Dhvanil D. Desai

PhD Candidate, Institute for Astronomy, University of Hawai'i at Mānoa

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Research Interests

Observational and time-domain astrophysics, specializing in broad population statistics and detailed physics of transient phenomena, responsible for chemical enrichment of the universe.

Education

Institute for Astronomy (IfA), University of Hawai'i at Mānoa (UH) **2023 - Present**
PhD, Astronomy — Advisor: Benjamin Shappee Honolulu, HI

Institute for Astronomy, University of Hawai'i at Mānoa **2021 - 2023**
M.S., Astronomy Honolulu, HI

The Ohio State University (OSU) **2016 - 2020**
B.S., Astronomy & Astrophysics and Physics — Advisor: Barbara Ryden Columbus, OH

First-Author / Significant Contribution Publications

NASA ADS | **24** total publications (5 first author, 1 second author) | **295** total citations | h-index = **12**

Published Papers

1. **Desai D. D.**, Shappee B. J., Kochanek C. S. et al., Supernova Rates and Luminosity Functions from ASAS-SN III: Over a Decade of Type Ia SNe and Their Subtypes, 2026, arXiv e-prints, arXiv:2602.00223, Submitted to OJAp.
2. **Desai D. D.**, Haggerty C. C., Shappee B. J. et al., Plasma instabilities dominate radioactive transients magnetic fields: the self-confinement of leptons in Type Ia and core-collapse supernovae, and kilonovae, 2025, MNRAS, 541, 2197.
3. **Desai D. D.**, Kochanek C. S., Shappee B. J. et al., Supernova rates and luminosity functions from ASAS-SN I: 2014-2017 Type Ia SNe and their subtypes, 2024, MNRAS, 530, 5016.
4. **Desai D. D.**, Ashall C., Shappee B. J. et al., Fast and not-so-furious: Case study of the fast and faint Type IIb SN 2021bxu, 2023, MNRAS, 524, 767.
5. **Desai D. D.**, Ryden B. S., Galaxy Alignments with Surrounding Structure in the Sloan Digital Sky Survey, 2022, ApJ, 936, 25.
6. Pessi T., **Desai D. D.**, Prieto J. L. et al., Supernova rates and luminosity functions from ASAS-SN: II. 2014-2017 core-collapse supernovae and their subtypes, 2025, A&A, 703, A34.

Telescope Time

"Probing The Origins of Ca-rich Transients..." | Keck II/KCWI
(PI, 6 nights; Co-observer 2 nights) **2024 - 2025**

"Spectroscopic Classification of Astronomical Transients (SCAT)" | UH88/SNIFS
(Observer, 75 half nights) **2021-Present**

Advising & Teaching

Co-advisor, Grace Showerman | IfA Research Experience for Undergraduates **2024-Present**

Mentor, Derrick James | OSU Summer Undergraduate Research Program (SURP) **2020**

Graduate Teaching Assistant | ASTR 300L & 301 Observational Astronomy, UH **2023-2024**

Physics Tutor/Grader/TA | PHYS 2300 & 2301, Intermediate Mechanics, OSU **2018-2020**

Instructional Assistant | Astronomy 1101 Lab, OSU **2018**

Professional Activities

Referee, *Astronomy & Astrophysics* **2024 - Present**

Member, ASAS-SN (All-Sky Automated Survey for Supernovae) **2020 - Present**

Member, SCAT (Spectroscopic Classification of Astronomical Transients) **2021 - Present**

Member, ePESSTO+ (Public ESO Spectroscopic Survey of Transient Objects) **2021 - Present**

Member, POISE (Precision Observations of Infant Supernova Explosions) **2021 - Present**

Member, CSP (Carnegie Supernova Project) **2021 - Present**

Awards

Aloha Data: AI Hackathon for Hawai‘i’s Resilience, UH | First Place **2025**

IfA Director’s Research Excellence Award | Top graduate applicant at the IfA, UH **2021**

Smith Senior Award | High Achieving Senior in Physics, OSU **2020**

Ann Slusher Tuttle Scholarship | Summer Undergraduate Research Program, OSU **2019**

Smith Junior Award | High Achieving Junior in Physics at OSU **2019**

Smith Sophomore Award | High Achieving Sophomore in Physics at OSU **2018**

Service & Leadership

Time Allocation Committee, UH **2025**

Graduate Representative of the Admissions Committee, UH **2022-2023**

Treasurer, Astronomical Society at OSU **2019-2020**

Talks & Posters

"Plasma Instabilities Matter", Transients Down Under, SUT, Melbourne, Australia **Jan 2024**

"The Local Type Ia SNe Rate...", The Transient and Variable Universe, Illinois, IL **Jun 2023**

"Rates and Luminosity Functions of Diverse Classes...", Dissertation Proposal, UH **Dec 2023**

"A Collisionless Mechanism for Relativistic...", UH **May 2023**

"SN 2021bxu: a unique stripped-envelope supernova", CSP/POISE Meeting, Carnegie Obs. **Jun 2022**

"Fast and Not-so-Furious: Case Study of...", UH **Sept 2022**

"Galaxy Alignment with Surrounding Large-Scale Structure", SURP Symposium, OSU **Jul 2019**

P: "Galaxy Alignment with Surrounding...", Denman Undergraduate Research Forum, OSU, OH **2020**

P: "Galaxy Alignment with Surrounding Large-Scale Structure", AAS 235th Meeting, Honolulu, HI **2020**

Relevant Employment

Data Analyst | Image Quality Control for ASAS-SN **2020-2021**
Department of Astronomy, The Ohio State University Columbus, OH

Certifications

Fundamentals of Deep Learning, NVIDIA **2025**

Applications of AI for Anomaly Detection, NVIDIA **2025**

Other Publications

Co-Author

1. DerKacy J. M., Ashall C., Baron E. et al. including **Desai D. D.**, JWST Observations of SN 2023ixf. I. Completing the Early Multiwavelength Picture with Plateau-phase Spectroscopy, 2026, ApJ, 997, 179.
2. Hoogendam, W. B., Jones, D. O., Yang, B., et al. including **Desai D. D.**, Post-Perihelion Integral Field Spectroscopy of the Interstellar Comet 3I/ATLAS, 2025, arXiv e-prints, arXiv:2601.16983.
3. Hoogendam, W. B., Kuesters, D., Shappee, B. J., et al. including **Desai D. D.**, University of Hawaii 88-inch Telescope Observations of the Interstellar Comet 3I/ATLAS: Spectrophotometric Blue-Sensitive Spectral Time Series Spanning Two Months from Discovery, 2025, arXiv e-prints, arXiv:2512.09020.
4. Pandey P., Hinkle J., Kochanek C. et al. including **Desai D. D.**, Unraveling the Nature of the Nuclear Transient AT2020adpi, 2025, OJAp, 8, 51453.
5. Medler K., Ashall C., Hoeflich P. et al. including **Desai D. D.**, JWST Observations of SN 2023ixf. II. The Panchromatic Evolution between 250 and 720 Days after the Explosion, 2025, ApJ, 993, 191.
6. Hoogendam W. B., Shappee B. J., Wray J. J. et al. including **Desai D. D.**, Spatial Profiles of 3I/ATLAS CN and Ni Outgassing from Keck/KCWI Integral Field Spectroscopy, 2025, arXiv e-prints, arXiv:2510.11779.

7. Hoogendam W. B., Ashall C., Jones D. O. et al. including **Desai D. D.**, Early and Extensive Ultraviolet through Near Infrared Observations of the Intermediate-luminosity Type Iax Supernovae 2024pxl, 2025, ApJ, 988, 209.
8. Hoogendam W. B., Jones D. O., Ashall C. et al. including **Desai D. D.**, Seeing the Outer Edge of the Infant Type Ia Supernova 2024epr in the Optical and Near Infrared, 2025, OJAp, 8, 120.
9. Hinkle J. T., Shappee B. J., Auchettl K. et al. including **Desai D. D.**, The most energetic transients: Tidal disruptions of high-mass stars, 2025, Science Advances, 11, eadt0074.
10. Do A., Shappee B. J., Tonry J. L. et al. including **Desai D. D.**, Hawai'i Supernova Flows: a peculiar velocity survey using over a Thousand Supernovae in the near-infrared, 2025, MNRAS, 536, 624.
11. Tucker M. A., Hinkle J., Angus C. R. et al. including **Desai D. D.**, The Extremely Metal-poor SN 2023ufx: A Local Analog to High-redshift Type II Supernovae, 2024, ApJ, 976, 178.
12. Hinkle J. T., Auchettl K., Hoogendam W. B. et al. including **Desai D. D.**, On the Double: Two Luminous Flares from the Nearby Tidal Disruption Event ASASSN-22ci (AT2022dbl) and Connections to Repeating TDE Candidates, 2024, arXiv e-prints, arXiv:2412.15326.
13. Pearson J., Sand D. J., Lundqvist P. et al. including **Desai D. D.**, Strong Carbon Features and a Red Early Color in the Underluminous Type Ia SN 2022xkq, 2024, ApJ, 960, 29.
14. Neustadt J. M. M., Hinkle J. T., Kochanek C. S. et al. including **Desai D. D.**, Multiple flares in the changing-look AGN NGC 5273, 2L023, MNRAS, 521, 3810.
15. Neumann K. D., Holoien T. W.-S., Kochanek C. S. et al. including **Desai D. D.**, The ASAS-SN bright supernova catalogue - V. 2018-2020, 2023, MNRAS, 520, 4356.
16. Hinkle J. T., Tucker M. A., Shappee B. J. et al. including **Desai D. D.**, SCAT uncovers ATLAS's first tidal disruption event ATLAS18mlw: a faint and fast TDE in a quiescent Balmer strong Galaxy, 2023, MNRAS, 519, 2035.
17. Tucker M. A., Shappee B. J., Huber M. E. et al. including **Desai D. D.**, The Spectroscopic Classification of Astronomical Transients (SCAT) Survey: Overview, Pipeline Description, Initial Results, and Future Plans, 2022, PASP, 134, 124502.
18. Necker J., de Jaeger T., Stein R. et al. including **Desai D. D.**, ASAS-SN follow-up of IceCube high-energy neutrino alerts, 2022, MNRAS, 516, 2455.

Other Non-Refereed Publications: A total of 54 Transient Classification Reports on the Transient Name Server (TNS), 25 Astronomer's Telegrams, and 5 Transient Discovery Reports on TNS, listed on ADS.