Jianing (Jenny) Su

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Education

PhD (direct entry) in Astronomy and Astrophysics 2023 - Present
University of Toronto, Toronto, ON, Canada

BSc in Physics 2019 - 2023
McGill University, Montréal, QC, Canada

- Minor in Mathematics

Awards and Scholarships

Queen Elizabeth II Graduate Scholarship in Science and Technology ($15000) 2024
University of Toronto

Dunlap Student Training Grant ($180) 2024
University of Toronto, to attend CASCA

David A. Dunlap Entrance Scholarship ($3000) 2023
University of Toronto

Undergraduate Student Research Award ($6000) 2022
Natural Sciences and Engineering Research Council of Canada (NSERC)

NSERC Scholarship Supplements ($1500) 2022
Fonds de recherche du Québec - Nature et Technologies

Science Tomlinson Engagement Award for Mentoring ($600) 2021, 2022
McGill University, Montréal, QC, Canada

Arthur and Crystal Lau Entrance Scholarship in Science ($3000) 2019
McGill University, Montréal, QC, Canada

Research Experience

Undergraduate Research Jan 2022 – Aug 2023
McGill University, Montréal, QC, Canada

- Supervisor: Professor Victoria Kaspi and Dr. Ryan Mckinven
- Adjusted the script of the Canadian Hydrogen Intensity Mapping Experiment Fast Radio Burst (CHIME/FRB) polarization pipeline to apply on a morphologically complex sample of FRBs
- Examined polarization distributions between repeating and non-repeating FRBs to better understand the emission mechanisms and preferred environments of FRB sources.
- Compared repeating and non-repeating FRBs by applying two-sample comparison analyses and programming R codes to apply survival analysis on censored data

Publications

[1] CHIME/FRB Collaboration et al. "CHIME/FRB Discovery of 25 Repeating Fast Radio Burst Sources". In: (2023). DOI: 10.48550/ARXIV.2301.08762. URL: https://arxiv.org/abs/2301.08762.

[2] Jakob T. Faber et al. *Morphologies of Bright Complex Fast Radio Bursts with CHIME/FRB Voltage Data*. 2023. arXiv: 2312.14133 [astro-ph.HE].

[3] R. Mckinven et al. "A Large-scale Magneto-ionic Fluctuation in the Local Environment of Periodic Fast Radio Burst Source FRB 20180916B". In: *The Astrophysical Journal* 950.1 (June 2023), p. 12. DOI: 10.3847/1538-4357/acc65f. URL: https://dx.doi.org/10.3847/1538-4357/acc65f.

[4] R. Mckinven et al. "Revealing the Dynamic Magnetoionic Environments of Repeating Fast Radio Burst Sources through Multiyear Polarimetric Monitoring with CHIME/FRB". In: 951.1 (July 2023), p. 82. DOI: 10.3847/1538-4357/acd188. URL: https://dx.doi.org/10.3847/1538-4357/acd188.

[5] Ayush Pandhi et al. "Polarization Properties of 128 Nonrepeating Fast Radio Bursts from the First CHIME/FRB Baseband Catalog". In: *The Astrophysical Journal* 968.2 (June 2024), p. 50. DOI: 10.3847/1538-4357/ad40aa. URL: https://dx.doi.org/10.3847/1538-4357/ad40aa.

[6] J. Su. "Lunar Ultraviolet Spectroscopy". In: *Encyclopedia of Lunar Science*. Ed. by B. Cudnik. Springer, 2022. URL: https://doi.org/10.1007/978-3-319-05546-6%20173-1.

Talks and Conferences

Improved Period Estimates of RR Lyrae Stars using Multi-Tapering and the F-Test 2024
CASCA, Toronto, Canada

Improved Period Estimates of RR Lyrae Stars using Multi-Tapering and the F-Test 2024
8th TESS/15th Kepler Asteroseismic Science Consortium Workshop, Porto, Portugal

McGill Undergraduate Poster Showcase 2023
McGill University, Montréal, QC, Canada

McGill Undergraduate Summer Research Showcase 2022
Trottier Space Institute at McGill, Montréal, QC, Canada

Science Communication and Engagement

Keynote Speaker Executive Sep 2023 - Oct 2024
University of Toronto Graduate Astronomy Students Association, Toronto, ON, Canada

- Organize annual event by inviting a speaker outside of the Astronomy & Astrophysics Department

Volunteer for Astrophysics Outreach program Jan 2022 – May 2023
AstroMcGill, Montréal, QC, Canada

- Volunteered at astrophysics talks held by McGill's Trottier Space Institute that is open to the public
- Engaged primary school children on astrophysics-related activities

Leader of Educational Outreach in Space Club Jan 2022 – Aug 2022
McGill Space Group, Montréal, QC, Canada

- Reached out to museums to hold space-related workshops
- Held an information booth at the McGill Space Fair to showcase current efforts in space exploration
- Organized outreach events for the club's participation in Canadian Satellite Design Challenge (SDSS) and Canadian Stratospheric Balloon Experiment Design Challenge (CAN-SBX).

Director of Events for Virtual Reality Club Sep 2021 – Apr 2022
McGill AR/VR Association, Montréal, QC, Canada

- Planned and designed events related to augmented reality and virtual reality

Volunteer for Science Outreach Program Jan 2020 – Aug 2021
McGill University Let's Talk Science Outreach, Montréal, QC, Canada

- Explained fun facts about science to children aged 5-12 through in-person and online workshops

Teaching Experience

Head Teaching Assistant: The Sun and its Neighbours. Sep 2024 - Dec 2024
University of Toronto, Toronto, ON, Canada

Teaching Assistant: Stars and Galaxies. Jan 2024 - Apr 2024
University of Toronto, Toronto, ON, Canada

- Co-lead 4 weekly tutorials, design assignment questions, and invigilate exams

Teaching Assistant: The Sun and its Neighbours Sep 2023 - Dec 2023
University of Toronto, Toronto, ON, Canada

- Co-led 3 one-hour long weekly tutorials on introduction to astronomy

Physics Mentor Sep 2022 – Dec 2022
McGill University, Montréal, QC, Canada

- Helped undergraduate students in a 500 students classical mechanics course understand topics they found difficult
- Provided guidance to students who were having trouble with their assignments

Statistics Grader Sep 2022 – Dec 2022
McGill University, Montréal, QC, Canada

- In charge of grading statistics assignments for 50 students

Calculus Mentor Jan 2021 – Apr 2021
McGill University, Montréal, QC, Canada

- Assisted students one-on-one in a 200 people class when they have difficulty understanding Calculus II concepts

Tutor at Literacy Organization Sep 2019 – Feb 2020
McGill University Frontier College, Montréal, QC, Canada

- Tutored 10 under-privileged students in a group setting of on mathematics and science

Technical Skills

Programming Languages: Python (Numpy, Scipy, Astropy, Matplotlib, Pandas, Emcee), R (Dplyr, Ggplot, RMarkdown, Tidyverse), SQL
Systems: Mathematica, Unix/Linux, LaTeX
Other: Git, Docker, Data Structures

Languages

English: Native
Mandarin: Native