JIEHUI HUANG

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Education

Sun Yat-sen University   *Shenzhen, Guangdong, China*

M.S in Artificial Intelligence, **Granted automatic admission**, GPA 3.6/4, Overall Rank(4/52),   Sep. 2022 - Jun. 2025

Summary: Master's degree candidates with research experience in computer science, robotics, and bioinformatics are seeking **PhD application** opportunities. I am committed to collaborating with international mentors, advancing innovative solutions, and making meaningful contributions in research.
Research interests: *Computer Vision and Machine Learning*, Robotics, Bioinformatics, and Materials Science.
Google Scholar: I have published 10+ papers at the AI Conferences and Journals. Study in *HCPLab*, supervised by *Xiaodan Liang*

Nanchang University   *Nanchang, Jiangxi, China*

B.E in Automation, GPA 3.5/4, Overall Rank(1/119), **National Scholarship** (Top 0.7%)   Sep. 2018 - Jun. 2022

Research interests: Time series forecasting, and Robotics. Intelligent Grid Laboratory, Advisor: *Peter X. Liu*

Selected Papers

[1] **J. Huang**, J. Zhou, Z. Tang, C.Y.-C. Chen. "A Novel End-to-end 3D-Residual and Attention Enhancement Joint Few-Shot Learning Model for Huntington Clinical Assessment," *Q1, IF: 5.6,* **IEEE Transactions on Instrumentation & Measurement (Major Revision)**

[2] **J. Huang**, Huang J, Dong X, Song W, Hanhui Li, Jun Zhou, Shengcai Liao, Xiaodan Liang, et al. "ConsistentID: Portrait Generation with Multimodal Fine-Grained Identity Preserving", **arXiv**

[3] **J. Huang**, J. Zhou, Z. Tang, C.Y.-C. Chen. "TMBL: Transformer-based Multimodal Binding Learning Model for Multimodal Sentiment Analysis," *Q1, IF: 8.8,* **Knowledge-Based Systems**

[4] Z. Tang, **J. Huang**, G. Chen, C.Y.-C. Chen. "Comprehensive View Embedding Learning for Single-cell Multimodal Integration," **AAAI2024**

[5] **J. Huang**, H. Huang, Z. Tang, C.Y.-C. Chen. "Progressive Network based on Detail Scaling and Texture Extraction: A More General Framework for lmage Derain," *Q2, IF: 6.0,* **Neurocomputing**

[6] **J. Huang**, L. Lin, X. He, C.Y.-C. Chen. "Parkinson's Severity Diagnosis Explainable Model Based on 3D Multi-Head Attention Residual Network," *Q1, IF: 7.7,* **Computers in Biology and Medicine**

[7] Zhiyuan Liao*, **Jiehui Huang***, Yuxin Cheng*, Chunquan Li, Peter X. Liu. "A novel decomposition-based ensemble model for short-term load forecasting using hybrid artificial neural networks," **Applied Intelligence**, 52(10): 11043-11057, 2022. (Co-first Author)

[8] **Jiehui Huang**, Chunquan Li, Zhengyu Huang, Peter X. Liu. "A decomposition-based approximate entropy cooperation long short-term memory ensemble model for short-term load forecasting," **Electrical Engineering**, 1-11, 2022.

[9] Jing Wan*, **Jiehui Huang***, Zhiyuan Liao, Chunquan Li, Peter X. Liu. "A Multi-View Ensemble Width-Depth Neural Network for Short-Term Wind Power Forecasting," **Mathematics**, 10(11): 1824, 2022. (Co-first Author)

[10] **Jiehui Huang**, Zhiwang Zhou, Chunquan Li, Zhiyuan Liao, Peter X. Liu. "A decomposition-based multi-time dimension long short-term memory model for short term electric load forecasting," **IET Generation, Transmission & Distribution**, 15(24): 3459-3473, 2021.

[11] Miao Li, Chunquan Li, Zhengyu Huang, **Jiehui Huang**, Gaige Wang, Peter X. Liu. "Spiral-based chaotic chicken swarm optimization algorithm for parameters identification of photovoltaic models," **Soft Computing**, 25(20): 12875-12898, 2021.

Internship Experience

Tencent, AILab   *Shenzhen, China*

AIGC Algorithm Research Intern   April. 2024 - now

- Conduct research on ID consistency generation of 2D characters by using 3D structure priors to guide ID retention while fully decoupling ID and text control.
- Video generation task: Reproduce MegaPortraits and *VASA-1* models. By decoupling ID features and motion features, the driving signal can drive the characters smoothly.
- Investigate some 3D Talking Head work, mainly focusing on the understanding of *RGCA* work, and plan to draw experience from related work in this field to improve Video tasks.

SenseTime, Algorithm Research Institute   *Shenzhen, China*

3D Algorithm Research Intern   July. 2023 - Oct. 2023

- Deeply involved in the institute's controllable generation technology research, transforming the original 2D-StableDiffusion model into a 3D generation model to achieve refined multi-view controllable effects.
- In order to solve the problem of poor controllability of text and depth information of Texture3D model, a controNet structure is designed to make the 3D texture generation effect highly match the input.
- Use LoRA technology to enhance model prompt information through the SUR-Adapter structure, and improve the text understanding capabilities of mainstream DreamFusion, CLIP-Mesh and other models.

Project Researches

ConsistentID:Portrait Generation with Multimodal Fine-Grained Identity Preserving
arXiv, First Author

School of Intelligent Systems Engineering, Sun Yat-sen University & Lenovo Research & Inception Institute of Artificial Intelligence

Nov. 2023 - Mar. 2024

- We introduce ConsistentID to improve fine-grained customized facial generation by incorporating detailed descriptions of facial regions and local facial features.
- We devise an ID-preservation network optimized by facial attention localization strategy, enabling more accurate ID preservation and more vivid facial generation.
- We introduce the inaugural fine-grained facial generation dataset, FGID, addressing limitations in existing datasets for capturing diverse identity-preserving facial details.

Multimodal Sentiment Analysis System based on Swim-Transformer
Knowledge-Based Systems, First Author

School of Intelligent Systems Engineering, Sun Yat-sen University

Sep. 2022 - Mar. 2023

- Considering the limited consideration of fine-grained word-level interactions in existing multimodal fusion systems, we designed a multi-level supervised contrastive learning function, effectively improving the ACC-2 metric by 6%.
- Traditional multimodal models design separate models for each modality to extract features. Inspired by the AOBERT model, we used SwimT as the backbone, achieving state-of-the-art performance.
- We employed dynamic data resampling to address the issue of dataset imbalance, enabling the model to outperform the baseline performance by 12% on the wild emotion behavior (ABAW) dataset.

Parkinson's Severity Video-based Diagnosis using Attention Model
Computers In Biology And Medicine, First Author

School of Intelligent Systems Engineering, Sun Yat-sen University

Sep. 2022 - Mar. 2023

- We propose an effective facial video-based end-to-end PD severity diagnosis deep learning model, which can extract features from PD patient videos and give robust and interpretable diagnosis results.
- We effectively integrate channel and spatial attention mechanisms into a 3D neural network model, which ensures that the model can learn non-redundant features. In addition, the effective embedding of LSTM and ResNet further strengthens the robustness of the model.
- We effectively judge the severity of PD disease through various facial expressions of PD. In addition, we also designed a series of interpretability experiments to provide further explanations for our video analysis model, which is of great significance for assisting doctors in diagnosis.

Awards and Honors

2023	**The First Prize Scholarship of Sun Yat-sen University**
2022	**National Scholarship of NanChang University**
2022	**Outstanding Graduate of Nanchang University**
2021	**Outstanding Scholarship of Nanchang University**
2022	**Asia and Pacific Mathematical Contest in Modeling**: First Prize (Advisor)
2021	**(CIMC) Siemens Cup China Intelligent Manufacturing Challenge**: First Prize
2021	**Asia and Pacific Mathematical Contest in Modeling**: Second Prize
2021	**(RMUC) RoboMaster University Championship**: First Prize
2021	**MathorCup University Mathematical Modeling Challenge (Big data competition)**: Second Prize
2021	**Chinese Society of Optimization,Overall Planning and Economical Mathematics**: Student Member
2021	**MathorCup University Mathematical Modeling Challenge**: Second Prize
2020	**A patent type for a non-blocking controllable projectile launch system**: Invention Patent

Services

Knowledge-Based Systems: Peer Reviwer
Springer Nature

Multi-scale generative adversarial network for image super-resolution

Mar. 2024

IET Generation, Transmission & Distribution: Peer Reviwer
ScholarOne Website

A new financial loss/gain wind power forecasting method based on deep machine learning algorithm by using energy storage system

July. 2021 - Aug. 2021 - Sep. 2021

Soft Computing: Peer Reviwer
Springer Nature

Multi-scale generative adversarial network for image super-resolution

Jan. 2022

School of Intelligent Systems Engineering, Sun Yat-sen University: Teaching Assistant
Shenzhen, Guangdong, China

Assisted in teaching the undergraduate courses, Multimodal for computer science, including labs and tutorials, grading exams and assignments, and providing student support and feedback.

Sep. 2022 – Jan. 2023

Technical Skills

Programming Languages:	Python, Matlab, C/C++, SQL, PySpark
Research Tools:	Latex, Git, SolidWorks, Visio, Origin, Pymol
Deep Learning Frameworks:	Pytorch, Tensorflow, OpenMMLab
Hardware Development	KeilV5, CubeMX, STM32, XCode, Docker