ChengAo Shen

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EDUCATION

Sichuan Agricultural University   Ya'an, CN
Bachelor of Science in Information and Computing Science   Sep 2020 - Jun 2024

- GPA: 3.83/5.0, ranking: 28/150
- Selected Courses: Data Structure, Computer Operating System, Computer Network, Computer Image Processing Techniques, Design and Analysis of Algorithms, Probability-and-Statistics, Numerical Analysis, Discrete Mathematics, etc.

PUBLICATIONS

Wu, Chun; Chang, Hongrong; Chen, Xianjin; Tan, Ping; Chen, Yuhui; **Shen, ChengAo**; Liu, Tao; Lu, Zhiwei; Sun, Mengmeng; Su, Gehong; Wang, Yanying; Zou, Yuanfeng; Rao, Hanbing, "*Bio-inspired intelligent ratiometric sensor for food freshness analysis with a high signal-to-noise ratio*", Editor Assigned, *ACS Sensors*

RESEARCH EXPERIENCE

Action Recognition of a Pig Using Deep Learning   Ya'an, CN
Supervisor: Zhaoli Shen   Apr 2023 - present

- Researched papers in the field of video understanding and action recognition such as SlowFast, I3D, and MAR, etc., and conducted the review of papers.
- Built a data set including different behaviors of pigs, and labeled the location, and timestamp of pigs in the video to provide sample information for network training.
- Designed common methods and software for rapidly building behavioral recognition datasets and constructed a web-based platform based on this function to label the data set.
- Tested the performance of different action recognition models on pig behavior data sets, summarized their performance and characteristics, designed a network structure performing better on this data set based on ViT, and expanded it into a general model about animal behavior recognition.
- Applied tricks to accelerate the method to be more lightweight and deployed the method on the farm to monitor the behaviors of the pigs

Instance Segmentation of the Cells of Pig   Ya'an, CN
Supervisor: Zhaoli Shen   Mar 2023 - present

- Researched papers in the field of instant segment especially the U-Net and Mask-RCNN, studied hollow convolution, feature pyramid, and other techniques, and conducted the review of papers.
- Labeled the data sets of the muscle cell of pigs, tested the published method in these data sets, and found the existing problems about how to segment the small and repetitive instances.
- Designed the neural network with ViT structure based on some prior information about the cell.
- Used this model to detect and segment the special cell in the image to assist the research of gene expression.

Intelligent Sensing based on Deep Learning   Ya'an, CN
Supervisor: Hanbing Rao   Nov 2022 - present

- Identified chemical-specific targets based on the object detection algorithm, and judged the luminescence of substances through color changes and ratios.
- Designed deep learning methods with YOLOv8 to analyze the photos, deployed the deep learning model on a cloud server, and established the WeChat application to boost the research.
- Responsible for leading the server deployment of WeChat applets and deploying the trained model to serve based on FastAPI.

WORK EXPERIENCE

Hangzhou Fudian Intelligent Information Technology Co., Ltd.   Hangzhou, CN
Software Principal at the Development Department   Jul 2019 - present

- Applied intelligent algorithms such as artificial intelligence and computer vision to assist in software development.
- Used target detection and tracking algorithms to automatically register products in and out of the warehouse.
- Employed OCR algorithm for the rapid clock-in of Zhejiang Province Health Code and Travel Code.
- Used YOLOv5 algorithm to achieve the goal, made the handheld targeted object dilatometer based on Raspberry Pi, applied for the patent, and deployed deep learning in the embedded applications.
- Recognized the specified objects and conducted rapid stock in and out with the target detection algorithm.
- Made web pages and applets and managed the procedures of multiple projects.

- **Computer Languages and Skills:** Python (Pytorch, Numpy, Pandas, and matplotlib etc.), Linux, Latex, C++, SPSS, Javascript (React, Node), Matlab
- **Languages:** Mandarin (native), English (fluent), Japanese (basic), Esperanto (basic)
- **Interests:** Running, Cycling, Reading (science fiction, philosophy, biography), Skiing
- **Research Skills:** Implement replication, code debugging, collect and organize information
- **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