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)
GPA 4.0/4.0

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 unrecognizable 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 Gernerative 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 112, GRE 327+4.0
Soft Skills	Time Management, Teamwork, Leadership, Communication

SELECTED AWARDS & HONORS

China National Scholarship 2020
(the **highest** national wide scholarship for undergraduate students in China)

Outstanding Undergraduates in Term of Academic Performance 2020
(the **greatest** honor for undergraduates in HUST)

Merit Student of HUST 2020, 2021, 2022

Outstanding Graduates of HUST 2023