of Houston

Ph.D. in computer science

Houston, US

Jan 2025 - Present

### Sichuan Agricultural University

BSc. in Information and Computing Science

Ya'an, CN

Sep 2020 - Jun 2024

- **Awards:** Third Prize in the China Undergraduate Mathematical Contest in Modeling in 2022, Third Prize of Mathorcup in 2022, Meritorious Winner of the ShuWei Cup in 2020, Sichuan Agricultural University Outstanding Student award in 2023

## PUBLICATIONS

- **ChengAo Shen**, Siyuan Mu, Ge Diao, “Emoji Kitchen with Controlled Fusion”, *ICLR 2024 TinyPapers*
- Chun Wu, Hongrong Chang, Xianjin Chen, **Chengao Shen**, etc., “Deep learning assisted rapid assessment of food freshness using an anti-interfering triple-emission ratiometric fluorescent sensor”, *ACS Sustainable Chemistry & Engineering*
- Zhiwei Lua, Yonghui Gong, **Chengao Shen**, etc., “Portable, intelligent MIECL Sensing platform for ciprofloxacin detection using a fast convolutional neural networks-assisted Tb@Lu2O3 nanoemitter”, *Food Chemistry*

## RESEARCH EXPERIENCE

### CellMamba: Instance Segmentation Method for Ultra-High-Count Cell Images

Ya'an, CN

Supervisor: Zhaoli Shen

May 2024 – Sep 2024

- Introduced the Mamba structure to biological cell instance segmentation, proposing a new model, CellMamba
- Utilized the Mamba mechanism to analyze global illumination, contrast, and color distribution in input images, enhancing segmentation accuracy while Enhancing inference speed and reducing computational costs
- Introduced the Ultra-Cell dataset with more than 1000 instances per image

### Emoji Kitchen With Controlled Fusion

Ya'an, CN

Supervisor: Zhaoli Shen

Nov 2023 - Dec 2023

- Proposed a new, novel image fusion network named 'Controlled Fusion Network', which can accept any number of input images and fuse them into an output image containing semantic information
- Ensured the model is lightweight and has low coupling, making training easier and enabling quick migration to other fields
- Collected a new dataset about emoji fusion and proposed a new image fusion task that uses the model to realize the semantic information while retaining the details, to test the model

### Intelligent Sensing based on Deep Learning

Ya'an, CN

Supervisor: Hanbing Rao

Nov 2022 - Apr 2023

- Identified chemical-specific targets based on the object detection algorithm and judged the luminescence of substances through color changes and ratios by the classification algorithm.
- Designed deep learning methods with YOLOv8 to analyze the fluorescent image, deployed the deep learning model on a cloud server, and established the WeChat application to boost the research
- Accelerated the efficiency of chemical experiments by reducing the need for manual experimental operations

## WORK EXPERIENCE

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**Hangzhou Fudian Intelligent Information Technology Co., Ltd.**

Hangzhou, CN

Position: Software Development Intern

Jul 2019 – Dec 2024

- Applied intelligent algorithms to assist in software development
- Used target detection and tracking algorithms to register products in and out of a warehouse automatically
- Made a handheld targeted object dilatometer based on Raspberry Pi, applied for the patent, and deployed deep learning in the embedded applications
- Used object detection algorithm to recognize specified objects and conducted rapid stock in and out
- Made web pages and applets and managed the procedures of multiple projects

## ADDITIONAL INFORMATION

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- **Computer Languages and Skills:** Python (Pytorch, Numpy, Pandas, matplotlib), Linux, Rust, Latex, C++, SPSS, Javascript (React, Nodejs), Matlab
- **Languages:** Mandarin (native), English (iBT TOEFL 96), Japanese (basic)
- **Interests:** Running, Cycling, Reading (science fiction, philosophy, biography), Skiing