

NABEEL REHEMTULLA

CURRICULUM VITAE

nabeelr@u.northwestern.edu
nabeelr@umich.edu

nabeelr.com
github.com/nabeelre

EDUCATION

- PhD* Northwestern University September 2021 – *In Progress*
Astronomy
Advisor: Adam A. Miller
- MS* Northwestern University (GPA: 3.9) September 2021 – June 2023
Astronomy
Awarded Integrated Data Science Certificate
- BS* University of Michigan - Ann Arbor (GPA: 3.5) September 2017 – April 2021
Major Astronomy & Astrophysics with Highest Honors (Major GPA: 3.7)
Major Interdisciplinary Physics
Minor Computer Science

RESEARCH PROJECTS

RBbot: Real/bogus classification for the La Silla Schmidt Southern Survey (LS4)
Northwestern University, Advisor: Adam A. Miller

- Filtering non-astrophysical detections from the LS4 alert stream with a ConvNet

BTSbot: ConvNet for autonomous transient identification and follow-up
Northwestern University, Advisor: Adam A. Miller

- Autonomous follow-up requests for new supernovae in real-time with 95+% purity
- Achieved the world's first fully automatic end-to-end discovery and classification of an optical transient ([press release](#))

NIMBLE: Non-parametric jeans Modeling with B-splines
University of Michigan; Dark Energy Spectroscopic Instrument (DESI), Advisor: Monica Valluri

- Inferring the Milky Way's dark matter distribution from halo RR Lyrae kinematics

PUBLICATIONS

Rehemtulla et al. 2024 "BTSbot: Automated Identification and Follow-up of Bright Transients with Deep Learning" [arXiv:2401.15167](#).

Sharma et al. 2024 "Dramatic Rebrightening of the Type-changing Stripped-envelope Supernova SN 2023aew" [ApJ, 966, 199S](#).

Strotjohann et al. 2023 "Search for Supernova Progenitor Stars with ZTF and LSST" [ApJ, 960, 72S](#).

Cooper et al. 2023 "Overview of the DESI Milky Way Survey" [ApJ, 947, 37C](#).

Rehemtulla et al. 2022 "Non-Parametric Spherical Jeans Mass Estimation with B-Splines" [MNRAS, 511, 5536](#).

ASTRONOTES

Schulze et al. 2024 “Follow-up of the Type II SN 2024jlf with Swift/UVOT and NOT/ALFOSC” [TNSAN, 141, 1S](#).

Rehemtulla et al. 2024 “BTSbot-nearby: a new program for very rapid autonomous follow-up of young, nearby extragalactic transients found in ZTF data” [TNSAN, 140, 1R](#).

Qin et al. 2024 “ZTF Experiment: The Nightly-cadence Three-filter Bright Transient Survey” [TNSAN, 123, 1Q](#).

Karambelkar et al. 2024 “ZTF discovery of a young, peculiar, thermonuclear supernova in a nearby galaxy” [TNSAN, 81, 1K](#).

Rehemtulla et al. 2023 “SN 2023tyk: discovery to spectroscopic classification performed fully automatically” [TNSAN, 265, 1R](#).

- *Among top 10 most viewed AstroNotes of all time*

AWARDS AND FELLOWSHIPS

2nd prize, Rapid Fire Research 2024 Northwestern University, Physics and Astronomy Graduate Student Council	May 2024
1st prize, Visualization Competition (animation) Northwestern University, Computation and Data Exchange Symposium	April 2024
NASA Illinois Space Grant Consortium Graduate Fellowship (awarded twice)	January 2023 April 2022
Chambliss Astronomy Achievement Award American Astronomical Society	January 2021
Outstanding Undergraduate Poster Michigan Institute for Data Science	November 2020

PRESENTATIONS

Bright transient identification with machine learning for ZTF	
Oral talk, NU Rapid Fire Research, Evanston, IL	May 2024
Poster, NU Computation and Data Exchange Symposium, Evanston, IL	April 2024
Oral talk (<i>invited</i>), A3D3 Multi-messenger Astrophysics Monthly Telecon	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, 241 st AAS Meeting, Seattle, WA	January 2023
Non-Parametric Spherical Jeans Mass Estimation with B-Splines	
Oral talk, DESI Team Meeting, (remote)	December 2023
Oral talk, DESI Team Meeting, (remote)	June 2021
Poster, 237 th AAS Meeting <i>DESI Special Session</i> (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

RECENT ACCEPTED OBSERVING PROPOSALS

	24B
PI, SEDM-KP	104 hours
PI, ZTF Monthly Experiment	3 nights
Co-I, W. M. Keck Observatory	2 nights
	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

WORKSHOPS

Time-Domain Needles in Rubin's Haystack	April 2024
Astro Imaging Workshop	July 2023
LSST Data Science Fellowship Program Session 16 (<i>Audited</i>)	September 2022
Zwicky Transient Facility Summer School	July 2022
<u>Code/Astro</u>	June 2022

TEACHING & LEADERSHIP

Northwestern University & CIERA , Evanston, IL	
<u>Code/Astro</u> , Teaching Assistant	Summer 2023
ASTRON 111, Teaching Assistant	Spring 2023
ASTRON 120, Teaching Assistant	Fall 2022
<u>REACH</u> , Project Mentor	Summer 2022
University of Michigan , Ann Arbor, MI	
Academic Success Program, Tutor	Fall 2019
Astronomy Structured Study Group, Co-Facilitator	Fall 2019
Student Astronomical Society, Treasurer	April 2020 – April 2021
Ismaili Center of Chicago (current mosque), Chicago, IL	
Professionals Network, Midwest - Board Member	September 2023 – Present
Ismaili Center of Detroit (hometown mosque), Southfield, MI	
Youth & Sports Board Regional Representative	July 2020 – June 2021
Regional Youth Volunteer Co-Facilitator	July 2018 – June 2021
Religious Education Center, 7 th & 8 th Grade Teacher	2019 –2020
English as a Second Language Teacher	Summer 2018