NABEEL REHEMTULLA
CURRICULUM VITAE

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EDUCATION

PhD Northwestern University   *In Progress*
       Astronomy (Advisor: Adam A. Miller)

MS   Northwestern University (GPA: 3.9)   2023
       Astronomy
       Integrated Data Science Certificate

BS   University of Michigan - Ann Arbor (GPA: 3.5)   2021
       Major Astronomy & Astrophysics with Highest Honors
       Major Interdisciplinary Physics
       Minor Computer Science

FIRST-AUTHOR PUBLICATIONS

Rehemtulla, et al., "The BTSbot-nearby Discovery of SN 2024jlf: rapid, autonomous follow-up probes interaction in an 18.5 Mpc Type IIP supernova", 2025, ApJ, 985, 241

Rehemtulla, et al., "The Zwicky Transient Facility Bright Transient Survey. III. BTSbot: Automated Identification and Follow-up of Bright Transients with Deep Learning", 2024, ApJ, 972, 7

Rehemtulla, et al., "Non-parametric spherical Jeans mass estimation with B-splines", 2022, MNRAS, 511, 5536

CO-AUTHOR PUBLICATIONS

Pearson, et al., "Mid-Infrared Dust Evolution and Late-time Circumstellar Medium Interaction in SN 2017eaw", 2025, arXiv:2507.00125

Yao, et al., "A Massive Black Hole 0.8 kpc from the Host Nucleus Revealed by the Offset Tidal Disruption Event AT2024tvd", 2025, ApJL, 985, L48

Singh, et al., "Photometry and Spectroscopy of SN 2024pxl: A Luminosity Link Among Type Iax Supernovae", 2025, arXiv:2505.02943

Kwok, et al., "JWST and Ground-based Observations of the Type Iax Supernovae SN 2024pxl and SN 2024vjm: Evidence for Weak Deflagration Explosions", 2025, arXiv:2505.02944

Das, et al., "Low-luminosity Type IIP Supernovae from the Zwicky Transient Facility Census of the Local Universe. I. Luminosity Function, Volumetric Rate", 2025, PASP, 137, 044203

Miller, et al., "The La Silla Schmidt Southern Survey", 2025, arXiv:2503.14579

Sharma, et al., "CCSNscore: A Multi-input Deep Learning Tool for Classification of Core-collapse Supernovae Using SED-machine Spectra", 2025, PASP, 137, 034507

Sharma, et al., "Dramatic Rebrightening of the Type-changing Stripped-envelope Supernova SN 2023aew", 2024, ApJ, 966, 199

Strotjohann, et al., "Search for Supernova Progenitor Stars with ZTF and LSST", 2024, ApJ, 960, 72

Cooper, et al., "Overview of the DESI Milky Way Survey", 2023, ApJ, 947, 37

FIRST-AUTHOR CONFERENCE PROCEEDINGS AND ASTRONOTES

AstroNotes are circulars to the transient astronomy community

Rehemtulla, et al., 2025, "Early spectroscopy of SNe 2025ay, 2025mg, and 2025oq autonomously triggered by BTSbot-nearby", TNSAN, 2025-46

Rehemtulla, et al., 2024, "ZTF Flexible Weekends: an upcoming experiment to search for infant SNe", TNSAN, 2024-216

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, 2024-140

Rehemtulla, et al., 2023, "SN 2023tyk: discovery to spectroscopic classification performed fully automatically", TNSAN, 2023-265
   ♦ *5th most viewed AstroNote of all time*

Rehemtulla, et al., "BTSbot: A Multi-input Convolutional Neural Network to Automate and Expedite Bright Transient Identification for the Zwicky Transient Facility", 2023, Machine Learning for Astrophysics, 27

AWARDS AND FELLOWSHIPS

Presidential Fellowship   2025
Northwestern University – the *highest honor Northwestern bestows upon a graduate student*

Outstanding Student Achievement Award   2024
Astroinformatics Conference, Puerto Natales, Chile

2nd prize, Rapid Fire Research 2024   2024
Northwestern University, Department of Physics and Astronomy

1st prize, Visualization Competition (animation)   2024
Northwestern University, Computation and Data Exchange (CoDEx)

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

Highest Honors in Astronomy & Astrophysics   2021
University of Michigan, Department of Astronomy

Chambliss Astronomy Achievement Award   2021
American Astronomical Society

Outstanding Undergraduate Poster   2020
Michigan Institute for Data Science

TALKS, POSTERS, AND PANELS

Invited – Panelist, Rutgers Summer Transient Soiree, Piscataway, NJ	July 2025
Talk, Rutgers Summer Transient Soiree, Piscataway, NJ	July 2025
Invited – Panelist, Astro-AI for CIERA High School Summer Researchers	July 2025
Talk, CIERA Observers Group Meeting, Evanston, IL	June 2025
Invited – Talk, Foundation Models for Astronomy, New York, NY	May 2025
Talk, Celebrating 20 Years of Swift Discoveries, Florence, Italy	March 2025
Invited – Talk, LS4 Team Meeting, Evanston, IL	March 2025
Invited – Talk, Rutgers University Astronomy Journal Club (remote)	February 2025
Talk, 245th AAS Meeting, National Harbor, MD	January 2025
Talk, Astroinformatics 2024, Puerto Natales, Chile	December 2024
Talk, ZTF Supernova Working Group Meeting, (remote)	December 2024
Poster, Rise_Time 2024, West Lafayette, IN	August 2024
Talk, NU Rapid Fire Research, Evanston, IL	May 2024
Talk & Poster, NU Computation and Data Exchange Symposium, Evanston, IL	April 2024
Talk, DESI Team Meeting, Honolulu, HI (remote)	December 2023
Invited – Talk, A3D3 Multi-messenger Astrophysics Monthly Telecon	November 2023
Talk, ZTF Collaboration Meeting, Pasadena, CA	October 2023
Poster, International Conference on Machine Learning, Honolulu, HI	July 2023
Talk, The Transient and Variable Universe, Urbana, IL	June 2023
Talk, CIERA Observers Group Meeting, Evanston, IL	May 2023
Poster, CIERA Science Advisory Board Visit, Evanston, IL	April 2023
Lecture, ASTRON 111 – Introduction to Astrobiology, Evanston, IL	April 2023
Poster, 241st AAS Meeting, Seattle, WA	January 2023
Talk, DESI Team Meeting, (remote)	June 2021
Invited – Speech, U of Mich. Department of Astronomy Commencement	May 2021
Poster, 237th AAS Meeting *DESI Special Session* (remote)	January 2021
Talk & Poster, Michigan Institute for Data Science Poster Symposium	November 2020
Poster, Astronomy Undergraduate Poster Symposium, Ann Arbor, MI	April 2018

TEACHING AND MENTORING

Northwestern University, CIERA

Code/Astro Workshop, Teaching Assistant	Summer 2023
ASTRON 111, Teaching Assistant	Spring 2023
ASTRON 120, Teaching Assistant	Fall 2022
Research Experiences at CIERA for High Schoolers, Project Mentor	Summer 2022

 ♦ *Asher Grossman: Machine learning classification of cosmic explosions*

University of Michigan Department of Astronomy

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

 ♦ *Tripled attendance relative to previous years after rehauling curriculum*

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 (local mosque), Chicago, IL
Professionals Network, Midwest - Board Member   September 2023 – Present

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

Ismaili Center of Detroit (hometown mosque), Southfield, MI
Regional Youth Volunteer Co-Facilitator   2018 – 2021
Youth & Sports Board Regional Representative   2020 – 2021

WORKSHOPS

DESI MWS Team Workshop 2024   August 2024
- Coordinating and optimizing use of DESI Milky Way Survey data

Time-Domain Needles in Rubin's Haystack   April 2024
- Time-domain anomaly detection methods for the Rubin Observatory

Astro Imaging Workshop 2023   July 2023
- Image signal processing methods 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
- Best practices for open-source software development in astronomy

PRESS

33 total media mentions, total reach of 3.1M

Selected articles featuring "*SN 2023tyk: discovery to spectroscopic classification performed fully automatically*" (Rehemtulla et al. 2023)
- Northwestern Now, "*First supernova detected, confirmed, classified and shared by AI*"
- Space.com, "*AI just spotted its 1st supernova. Could it replace human explosion hunters?*"
- Gizmodo, "*AI Detected a Supernova All on Its Own*"
- Dropbox Blogs, "*How an AI-powered telescope is helping astronomers sift through the stars*"

Selected articles featuring "*BTSbot: Automated Identification and Follow-up of Bright Transients with Deep Learning*" (Rehemtulla et al. 2024)
- Northwestern Now, "*Sky survey classifies more than 10,000 supernovae*"
- Caltech News, "*ZTF Leads to Classification of 10,000 Supernovae*"

AWARDED TELESCOPE TIME

2025B

PI, MMT Observatory	3.5 nights
PI, Gemini-N Observatory	10 hours
Co-I, Gemini-N/-S Observatory (Large and long program)	>100 hours
Co-I, Nordic Optical Telescope	20 hours
Co-I, W. M. Keck Observatory	1.5 nights
Co-I, Magellan Observatory	1 night

2025A

PI, MMT Observatory	3 nights
PI, Southern Astrophysical Research (SOAR) Telescope	10 hours
Co-I, Nordic Optical Telescope (two approved programs)	40 hours
Co-I, XMM Newton Space Telescope	~17 hours
Co-I, W. M. Keck Observatory	2 nights
Co-I, Magellan Observatory	1 night
Co-I, SOAR Telescope	10 hours

2024B

PI, SEDM-KP	104 hours
Co-I, MMT Observatory	4 nights
Co-I, W. M. Keck Observatory	2 nights

2024A

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 (*Director's Discretionary Time*)	~4 hours

2023B

PI, SEDM-KP	104 hours
Co-I, MMT Observatory	4 nights
Co-I, W. M. Keck Observatory	2.5 nights

2023A

Co-I, MMT Observatory	4 nights