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 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.

Research Internship June 2022 - Aug.2022
Multi-Agent Planning, Learning, and Coordination Group
National University of Singapore NUS Advisor - **Prof. Bryan Low**

- Learned to use the Deep Learning Architecture Pytorch, and completed classification projects on MNIST and CIFAR. Read research papers on multi-party machine learning and reproduced experiments mainly focusing on data valuation.
- Worked on a **data valuation** project mainly on my own, seeking to find a theoretical relationship between the distance of a data point to the classifier's decision boundary and the value of the data point towards the system.

Research Assistant Dec.2020 - Dec.2021
Services Computing Technology and System Lab, HUST Advisor - **Prof. Fangming Liu**

- Fundamental training: cloud/edge computing, green computing and relevant AI/ML techniques.
- Reviewed papers mainly focusing on network virtualization, and was impressed by the work of applying reinforcement learning in flow scheduling problems and learned more about AI/ML.

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, significantly higher than the previous state-of-the-art result of 0.787 (our results have been submitted, but not published).

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

PUBLICATION & PREPRINT

1. **Hanhui Wang**, Huaize Ye, Yi Xia, Xueyan Zhang. Leveraging SAM for Single-Source Domain Generalization in Medical Image Segmentation, 2024.

PROJECTS

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.

Web Server project Oct.2021 - Nov.2021

- Developed a simple web server that is able to listen and respond to HTTP requests using **C++** socket programming.

File Search Engine Mar.2021 - May.2021

- Designed and developed an offline file search system based on **inverted index** structures in **Java**.
- Improved the engine's functionality and performance by adding multi-keyword searching, stop-word filtering, and customized result ranking.

Big data project May 2020 - June 2020

- Led a team of 8 to complete a **data mining, storing and utilizing** project.
- Implemented a Python **Web Crawler** program to fetch the data from Douban, the largest film review website in China.

- Implemented the basic machine learning methods KNN and Naive Bayesian Classifiers from-scratch to predict the scores for new movies.

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 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