

Jiaming Zhuge

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EDUCATION

University of Science and Technology of China (USTC)

Hefei, China

Wang Shouguan Talent Program in Astronomy, School of Physical Science

Sept. 2019 - Jul. 2023

B.S. in Astronomy (expected)

GPA: 3.8 / 4.3

Rank: 3 / 31

TOEFL iBT: 98 (R: 29, L: 26, S: 22(highest: 23), W: 21)

GRE: 320+3 (VR: 150, QR: 170, AW: 3)

RESEARCH EXPERIENCE

Identifying the Physical Origin of Gamma-Ray Bursts with Machine Learning Methods

Las Vegas, America

Supervised by Prof. Bing Zhang at Nevada Center for Astrophysics, University of Nevada

Aug. 2022 - Now

- Participated in the discussion of the features selection of GRBs
- Attempted to reveal the physical origin of GRBs with unsupervised machine learning methods
- Gave advice about feature importance in a supervised way
- Paper in preparation: Identifying the physical origin of Gamma-Ray Burst with supervised machine learning methods (third author)

Undergraduate Training Program for Innovation and Entrepreneurship: Assessing the Detection Capability of the Extreme Ultraviolet Radiation of Active Galactic Nuclei by the China Space Station Telescope (CSST)

Hefei, China

Supervised by Prof. Zhenyi Cai at CAS Key Laboratory for Research in Galaxies and Cosmology, USTC

Jun. 2022 -Now

- Combined with the SED of AGN from HST and SDSS
- Plotted the luminosity function of AGNs in the FUV bandwidth based on the previous studies and extrapolated to the EUV bandwidth
- Based on the transmittance curve of CSST, simulated the observed capability of CSST for the AGNs in different redshift
- Planned to predict the number of AGNs in high redshift for CSST

Machine Learning Classification of Fast Radio Bursts

Las Vegas, America

Supervised by Prof. Bing Zhang at Nevada Center for Astrophysics, University of Nevada

Apr. 2022 - Aug. 2022

- Undertook the unsupervised machine learning way and participated in the supervised machine learning way
- Analyzed the FRBs data from CHIME and derived the physical features of FRBs such as energy, luminosity, and brightness temperature
- Participated in the discussion of the derivation in the brightness temperature while considering the cosmic effect
- Tested and applied dimensionality reduction and cluster methods to learn the traits of FRBs and classify them
- Analyzed the correlation of the features behind the results
- Showed the list of repeater candidates and reported it in the FAST group meeting
- Papers submitted to MNRAS for review: Machine Learning Classification of Fast Radio Bursts: II. Unsupervised Methods (first author); Machine Learning Classification of Fast Radio Bursts: I. Supervised Methods (second author)

Period Search of Fast Radio Bursts in Milliseconds Scale

Hefei, China

Supervised by Prof. Zigao Dai at Time-domain Astronomy group, USTC

Feb. 2022 -Apr. 2022

- Utilized Fast Fold Algorithm, Quadratic Mutual Information (QMI), and Lomb-Scargle methods to search period in FRB121102, FRB190520B, FRB20201124A
- Crossing checked and compared the results to conclude the periods
- Modified the code to be available on the millisecond scale
- Found different periods in those FRBs, but no milliseconds periods

TEACHING ASSISTANT EXPERIENCE

- Teaching assistant for Prof. Yongquan Xue in the *Introduction to Astronomy*

Fall 2022

- Teaching assistant for Prof. Chunkai Xu in the *Electromagnetism A*

Spring 2022

ACHIEVEMENTS AND AWARDS

- Outstanding Student Scholarship Awarded by USTC 2021
- Second Prize in China Undergraduate Physics Tournament in Anhui Province 2021
- First Prize in Anhui College Students' Mathematics Competition 2020
- Outstanding Student Scholarship Awarded by USTC 2020

SKILLS AND INTERESTS

- Programming skills:** C, Latex, Python, MATLAB, Markdown
- Languages:** Mandarin Chinese(native), English (fluent)
- Interests:** Volunteer Activity, Camping, Chinese Calligraphy