

Yujie He

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Education

2019—
2023 **Degree:** Bachelor of Science in Astronomy
 Where: Nanjing University, at Nanjing, Jiangsu Prov., China
 GPA: 4.50/5.00 or 3.81/4.00¹

Research

2020—
2021 **Project:** Prediction of EUV Radiation from Stellar Flares Based on
 Multi-band Observations of Solar Flares
 Where: Nanjing University, Jiangsu, China
 Advisor: Prof. Xin Cheng
 Contributions:

- I gathered and preprocessed about 400 GB of data from Solar Dynamics Observatory (SDO).
- I adopted and trained a conditional generative adversarial network (cGAN) that can perform highly realistic cross-bands image generation.

2021—
2022 **Project:** Observational Study of Alfvén Waves in Magnetic Reconnection
 Current Sheets
 Where: Nanjing University, Jiangsu, China
 Advisor: Prof. Xin Cheng
 Contributions:

- I innovatively developed the pipeline to extract the wave shape from observations using Pinta label and Gaussian fitting, greatly improving the accuracy and efficiency of wave shape measurement over the previous approach to simply hand-measure slit by slit.

2022—
 Project: Using Wavelet Scattering Transform to Study the
 Properties of Interstellar Medium
 Where: Columbia University
 Advisor: Dr. Hui Li, Prof. Mark Vogelsberger
 Contributions:

- I generated Gaussian random velocity fields and used wavelet scattering transform (WST) to classify their power spectra and mix ratio of solenoidal and compressive mode.

¹Converted and verified by the World Education Services (WES).

Project: Interstellar Turbulence Properties over Large Dynamical Range

Where: Columbia University

Advisor: Dr. Hui Li, Prof. Mark Vogelsberger

Contributions:

- I am developing a suite of code to calculate velocity power spectrum over a very large dynamical range $\sim 10^5$, from the simulation box size to the smallest structure resolved.

Honors and awards

- 2020, NJU Talent Training for Basic Science Scholarship (Outstanding) CNY 10,000
- 2020, The NAOC Scholarship² CNY 3,000
- 2020, People's Scholarship (First-class) CNY 3,000
- 2021, NJU Talent Training for Basic Science Scholarship (Third-class) CNY 4,000
- 2021, People's Scholarship (Second-class) CNY 2,000
- 2021, Zheng Gang Oversea Study Scholarship CNY 30,000
- 2022, NJU Talent Training for Basic Science Scholarship (Outstanding) CNY 10,000
- 2022, Ruli Scholarship CNY 5,000

Technical experience

- Python, C, C++
- Nbodykit, Pylians, Kymatio, SunPy, TensorFlow
- Linux, L^AT_EX, Jupyter Notebook

GitHub page: <https://github.com/YujieH3>

Activities

- I participated in a supporting education program in 2018 at Longquanguan School in Hebei province for a week. I designed and taught 20 math classes for 50 fifth-grade students. (2018)
- Deputy Chairman of Nanjing University Football Association (NJUFA). (2020-2021)
- Soccer Team Captain of School of Astronomy and Space Science. (2020-2021)
- Head of Propaganda Department of NJUFA. (2021-2022)
- Women's Soccer Team Coach of School of Astronomy and Space Science. (2021-2023)

Total volunteer hours at Nanjing University: 147.5 h

²The National Astronomical Observatories of the Chinese Academy of Sciences