

HAOQUAN ZHANG

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Hello, my name is Haoquan Zhang, and I am a junior student majoring in Data Science and Big Data Technology at South China University of Technology, with a GPA of 3.7/4.0. With a longing for computer technology and artificial intelligence technology, I transferred from Biomedical Engineering to Data Science and Big Data Technology in my freshman year. During my college years, I followed Professor Kai Wu and Professor Huaigong Zhang for two scientific research projects. My current research interest is the application of visual language large models.

Besides scientific research and learning, my hobbies are mainly basketball and electronic music production and arrangement.

🎓 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 EXPERIENCE

SCUT Multi-Media Lab, Guangzhou, China 2023 – present

Research Intern Adviser: Huaidong Zhang

Research how to apply visual language models to the transferability of multimodal tasks, and how to fine-tune large models for vertical domains. I also try to carry out research on the cross-modal AIGC task.

- Proposed **Mask4Align** (submitted to CVPR 2024, under review), a novel pipeline without additional training, which incorporates colored masks into the image, enabling the VQA (Visual Question Answering) models to handle discrimination and localization challenges associated with multiple entities. (The paper file will be attached to an email.)

SCUT Medical Information and Neuroimaging Lab, Guangzhou, China 2021 – 2023

Research Intern Adviser: Kai Wu

Research on biomedical signal processing, medical artificial intelligence and human brain connectomics in automatic diagnosis of stroke, depression and schizophrenia, and explore the mechanism of brain structure and functional damage within these diseases.

- An Auxiliary Diagnosis Algorithm for Schizophrenia.** This project is an entry for the 8th National Biomedical Engineering Innovation Design Competition for College Students. In this project, we designed a deep learning model fused features extracted from EEG and ECG, which achieved the function of automatic diagnosis. Our project won the second prize in the finals. (The entry file will be attached to an email.)

🧑‍💻 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)

Limbs Motor Function Monitoring System 2021

Course Design Course: Exploration and Design of Biomedical Engineering

Built an automatic classification system to assess the subject's weight-bearing status based on EEG and EMG. This design is an exploration of the ability of EEG and EMG to assess the motor status of stroke patients.

- Final Score: 92, 4.0/4.0.
- 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

♡ HONORS AND 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 Biomedical Engineering	2023

📄 MISCELLANEOUS

- Personal Website: <https://haoquanzhang.github.io/>