Haoqin Hong

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Education

- **Southwest University** — Chongqing, China
  College: *Han Hong (Honors) College* — *September 2021 – Present*
  Degree: *BSc in Computer Science and Technology*
  GPA: *4.1/5.0* ***Weighted Average Score:*** *90.1*

- **University of California, Los Angeles** — Los Angeles, USA
  Certificate Project in Data Science (Credit Transfer Project) — *September 2022 – December 2022*

Skills Summary

- **Language**: CET-6(565), IELTS(6.5)
- **Programming**: Python, R, C/C++, Matlab
- **Tools**: Ubuntu, OpenCV, PyTorch, ROS, Navigation, C++ STL

Publications

- CCSPNet-Joint: Efficient Joint Training Method for Traffic Sign Detection Under Extreme Conditions. **arXiv preprint arXiv:2309.06902 (First author)**. (Submitted to ICASSP 2024)
- Speech Recognition System and Method Based on Lightweight Transformer Network. **Chinese Invention Patent (4th inventor)**, CN202310065728.1.
- Text Sentiment Detection System and Method Based on Memristor. **Chinese Invention Patent (4th inventor)**, CN202310091466.6.

Honors and Awards

- Southwest University Undergraduate First Class Scholarship (Rank 1/40). *October 2023*
- Southwest University Academic Science and Technology Award. *October 2023*
- Southwest University Undergraduate Third Class Scholarship (Rank 10/40). *October 2022*
- Outstanding Student Union Staff of Southwest University Han Hong College. *July 2022*

Research and Internship Experience

- **Brain-like Computing and Intelligent Control Laboratory** — Chongqing, China
  Undergraduate Research Assistant — *March 2022 – Present*
  - **Research Background**: I joined the algorithms research group formed by Professor Xiaofang Hu, Associate Dean of the School of Artificial Intelligence at Southwest University, with a focus on the design of brain-like intelligence algorithms and their deployment on memristor chips.
  - **Research Direction**: Computer Vision, Embedded Vision, Brain-like Computing, Memoristor Neural Networks (Advisors: Xiaofang Hu, Yue Zhou).

- **Institute of Automation, Chinese Academy of Sciences** — Beijing, China
  AI Algorithm Research Intern (Part-time Assistant) — *August 2022 – September 2022*
  - **Internship Content**: During my internship, I primarily utilized the PaddlePaddle deep learning platform from Baidu to reproduce and port cutting-edge neural network algorithms in the fields of computer vision and natural language processing. Additionally, I conducted research on text-to-vision cross-modal techniques and applications. By carefully studying the papers and open-source code of these algorithms, I successfully constructed corresponding models in the PaddlePaddle framework and made necessary adjustments and optimizations to achieve good performance and results.

Project Experience

- **Chinese Academy of Sciences University Student Innovation Training Program** — Beijing, China
  National Astronomical Observatory Innovation Traning Project (Advisors: A-Li Luo). — *July 2023 – Present*
  - **Project Title**: Image Processing, Object Recognition, and Segmentation Based on Astronomical large Model.
  - **Project Description**: The goal of this project is to utilize a generalized image-based model to address three downstream tasks in astronomical images: identification, classification, and segmentation. To achieve this, the project requires the utilization of Galaxy Zoo's morphological classifications for galaxies and LAMOST's spectral classifications for stars and quasars to enhance the large-scale model through reinforcement learning. Subsequently, fine-tuning will be applied to SDSS sky survey images to accomplish tasks such as object detection, object classification, and image segmentation.

- **University Student Innovation and Entrepreneurship Training Program** — Chongqing, China
  Project Leader of Chongqing Municipal Level Innovation Training Program. — *March 2023 – Present*
  - **Project Title**: Research and Application of Multi-Layer Attention Networks based on Memristors in Natural Language Processing.

- **Project Description**: This project aims to utilize the memristor-based multi-layer attention network algorithm to provide a novel neuromorphic computing architecture in natural language processing. It aims to provide feasible algorithmic models and deployment plans for achieving a low power consumption, high computational power, and integrated storage and computation neuromorphic computing system.

- **University Student Innovation and Entrepreneurship Training Program** Chongqing, China
  Project Leader of Southwest University's Campus-level Innovation Training Program. *March 2022 – May 2023*
  - **Project Title**: Artificial Intelligence Suicide Intervention and Big Data Positive Psychological Suggestion Content Delivery System.
  - **Project Description**: The goal of this project is to design and implement a suicide semantic analysis model based on deep learning methods and natural language processing techniques. Additionally, a suicide behavior identification semantic analysis database platform will be developed. Through this platform, the aim is to enhance the accuracy and efficiency of suicide intervention. It will be capable of identifying and analyzing different types of suicidal expressions and providing corresponding intervention measures to safeguard people's mental health.

Competition Awards

- National First Prize in the China Robotics and Artificial Intelligence Competition. *June 2023*
- National First Prize in the DJI RoboMaster of the National University Student Robot Competition. *May 2023*
- National Third Prize in the Chinese Collegiate Computing Competition. *May 2023*
- Provincial First Prize in the National College Student Electronic Design Competition. *August 2023*
- Provincial First Prize in the National College Student Mathematical Modeling Competition. *November 2022*

Extracurricular Experience

- **Southwest University Robotics Innovation Lab** Chongqing, China
  Vision and Decision Algorithms Team Leader *November 2022– Present*
- **Southwest University Student Union** Chongqing, China
  Head of Life Practice and Rights Department *October 2022 - July 2023*