

Alexander Gagliano

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ACADEMIC APPOINTMENT

Massachusetts Institute of Technology
Harvard University Center for Astrophysics
NSF Institute for AI and Fundamental Interactions in Physics
IAIFI Fellow
Cambridge, MA
Cambridge, MA
Aug 2023-Present

EDUCATION

University of Illinois at Urbana-Champaign
Ph.D., Department of Astronomy
Advisor: Gautham Narayan
Cumulative GPA: 3.96/4.00.
Champaign, IL
Aug 2018 – April 2023

Virginia Polytechnic Institute & State University
B.Sc., Computational Modeling & Data Analytics
Summa Cum Laude
Physics Minor, Honors Scholar
Blacksburg, VA
Aug 2013 – June 2017

PRIOR POSITIONS

Pre-Doctoral Fellow | CCA Flatiron
Advisors: Dan Foreman-Mackey, Gabriella Contardo
Early-Time Classification of Supernovae Using Shallow Learning
Jan 2022–June 2022

NSF Graduate Fellow | UIUC/NCSA
Advisor: Gautham Narayan
*An Early-Time Optical and Ultraviolet Excess in the type-Ic SN 2020oi
Using Host Galaxy Information to Accurately Distinguish Supernovae*
Aug 2018 – Present

Post-Bac. Researcher | Los Alamos National Lab.
Advisors: Joseph Smidt, Aycin Aykutalp
Waternet: A Chemical Network for Cosmological-Scale Molecular Studies
Sept 2017 – Aug 2018

Undergraduate Researcher | Cerro-Tololo Observatory
Advisor: Juan Madrid
A Wide-field Map of Intracluster Globular Clusters in Coma
Jan 2015 – Mar 2015

FELLOWSHIPS AND AWARDS

- NSF Graduate Research Fellowship (\$102k) 2020-2023
- Illinois Distinguished Fellowship (\$75k) 2018-2022
- Center for Astrophysical Surveys Fellowship (\$30k) 2019
- UIUC Research Live! (1st place in campus-wide sci. comm.) 2022
- ASA Astrostatistics Interest Group Best Paper Award, *GHOST* 2021
- DPS/AAS Education and Outreach Grant (\$1k, astro[sound]bites) 2020 & 2021
- SC18 Supercomputing Visualization Showcase (2nd) 2018
- Academy of Integrated Science Distinguished Senior (\$1.4k) 2017
- Mathematical Contest in Modeling, Meritorious Winner (Top 7% Globally) 2017
- Wayne & Claire Horton Fellowship (\$10k) 2015
- International Space Olympics, Astrophysics Category (1st/200) 2012

TELESCOPE PROPOSALS

Gemini Observatory – 44.0 total hours awarded (PI) 2022A, 2022B

- The Young Supernova Experiment: Creating the Reference low-z Supernova Sample for Cosmology*
- Probing Pre-Explosion Mass Loss Through NIR Spectroscopy of Young SNe Ib/c*

James Webb Space Telescope (JWST) – 41.4 total hours awarded (coI) GO Cycle 1

- *Nucleosynthesis, Astrophysics, and Cosmology with IR Observations of a Gravitational Wave Counterpart*
- *Detecting the Synthesis of the Heaviest Elements with Photometry of a Kilonova in the Optically Thin Phase*
- *Nebular Spectroscopy of a Kilonova with JWST*

REFEREED PUBLICATIONS

$h=8$ with 296 total citations across 15 papers (see [NASA ADS](#)).

FIRST AUTHOR:

3. First Impressions: Early-Time Classification of Supernovae using Host Galaxy Information and Shallow Learning. [Gagliano, A.](#), Contardo, G., Foreman-Mackey, D., et al. 2022. *accepted to ApJ*.
2. An Early-Time Optical and Ultraviolet Excess in the type-Ic SN 2020oi. [Gagliano, A.](#), Izzo, L., Kilpatrick, C.D., et al., 2022. *ApJ*, 924(2), p.55. [ADS Link](#).
1. GHOST: Using Only Host Galaxy Information to Accurately Associate and Distinguish Supernovae. [Gagliano, A.](#), Narayan, G., Engel, A., and Kind, M.C., 2021. *ApJ*, 908(2), p.170. [ADS Link](#).

SECOND AUTHOR:

1. The Simulated Catalogue of Optical Transients and Correlated Hosts (SCOTCH) Lokken, M., [Gagliano, A.](#), et al., 2023. *MNRAS*, 520(2), 2887. [ADS Link](#).

NTH AUTHOR:

10. Supernova 2020wnt: An Atypical Superluminous Supernova with a Hidden Central Engine. Tinyanont, S., Woosley, S., Taggart, K., et al. (incl. [Gagliano, A.](#)), 2022. *submitted to ApJ on Nov. 4*.
9. The Young Supernova Experiment Data Release 1 (YSE DR1): Light Curves and Photometric Classification of 1975 Supernovae. Aleo, P., Malanchev, K., Sharief, S., et al. (incl. [Gagliano, A.](#)), 2022. *submitted to ApJ Nov. 14*. [arXiv Link](#).
8. SN 2021hpr and its two siblings in the Cepheid calibrator galaxy NGC 3147: A hierarchical BayeSN analysis of three Type Ia supernova siblings, and a Hubble constant constraint. Ward, S., Thorp, S., Mandel, K. S. et al. (incl. [Gagliano, A.](#)), 2022. *submitted to MNRAS on Sept. 16*. [ADS Link](#).
7. Evidence for Extended Hydrogen-Poor CSM in the Three-Peaked Light Curve of Stripped Envelope Ib Supernova. Zenati, Y., Wang, Q., Bobrick, A. et al. (incl. [Gagliano, A.](#)), 2022. *submitted to ApJ on Aug. 26*. [ADS Link](#).
6. DELIGHT: Deep Learning Identification of Galaxy Hosts of Transients Using multi-resolution images. Förster, F., M. Muñoz Arancibia, A., Reyes, I., [Gagliano, A.](#), et al., 2022. *accepted to AJ*. [ADS Link](#).
5. AT 2020neh: A fast rising tidal disruption event from an intermediate mass black hole. Angus, C., Baldassare, V., Mockler, B. et al. (incl. [Gagliano, A.](#)), 2022. *accepted to Nature Astronomy*. [ADS Link](#).
4. Final Moments I: Precursor Emission, Envelope Inflation, and Enhanced Mass loss Preceding the Luminous Type II Supernova 2020tlf. Jacobson-Galán, M., Dessart, L., Jones, D. et al. (incl. [Gagliano, A.](#)), 2021. *ApJ*, 924(1), p.15. [ADS Link](#).
3. Progenitor and Close-In Circumstellar Medium of Type II Supernova 2020fqv from High-Cadence Photometry and Ultra-Rapid UV Spectroscopy. Tinyanont, S., Ridden-Harper, R., Foley, R. et al. (incl. [Gagliano, A.](#)), 2021. *MNRAS*, 512(2). [ADS Link](#).

2. The Young Supernova Experiment: Survey Goals, Overview, and Operations. Jones, D.O., Foley, R.J., Narayan, G., et al. (incl. [Gagliano, A.](#)), 2021. *ApJ*, 908(2), p.143. [ADS Link](#).
1. A Wide-field Map of Intracluster Globular Clusters in Coma. Madrid, J.P., O'Neill, C.R., [Gagliano, A.T.](#) and Marvil, J.R., 2018. *ApJ*, 867(2), p.144. [ADS Link](#).

CONFERENCE PROCEEDINGS

2. From Data to Software to Science with the Rubin Observatory LSST. Breivik, K., Connolly, A., Saavik Ford, K.E. et al. (incl. [Gagliano, A.](#)), *White paper*; arXiv:2208.02781. [ADS Link](#).
1. Astro[sound]bites: a New Audio Resource for Conveying Recent Astronomy Research. [Gagliano, A.](#), Rice, M. & Saunders, W.R., 2020. *ASP2020: Embracing the Future, 2021*, p.111. [ADS Link](#).

SEMINARS & COLLOQUIA

University of Michigan, invited	Nov 2023
Five Colleges, Amherst, invited	Oct 2023
TVS Colloquium, invited	Aug 2023
Caltech Time-Domain Astronomy Center, invited (Pasadena, CA, USA)	Sept 2022
UC Berkeley Astronomy Department, invited (Berkeley, CA, USA)	Sept 2022
Lancaster University Seminar, invited (<i>online</i>)	May 2022
Harvard CfA Seminar (Cambridge, MA, USA)	April 2022
DESC Time Domain Working Group, invited (<i>online</i>)	Feb 2022
Tri-State Cosmology x Data Science, invited (<i>online</i>)	Jan 2022
DESC DC2 Analysis Seminar, invited (<i>online</i>)	Sept 2021
ASTR596: AI in Astronomy, invited (<i>Champaign, IL, USA</i>)	Sept 2021
LSST Transient and Variable Science Plenary, invited (<i>online</i>)	June 2021
DESC Photo-z Working Group, invited (<i>online</i>)	April 2021
DESC Supernova Working Group, invited (<i>online</i>)	April 2021
NCSA, invited (<i>Champaign, IL, USA</i>)	March 2020

ACADEMIC SERVICE

Co-Lead, LSST ISSC Executive Council Member	Ongoing
Co-Lead, LSST DESC Machine Learning (MaLTS) Topical Team	Ongoing
Reviewer for ICML, NeurIPS Submissions	Ongoing
Reviewer for RAS Techniques and Instruments (RASTI)	Ongoing
Reviewer for the Journal of Open Source Software (JOSS)	Ongoing
Reviewer for the AAS Journals	Ongoing
Full Member of the LSST Dark Energy Science Collaboration	May 2022–Present
LSST BOOM 2022 Local Organizing Committee <ul style="list-style-type: none"> Scheduling talks, chairing sessions, and managing hybrid participation for ~150 	Jan 2022–July 2022
UIUC Astronomy Graduate Admissions PhD Representative <ul style="list-style-type: none"> Individually scored ~100 applications and selected students for admission 	Oct 2021–Mar 2022
DESC Sprint Week 2021 Local Organizing Committee <ul style="list-style-type: none"> Designing hack schedule and coordinating logistics for ~100 attendees in team of 16 	Sept 2021–Oct 2021
IAU Junior Member Working Group Associate Member <ul style="list-style-type: none"> Drafted official UNESCO position paper on youth engagement in team of 40 on behalf of 400 NGOs 	Jul 2021–Aug 2021
Society for Equity in Astronomy Journal Club Host <ul style="list-style-type: none"> Lead monthly department-wide discussions on select DEI topics 	Jan 2021–Present
VT Honors Odyssey Fellowships Selection Committee Member	Mar 2018

CONFERENCE TALKS

Rubin Project and Community Workshop (<i>remote</i>)	Aug 2023
Transient and Variable Universe (<i>Champaign, IL, USA</i>)	June 2023
Rubin Observatory LSST @ Europe4 (<i>remote</i>)	Oct 2022
BOOM! An LSSTC Workshop (<i>Champaign, IL, USA</i>)	July 2022

	Exploring the Transient Universe with the Nancy Grace Roman Space Telescope (<i>online</i>)	Feb 2022
	Caltech Astroinformatics 2021 (<i>online</i>)	Nov 2021
	ASA Joint Statistical Meeting 2021, invited (<i>online</i>)	Aug 2021
	Rubin Project and Community Workshop (<i>online</i>)	Aug 2021
	Illinois Astrofest #2 (<i>online</i>)	May 2021
	LSSTC Enabling Science Broker Workshop II, invited (<i>online</i>)	Apr 2021
	LSST DESC plenary, invited (<i>online</i>)	Feb 2021
	Rubin Project and Community Workshop (<i>online</i>)	Aug 2020
	EAS 2020 (<i>online</i>)	Jul 2020
	LSST DESC (<i>Tucson, AZ, USA</i>)	Jan 2020
	American Astronomical Society Meeting #233 (<i>Seattle, WA, USA</i>)	Jan 2019
TEACHING & MENTORING	Rubin Observatory Summer Data Summit Guest Lecturer	July 2023
	IAIFI PhD Summer School Tutorial Lead	Aug 2023
	UIUC Graduate College Mentoring Certification	
	GRADUATE STUDENTS	
	Emmanuel Garcia Berrios (UIUC), Sloan Peer Mentor, 2021–2022	
	• Providing weekly guidance on research, professional development	
	UNDERGRADUATE STUDENTS	
	Holly Wingren (UIUC), Research Advisor, 2022	
	• Evaluated likelihood of SNe in spiral arms of galaxies by class	
	Zimo Qu (UIUC), Graduate Mentor, 2021–2022	
	• Provided guidance in undergraduate coursework, research	
	GC 500: Graduate Mentor Practicum	Jan 2022 – May 2022
	Undergraduate Research Apprenticeship Program Mentor	Aug 2021–May 2022
	La Serena School for Data Science Teaching Assistant	Aug 2021
LUNCH TALKS	Harvard ITC Lunch Talk, invited (Cambridge, MA, USA)	Oct 2023
	UCSC FLASH Talk, invited (Santa Cruz, CA, USA)	Sept 2022
	CCA Machine Learning Journal Club, invited (New York City, NY, USA)	July 2022
	MIT Brown Bag Lunch, invited (Cambridge, MA, USA)	May 2022
	Caltech Tea, invited (<i>online</i>)	Mar 2022
	Princeton Thunch, invited (Princeton, NJ, USA)	Feb 2022
	Yale Galaxy Lunch, invited (<i>online</i>)	Mar 2021
SELECTED OUTREACH	Astro[Sound]Bites Founder and Co-Host	Nov 2019–Jul 2023
	• Founded bi-weekly astronomy podcast	
	• >15k downloads, 200 listeners in 70 countries	
	Astronomical Society of the Pacific Design Tester	Mar 2019 – May 2020
	• Evaluated strategies for improving audience engagement in STEM events	
	Education Justice Project Workshop Coordinator	Jan 2019 – Present
	• Designing data science workshops at Danville Correctional Center for 30 incarcerated students	
	Universe Awareness Astronomy Ambassador	Jan 2017 – Jun 2018
	• Coordinated stargazing events in Los Alamos	
	The Story Of Foundation Exhibit Researcher	Dec 2016 – Dec 2017
	• Spearheaded sound-based astronomy exhibit in Goa, India using Python, Arduino; viewed by >2k students	
	Computational Modeling Club Vice President	Aug 2016 – May 2017
	• Created and led student mentorship program	
	• Coordinated 3-day hackathon of 100 students	

- Led secondary school science activities for Science Week with SAAO, reaching >1.2k students

ACTIVE COLLAB- ORATIONS

- LSST Transient and Variable Stars Collaboration (LSST/TVS)
- LSST Informatics and Statistics Science Collaboration (LSST/ISSC)
- LSST Dark Energy Science Collaboration (LSST/DESC)
- Young Supernova Experiment (YSE)
- ANTARES Project
- The ELAsTiCC Team