NABEEL REHEMTULLA
CURRICULUM VITAE

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EDUCATION

PhD	Northwestern University Astronomy Advisor: Adam A. Miller	September 2021 – *In Progress*
MS	Northwestern University (GPA: 3.9/4.0) Astronomy Awarded Integrated Data Science Certificate	September 2021 – June 2023
BS	University of Michigan - Ann Arbor (GPA: 3.5/4.0) Major Astronomy & Astrophysics with Highest Honors Major Interdisciplinary Physics Minor Computer Science	September 2017 – April 2021

RESEARCH PROJECTS

BTSbot: Multi-modal ConvNet for transient identification   January 2022 – Present
Northwestern University, Advisor: Adam A. Miller
- Developed and deployed machine learning tool to automatically trigger observation requests for new supernovae in real-time
- Achieved the world's first fully automatic end-to-end discovery and classification of an optical transient (*press release, other articles*: *Space.com, Gizmodo, Dropbox*)

NIMBLE: Non-parametrIc jeans Modeling with B-spLinEs   Fall 2017 – Present
University of Michigan, Advisor: Monica Valluri
- Inferring the Milky Way's dark matter distribution from halo RR Lyrae kinematics observed by DESI and Gaia

Star Formation Rate in Merger Galaxies   Summer 2019
MDM Observatory, Kitt Peak National Observatory

PUBLICATIONS AND ASTRONOTES

Sharma, Y. et al. (incl. **Rehemtulla, N.**) 2024 "Dramatic rebrightening of the type-changing stripped-envelope supernova SN 2023aew" arXiv:2402.02780

Rehemtulla, N. et al. 2024 "The Zwicky Transient Facility Bright Transient Survey. III. BTSbot: Automated Identification and Follow-up of Bright Transients with Deep Learning" arXiv:2401.15167.

Rehemtulla, N. et al. 2023 "SN 2023tyk: discovery to spectroscopic classification performed fully automatically" TNSAN, 265, 1R.
- *Among top 10 most viewed AstroNotes of all time*

Strotjohann, N. L. et al. (incl. **Rehemtulla, N.**) 2023 "Search for Supernova Progenitor Stars with ZTF and LSST" ApJ, 960, 72S.

Cooper, A. P. et al. (incl. **Rehemtulla, N.**) 2023 "Overview of the DESI Milky Way Survey" ApJ, 947, 37C.

Rehemtulla, N. et al. 2022 "Non-Parametric Spherical Jeans Mass Estimation with B-Splines" *MNRAS, 511, 5536*.

AWARDS AND FELLOWSHIPS

Visualization Competition 1st prize (animation)   April 2024
NU Computation and Data Exchange (CoDEx) Symposium

NASA Illinois Space Grant Consortium Graduate Fellowship   January 2023
  (awarded twice)   April 2022

Chambliss Astronomy Achievement Award   January 2021
American Astronomical Society

Outstanding Undergraduate Poster   November 2020
Michigan Institute for Data Science

PRESENTATIONS

Bright transient identification with machine learning for ZTF
Poster, NU Computation and Data Exchange Symposium, Evanston, IL   April 2024
Oral talk, A3D3 Multi-messenger Astrophysics Monthly Telecon (invited)   November 2023
Oral talk, ZTF Collaboration Meeting, Pasadena, CA   October 2023
Poster, International Conference on Machine Learning, Honolulu, HI   July 2023
Oral talk, The Transient and Variable Universe, Urbana, IL   June 2023
Oral talk, CIERA Observers Group Meeting, Evanston, IL   May 2023
Poster, 241st AAS Meeting, Seattle, WA   January 2023

Non-Parametric Spherical Jeans Mass Estimation with B-Splines
Oral talk, DESI Team Meeting, Honolulu, HI (remote)   December 2023
Oral talk, DESI Team Meeting, (remote)   June 2021
Poster, 237th AAS Meeting *DESI Special Session* (remote)   January 2021
Poster & Oral talk, Michigan Institute for Data Science Poster Symposium November 2020
Poster, Astronomy Undergraduate Poster Symposium, Ann Arbor, MI   April 2018

TEACHING

Northwestern University, CIERA
Code/Astro, Teaching Assistant   Summer 2023
ASTRON 111, Teaching Assistant   Spring 2023
ASTRON 120, Teaching Assistant   Fall 2022
REACH, Project Mentor   Summer 2022

University of Michigan
Academic Success Program, Tutor   Fall 2019
Astronomy Structured Study Group, Co-Facilitator Fall 2019

Ismaili Center of Detroit (hometown mosque)
Religious Education Center, 7th & 8th Grade Teacher   2019 –2020
English as a Second Language Teacher   Summer 2018

LEADERSHIP

Ismaili Center of Chicago (Current Mosque), Chicago, IL
Professionals Network, Midwest - Board Member   September 2023 – Present

Student Astronomical Society, University of Michigan, Ann Arbor
Executive Board, Treasurer   April 2020 – April 2021

Ismaili Center of Detroit (Hometown Mosque), Southfield, MI
Regional Youth Volunteer Co-Facilitator   July 2018 – June 2021
Youth & Sports Board Regional Representative   July 2020 – June 2021

WORKSHOPS

Astro Imaging Workshop 2023   July 2023
- Image signal processing in astronomical data science

LSST Data Science Fellowship Program Session 16 (*Audited*)   September 2022
- Statistics and Bayesian inference

Zwicky Transient Facility Summer School   July 2022
- Data processing, Bayesian inference, time-series analysis, machine learning

Code/Astro   June 2022
- Fundamentals of open-source software development in astronomy

RECENT ACCEPTED OBSERVING PROPOSALS

	24A
PI, SEDM-KP	104 hours
Co-I, MMT Observatory	4 nights
Co-I, W. M. Keck Observatory	2.5 nights
Co-I, Very Large Array (DDT)	~4 hours
	23B
PI, SEDM-KP	325 hours
Co-I, MMT Observatory	4 nights
Co-I, W. M. Keck Observatory	2.5 nights
	23A
Co-I, MMT Observatory	4 nights