

HAOQUAN ZHANG

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🎓 EDUCATION

South China University of Technology (SCUT), Guangzhou, China 2021 – Present

Undergraduate student in Data Science (DS), expected March 2025. **GPA** of 3.7/4.0

Research Interests: Multi-Modality Tasks, Knowledge Distillation and 3D Reconstruction

👤 PUBLICATION

Mask4Align: Aligned Entity Prompting with Color Masks for Multi-Entity Localization Problems

First Author - CVPR'2024

In Visual Question Answering (VQA), pre-trained vision-and-language models (VLMs) have addressed VQA problem in certain degree and finally providing a text description as the answer. However, in visual scenes with multiple entities, textual descriptions struggle to distinguish the entities from the same category effectively. Consequently, the VQA dataset is limited by the limitations of text description and cannot adequately cover scenarios involving multiple entities. To address this challenge, we introduce Mask4Align, a method can determine the entity's position in the given image that best matches the user-input question. This method integrates colored masks into the image, allowing the VQA model to address multi-entity localization challenges without requiring additional training.

👤 RESEARCH EXPERIENCE

Singapore Management University

2024 – present

Research Intern Adviser: Prof. Shengfeng He,

Singapore

- 3D Gaussian Splatting
- Reflection-Augmented 3D Reconstruction

South China University of Technology

2023 – present

Research Intern Adviser: Prof. Huaidong Zhang,

Guangzhou, China

- Point Cloud Recognition
- Applications of Vision Language Models

👤 PROJECT EXPERIENCE

Perfect GunMayhem Remake: A 2D Shooting PVP Game Based on Cocos2d-x

2022

Course Design Course: Advanced Language Programming (C++)

GunMayhem Remake is a project independently completed by our team members, covering all aspects, including source code, game artwork, and music assets.

- Final Score: 99, 4.0/4.0. (1%)
- C++, Cocos2d-x (the game engine)
- Project Page: <https://haoquanzhang.github.io/GunMayhem/gunMayhem.html>

Design of Auxiliary Diagnosis Algorithm for Schizophrenia Based on Feature Fusion of EEG and ECG

2023

Entry The National BME Innovation Design Competition

Calculated brain functional network features, heart rate variability features and heart-brain coupling features to build machine learning models for automatic diagnosis; Deep learning models using ResNet were built based on original EEG and ECG also.

- Second Prize. (6%)
- Python, PyTorch, MNE-Python (a Python package for analyzing neurophysiological data)

⚙️ SKILLS

- Programming Languages: Python > C++ > Java
- Platform: Linux, Window
- Languages: English - Fluent, Mandarin - Native speaker

♡ SELECTED AWARDS

<i>Meritorious Winner (7%)</i> , The Interdisciplinary Contest in Modeling (ICM), COMAP	2021
<i>3rd Prize (12%)</i> , The SCUT Scholarship, SCUT	2022
<i>3rd Prize (12%)</i> , The Huameng Scholarships, TCL Corporate	2022
<i>2nd Prize (5%)</i> , The Taihu Innovation Scholarship, Wuxi city government	2022
<i>2nd Prize (6%)</i> , The National BME Innovation Design Competition, China Society of BME	2023

📖 CORE COURSES

Physics (4.0/4.0), Python Programming (4.0/4.0), Advanced Language Programming (4.0/4.0), Linear Algebra (4.0/4.0), Computer Network (4.0/4.0), Java Programming (4.0/4.0), Course Design of C++ (4.0/4.0), Course Design of Data Structure (4.0/4.0)

📌 MISCELLANEOUS

- Personal Website: <https://haoquanzhang.github.io/>
- Hobby: Anime, Music Production (Electronic and R&B) and Graphic design
- Feel free to contact me. I look forward to exchanging ideas and engaging in friendly collaboration.