

HANHUI WANG

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1388 1/2 W 23rd St, Los Angeles, California

EDUCATION

M.S. in Computer Science

Aug.2023 - present

Viterbi School of Engineering, University of Southern California (USC)

B.Eng. in Computer Science and Technology

Sept.2019 - June 2023

School of Computer Science & Technology (SCST)

Huazhong University of Science and Technology (HUST)

GPA 3.99/4.0 Rank 2/363

★ Selected by SCST for a special class for the most promising students

RESEARCH EXPERIENCE

Research Assistant

June 2024 - present

TACO Group, Texas A&M University

Advisor - **Prof. Zhengzhong Tu**

- Presented a novel perspective for protecting personal images from malicious editing, focusing on making biometric features unrecongnizable post editing.
- Developed a new algorithm, **FACELOCK**, that incorporates facial recognition models and feature embedding penalties to effectively protect against diffusion-based image editing.
- Conducted a crucial analysis of the quantitative evaluation metrics commonly used in image editing tasks, exposing their vulnerabilities and highlighting the potential for manipulation to achieve deceptive results.

Research Assistant

May 2024 - present

Visual Intelligence Lab, Northeastern University

Advisor - **Prof. Huaizu Jiang**

- Introduced **SNAP**, the first unified segmentation model capable of working across different point cloud domains including, part-level, indoor, and outdoor domains.
- Developed SNAP as a versatile model, supporting multiple prompt types, including points, bounding boxes, and text, to enable flexible object segmentation.
- Achieved state-of-the-art performance on multiple benchmark datasets and demonstrated SNAP's utility as a semi-automated labeling tool for real-world applications.

Research Assistant

Sept.2022 - Mar.2023

Embedded and Pervasive Computing Lab, HUST

Advisor - **Prof. Xianzhi Li**

- Modified a Few-shot learning framework for 3D Instance Segmentation (3DIS) to address the problem of the expensive costs of collecting a sufficient amount of annotated point clouds.
- Utilized a Transformer Decoder to generate differentiated kernels to perform instance-wise dynamic convolution.
- Implemented the model using **Python** and **PyTorch** and improved the mean Average Precision results (mAP) by **3.2** percent on the ScanNet V2 dataset.

WORKING EXPERIENCE

Assistant Algorithm Engineer

May 2023 - July 2023

Research & Development Group (RDG), iFLYTEK

- Worked on a 3D Instance Segmentation project aiming to combine the strengths of Clustering- and Transformer-based methods. Our model has achieved a result of **0.796** on the ScanNet V2 AP50 benchmark(higher than the previous state-of-the-art result of 0.787 by then).

- Worked on modifying the indoor scene instance segmentation model to improve performance on outdoor scene datasets.

PUBLICATION & PREPRINT

1. **Hanhui Wang***, Yihua Zhang*, Ruizheng Bai, Yue Zhao, Sijia Liu, and Zhengzhong Tu. Edit Away and My Face Will not Stay: Personal Biometric Defense against Malicious Generative Editing. *In arXiv 2411.16832 Nov. 2024.*
2. **Hanhui Wang**, Huaize Ye, Yi Xia, Xueyan Zhang. Leveraging SAM for Single-Source Domain Generalization in Medical Image Segmentation. *In arXiv 2401.02076 Jan. 2024.*

PROJECTS

Stock Management Android App

Apr.2024 - May 2024

- Developed a stock management Android Application using Android Studio.
- Refactored the **Node.js** backend to make it suitable for an Android app.
- Utilized **Volley**, **Picasso** to handle multiple HTTP requests.

Stock Management Website

Mar.2024 - Apr.2024

- Developed and deployed a stock management [website](#) on the Google Cloud Platform (GCP).
- Designed and implemented the frontend service using HTML5, Bootstrap, and **Angular** frameworks. Ensured a responsive and user-friendly interface to enhance user experience and engagement.
- Engineered the backend service using **Node.js**, ensuring robustness, scalability, and high performance. Implemented server-side logic, database integration, and API handling to support frontend functionalities.
- Managed and maintained a cloud-based **MongoDB** database to securely store and manage data.

Single-Source Domain Generalization project

Oct.2023 - Dec.2023

- Led a group of 4 to work on a research project focused on leveraging the Segment Anything Model (SAM) for Single-Source Domain Generalization in the context of Medical Image Segmentation.
- Proposed a dual-stage fine-tuning paradigm for SAM to address domain generalization tasks.
- Designed an efficient mask-filtering module to generate refined bounding boxes for SAM.
- Our approach achieved state-of-the-art results on the Prostate dataset, **8** percent higher than the former best results.
- Organized the creation of the poster and drafting of the [paper](#).

Jigsaw Puzzle project

Nov.2021 - Dec. 2021

- Led a group of 4 to develop a jigsaw puzzle game-playing website using **JavaScript** and the **Paper.js** graphics framework, and maintained the project repository at [Gitee](#). ([Video Demo](#))
- Designed a novel magnetic mode for fun-seeking users.
- Deployed the website on a Cloud Server and developed the back-end services to deal with the images uploaded by different players.
- Adapted the website and game-playing operations to different PC and mobile devices.

SKILLS

Programming Languages

Python, C, C++, Java, JavaScript, MySQL, SML

Frameworks & Tools

PyTorch, Git, Conda, Shell, Docker, Angular

English Skills

IELTS 7.5, TOEFL 109, GRE 327+4.0

Soft Skills

Time Management, Teamwork, Leadership, Communication

SELECTED AWARDS & HONORS

China National Scholarship (the highest national wide scholarship for undergraduate students in China)	2020
Outstanding Undergraduates in Term of Academic Performance (the greatest honor for undergraduates in HUST)	2020
Merit Student of HUST	2020, 2021, 2022
Outstanding Graduates of HUST	2023