

Genghao Liu

MASTER STUDENT

Department of Physics and Astronomy, Sun Yat-sen University

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"Make the change that you want to see in the world."



Education

Sun Yat-Sun University

Zhuhai, China

B.S. IN PHYSICS AND ASTRONOMY

Sep. 2019 - Jun. 2023

- GPA: 3.864/5 Rank: 7/20.
- Core Curriculum: Quantum Mechanics, Electrodynamics, Hydrodynamics, Thermodynamics, Statistical Mechanics, Astrophysics, Computational physics, Programming etc.

Sun Yat-Sun University

Zhuhai, China

M.S. IN PHYSICS AND ASTRONOMY

Sep. 2023 - PRESENT

- Advisor: Baitian Tang

Research Interests

- White Dwarf Spectroscopy
- Multiple Population in Globular Cluster

Publications

FIRST AUTHOR

Spectral Identification of White Dwarf Binary Candidates

Astronomy and Astro Physics

FOUNDER & WRITER

Feb. 2024

- Drafted daily news for developers in Korea about IT technologies, issues about start-up.

Experience

Spectral Identification of White Dwarf Binary Candidates

Zhuhai, China

RESEARCHER

Feb. 2022 - Jun. 2023

- Developed a program to fit WDs spectrum and compute basic parameters
- Analyzed 423 short-period sources based on LAMOST spectrum and Gaia DR3 photometry data
- Verified 825 High confidence variable star candidates and computed their basic type and atmosphere parameters.
- Provided gravitational wave sources of TianQin project.

Quantitative Measurement of Off-plane Displacement Based on Digital Shearing Speckle Interference Fringe

Zhuhai, China

RESEARCHER

Oct. 2021 - Dec. 2021

- Modeled the out-of-plane displacement of materials
- Fitted the theoretical two-dimensional speckle pattern with the image and obtained parameters with practical physical significance.

Artificial Intelligence analysis of Cosmic Web

Zhuhai, China

RESEARCHER

Apr. 2021 - Dec. 2021

- Developed "DBSCAN + Centroid stacking" Algorithm to explore the Statistical properties of Cosmic Web structure.
- Determined cosmological parameters by using the characteristics of the two-point correlation function of clustering
- Analysis of scale sensitivity of clustering algorithm
- Achievement summary, thesis writing and defense

Curriculum Research, Extraction and recognition of verification code

Zhuhai, China

PRINCIPAL INVESTIGATOR

Apr. 2022 - Jun. 2021

- Developed a web crawler program to extract verification code on the web
- Clustering and noise reduction of verification Codes.
- Train a CNN neural network model for Verification code.

Technical Skills

Programming	Python, C/C++, LaTeX
AI	Machine Learning, Tensorflow, keras
Languages	English, Chinese

Presentation

CSST White Dwarf Seminar

Zhuhai, China

PRESENTER FOR <DEFCON 20TH : THE WAY TO GO TO LAS VEGAS>

Jun. 2023

- Introduced my graduation project– spectral identification of white dwarf binary candidates.

Honors & Awards

INTERNATIONAL

2020 **Honorable Mention**, Mathematical Contest In Modeling and Interdisciplinary Contest In Modeling Zhuhai, China

DOMESTIC

2021 **Good**, Innovation training program for College Students: Artificial intelligence analysis of cosmic web structure Zhuhai, China

2022 **Excellent campers**, Tsinghua University Astronomy Department Excellent College Student Summer Camp Beijing, China

2019 **Excellent Student Scholarship**, The Third Award of Excellent Student Scholarship in Sun Yat-sen University Zhuhai, China

2020 **Excellent Student Scholarship**, The Third Award of Excellent Student Scholarship in Sun Yat-sen University Zhuhai, China

2021 **Excellent Student Scholarship**, The Third Award of Excellent Student Scholarship in Sun Yat-sen University Zhuhai, China

2023 **Shuyouwushi Scholarship**, The Award for Astronomy Students Zhuhai, China

Extracurricular Activity

Publicity Department of Roller Skating Association

Zhuhai, China

MEMBER

Sep. 2019 - Oct. 2020

- Participated in the public welfare performance of the "15th Hundred-Mile Love Walking and Charity 10000 People's Walk" in Zhuhai.

Research for astronomy history

Guangzhou, China

VOLUNTEER

2019.09 - 2019.10

- Go to archives, libraries and other places to investigate and collect relevant historical data of astronomy of Sun Yat-sen University and sort them out.

Department of New Media Collection, College of Physics and Astronomy

Zhuhai, China

MEMBER

2019.09 - 2020.06

- Make Wechat post, take pictures, write articles, and record the activities of the college.
- Carry out the photography tasks of the school sports meeting, student assembly, student union activities, and university art lectures.

Nucleic Acid Test

Zhuhai, China

VOLUNTEER

2022.04 - 2022.05

- Assist in the registration of nucleic acid detection information, maintain the order of nucleic acid detection site, and provide assistance to the testers with difficulties.

Volleyball Team of Physics and Astronomy Department

Zhuhai, China

OUTSIDE HITTER/MIDDLE BLOCKER

2021.09 - PRESENT

- Won the top eight of the "Recreation Cup" volleyball match in Zhuhai Campus of Sun Yat-sen University
- Runner-up of YangYue Cup