YUEYUE SHEN (沈越月)

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Research Interests

I'm a PhD student in astrophysics at the National Astronomical Observatories, Chinese Academy of Sciences (NAOC). My research interests are **Star Clusters, Stellar Spectroscopy, and Machine Learning**. My works apply **statistical inference, forward modeling** and machine learning to data from major surveys like **Gaia, LAMOST, and APOGEE.**

My current research focuses on star clusters, particularly on the properties of open clusters in the Milky Way, such as their initial mass function, structure, and dynamics. I also plan to extend my research to unresolved star clusters in nearby galaxies. Previously, I employed machine learning methods to measure stellar parameters from spectroscopic surveys.

Education

- **National Astronomical Observatories of China (NAOC), CAS** 2022 - Present
  Ph.D. candidate, in Astrophysics. Mentor: Prof. Chao Liu *Beijing, China*
- **Zhejiang University of Technology** 2018 - 2022
  Bachelor of Engineering, in Computer Science *Hangzhou, China*

Publications

3. **Yue-Yue Shen** et al., The Initial Mass Function of Young Open Clusters in the Solar Neighborhood, *in prep*
2. **Yue-Yue Shen** and A-Li Luo, Distance and stellar parameter estimations of solar-like stars from the LAMOST spectroscopic survey, *A&A*, 691, A218 (2024)
1. Bruno Sicardy et al. (incl. **Y.Y. Shen**), Constraints on the evolution of the Triton atmosphere from occultations: 1989–2022, *A&A*, 682, L24 (2024)

Research Experience

- **Mass Function of Open Clusters in the Milky Way from Gaia DR3** Jul 2023 - Present
  Advisor: Prof. Chao Liu, Paper in preparation
  - Isochrone fitting and Bayesian inference for the mass function of color-magnitude diagrams
  - Cluster dynamics analysis and orbital integration
  - Developed a Python package for cluster analysis - STARCAT

- **Distance and Stellar Parameter of solar-like stars from LAMOST** Mar 2022 - Sep 2024
  Advisor: Prof. A-Li Luo, Paper published
  - Use neural networks to derive stellar parameters and absolute magnitudes from spectra
  - Spectroscopic distance of half a million stars in the LAMOST DR9
  - Released open-source code - SolarDis

Additional Experience

Teaching Assistant

- **Astrostatistics and Numerical Analysis** Sep 2024 - Dec 2024
  Graduate course at UCAS, Prof. Chao Liu

Observing Experience

- **2.16m telescope at Xinglong Observatory, China** 6 nights, 2023 - 2024
  Spectroscopic observations
- **0.7m telescope at Yanqi Lake Observatory, China** 6 Oct 2022
  Occultation light curve, contributed to *Bruno Sicardy et al. 2024*

Skills

- **Programming and Computation:** Python, C/C++, Java, SQL, HTML/CSS, LaTeX, Shell, Git
- **Statistics and Machine Learning:** Bayesian inference, Markov chain Monte Carlo (MCMC), Regression and Classification, Neural Networks and Deep Learning

Awards and Honors

- **Excellent Student Prize** of the University of Chinese Academy of Sciences 2024
- **Academic Scholarship** of Zhejiang University of Technology 2021