Mahan Mirza Khanlari
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EDUCATION

University of Texas at Austin, Austin, TX
BS in Astronomy and Physics
Expected Graduation: May 2024
GPA: 3.6

RESEARCH EXPERIENCE

University of Texas at Austin, Department of Astronomy
Undergraduate Researcher, HETDEX, May 2023 - Present
Advisor: Karl Gebhardt

- Designed a pipeline with a combination of unsupervised and supervised machine learning to automate artifact removal from the HETDEX dataset. Reduced artifact detections & false positive by ~2% per data release. Used in a variety of fields of research by HETDEX members.
- Currently investigating HI density around and between LAEs at z ~ 1.9-3.5 through the Lyman Alpha absorption line.

SCHOLARSHIPS

SURF: Summer Undergraduate Research Funding, **University of Texas at Austin**, Department of Astronomy
$2400 | May 2023-Aug 2023
John Kelley Texas Amateur Astronomers' Scholarship. **University of Texas at Austin**, Department of Astronomy
$1500

POSTERS & PAPERS

- " Using Millions of Spectra to Explore HI Density Around Lyman Alpha Emitters in HETDEX", AAS 243rd Meeting, New Orleans, Louisiana, Jan 2024 – Poster
- Absorption Troughs of Lyman Alpha Emitters in HETDEX, Laurel Wiess et al. (Including **Mahan Mirza Khanlari**), Accepted to ApJ
- " Exploring HI Density up to ~1 Mpc Around Lyman Alpha Emitters in HETDEX", Bash Symposium, University of Texas at Austin, Oct 2023 – Poster
- "Exploring HI Density Around & Between Lyman Alpha Emitters in HETDEX", **Mahan Mirza Khanlari** et al. in prep for 2024.

TALKS

- Applications of Machine Learning in HETDEX, **UT Board of Visitors (BoV) meeting**, McDonald Observatory, Fort Davis, TX - Feb 2024
- Exploring HI Density Around & Between Lyman Alpha Emitter, **HETDEX Large Scale Structure Group**, Oct 2023

PUBLIC OUTREACH

Astronomy Student Association, University of Texas at Austin, Department of Astronomy
Public Outreach Event, Enchanted Rock, TX, Oct 2022

- Provided telescopes for attendees, enabling direct observations of celestial objects including planets and nebulae.
- Offered detailed explanations and insights on the observed celestial objects, enriching the attendees' understanding and appreciation.

EXPERIENCE

University of Texas at Austin, Department of Astronomy
McDonald Observatory Student Assistant, May 2022 – Aug 2022
Supervisor: Anna Boxall

- Assisted in administrative tasks, including preparing and dispatching monthly mail correspondence to the observatory donors.
- Updated member profiles, recorded donations, and managed communications, sending both weekly and monthly emails.

University of Texas at Austin, Gregory Gymnasium
Facility Assistant, May 2022 – Aug 2022 | May 2023 – Aug 2023
Supervisor: Ian Overman

- Maintained gym facilities and ensured safety and cleanliness.
- Assisted gym members with queries and equipment.

TECHNICAL SKILLS

- Python
- Machine Learning: t-SNE, Umap, PCA, TensorFlow
- Experience with Linux computing environment
- Parallel computing using slurm job scheduling
- Experience with JupyterLab environment
- Photoshop, Lightroom
- Astrophotography, Macro photography

LANGUAGES

- English: Fluent
- Persian: Native