




Alexander Gagliano

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RESEARCH INTERESTS

Real-time transient classification for large surveys • Transient-host galaxy feedback • Early-time transient phenomena (CSM interaction, flash-ionization, shock-breakout) • SN Ia cosmology • Galaxy simulations • Data analysis & visualization tools

EDUCATION

University of Illinois at Urbana-Champaign Champaign, IL
PhD Candidate, Department of Astronomy Aug 2018 – Present
Advisor: Gautham Narayan
Cum. GPA: 3.96/4.00.

Virginia Polytechnic Institute & State University Blacksburg, VA
BS in Computational Modeling & Data Analytics Aug 2013 – June 2017
Summa Cum Laude
Physics Minor, Honors Scholar
In-Major GPA: 4.00/4.00.

RESEARCH POSITIONS

Pre-Doctoral Fellow | CCA Flatiron Jan 2022 – Present
Advisors: Shirley Ho, Gabriella Contardo, Dan Foreman-Mackey, David Hogg
A Recommendation Engine for Time-Domain Discoveries with LSST

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

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

Comp. Physics Intern | Los Alamos National Lab. June 2017 – Sept 2017
Advisors: Joseph Smidt, Brandon Wiggins
Probing The Cosmological Origins of Earth's Water

Undergraduate Researcher | Social & Decision Analytics Lab. Aug 2016 – May 2017
Advisor: Stephanie Shipp, Gizem Korkmaz
Quantifying the Impact of Open Source Packages in R

Software Intern | Network Dynamics & Simulations Lab. Sept 2016 – May 2017
Advisor: Eric Nordberg, Henning Mortveit
Developing Realistic Epidemiology Simulations from Public Data

Undergraduate Researcher | Virginia Tech Aug 2015 – May 2017
Advisor: Shunsaku Horiuchi
Analyzing Gamma Ray Emission from Nearby non-AGN Galaxies

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

High-School Intern | NASA Goddard Aug 2011 – June 2013
Advisor: Jeremy Schnittman
Designing a Third-Generation Survey for Gravitational Microlensing Events

FELLOWSHIPS AND AWARDS

- NSF Graduate Research Fellowship (\$102k) 2020-2023
- Illinois Distinguished Fellowship (\$75k) 2018-2022
- Center for Astrophysical Surveys Fellowship (\$30k) 2019
- ASA Astrostatistics Interest Group Best Paper Award, *GHOST* 2021
- Lew Snyder Graduate Student Travel Award (\$1k) 2021
- AGU Sharing Science Outreach Grant (\$500) 2021
- ASP Conference Scholarship 2020
- DPS/AAS Education and Outreach Grant (\$1k, astro[sound]bites) 2020 & 2021
- University-wide Fellowship Application Competition Award 2019
- SC18 Supercomputing Visualization Showcase (2nd) 2018
- University of Illinois Travel Grant (\$350) 2018
- Virginia Tech Rhodes & Marshall Scholarship Nominee 2017
- Academy of Integrated Science Distinguished Senior (\$1.4k) 2017
- College of Science Outstanding Senior, Finalist (Top 1%) 2017
- Mathematical Contest in Modeling, Meritorious Winner (Top 7% Globally) 2017
- Astronomy Society of the Pacific Meeting Travel Grant 2016
- Wayne & Claire Horton Fellowship (\$10k) 2015
- Best Presentation, Virginia Honors Council 2015
- Sigma Phi Epsilon Balanced Man Scholarship (\$1k) 2015
- University Honors Norrine Bailey Spencer Strong Start Award 2013
- Loudoun Future Leaders Scholarship (\$1.5k) 2013
- International Space Olympics, Astrophysics Category (1st/200) 2012
- Moody's Mega Math Competition, Honorable Mention (\$1k) 2012

REFEREED PUBLICATIONS

FIRST AUTHOR:

3. **An Early-Time Optical and Ultraviolet Excess in the type-Ic SN 2020oi.**
Gagliano, A., Izzo, L., Kilpatrick, C.D., et al., 2021.
arxiv pre-print, doi:2105.09963.
2. **GHOST: Using Only Host Galaxy Information to Accurately Associate and Distinguish Supernovae.**
Gagliano, A., Narayan, G., Engel, A., and Kind, M.C., 2021.
The Astrophysical Journal, 908(2), p.170.
1. **Waternet: A Non-Equilibrium Chemical Model for Tracking Molecules in Cosmological Simulations.**
Gagliano, A., Smidt, J., Bialy, S., Jones, S., Wiggins, B., and Fields, J., 2021.
in prep.

SECOND AUTHOR:

1. **The Simulated Catalog of Optical Transients and Correlated Hosts (SCOTCH)**
Lokken, M., **Gagliano, A.**, et al., 2022. *in review.*

NTH AUTHOR:

6. **Statistical Modeling of Galaxy Catalogs with Normalizing Flows.**
Crenshaw, J.F. Kalmbach, B., Malz, A. et al. (incl. **Gagliano, A.**), 2021. *in prep.*
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. *in prep.*
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.
The Astrophysical Journal, 924(1), p.15.
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, doi:10.1093/mnras/stab2887.

2. **The Young Supernova Experiment: Survey Goals, Overview, and Operations.**
Jones, D.O., Foley, R.J., Narayan, G., et al. (incl. [Gagliano, A.](#)), 2021.
The Astrophysical Journal, 908.2, p.143.
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.
The Astrophysical Journal, 867(2), p.144

TELESCOPE PROPOSALS

Gemini Observatory – 22.0 hours awarded (PI) <i>The Young Supernova Experiment: Creating the Reference low-z Supernova Sample for Cosmology</i>	2022A
Gemini Observatory – 7.7 hours awarded (PI) <i>Probing Pre-Explosion Mass Loss Through NIR Spectroscopy of Young SNe Ib/c</i>	2022A
Gemini Observatory – 300 hours awarded (col) <i>A Spectroscopically Complete Census of Faint Transients Observed by the Young Supernova Experiment</i>	2021B
James Webb Space Telescope (JWST) – 17.2 hours awarded (col) <i>Nucleosynthesis, Astrophysics, and Cosmology with IR Observations of a Gravitational Wave Counterpart</i>	GO Cycle 1, 2021
James Webb Space Telescope (JWST) – 9.3 hours awarded (col) <i>Detecting the Synthesis of the Heaviest Elements with Photometry of a Kilonova in the Optically Thin Phase</i>	GO Cycle 1, 2021
James Webb Space Telescope (JWST) – 14.9 hours awarded (col) <i>Nebular Spectroscopy of a Kilonova with JWST</i>	GO Cycle 1, 2021
Gemini Observatory (GMOS) – 22 hours awarded (col) <i>The Young Supernova Experiment: Creating the Reference low-z Supernova Sample for Cosmology</i>	2021B

SEMINARS & COLLOQUIA

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: Artificial Intelligence 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

CONFERENCE TALKS

Research Byte, LSST DESC February Meeting (<i>online</i>)	Feb 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
Los Alamos National Laboratory Student Symposium (<i>Los Alamos, NM, USA</i>)	Aug 2017
International Space Olympics, invited (<i>Korolyov, Russia</i>)	Oct 2012

TEACHING & MENTORING

GRADUATE STUDENTS

- Emmanuel Garcia Berrios** (UIUC), Sloan Peer Mentor, 2021–Present
- Providing weekly guidance on research and professional development

UNDERGRADUATE STUDENTS

Holly Wingren (UIUC), Research Advisor, 2022–Present

- Creating a spatially-resolved galaxy model for supernova class

Athish Thiruvengadam (UIUC), Research Advisor, 2021–Present

- Investigating ML methods for early classification of transients in YSE

Zimo Qu (UIUC), Graduate Mentor, 2021–Present

- Provided guidance in undergraduate coursework and research

Kunal Bhatia (UIUC), Graduate Mentor, 2019–2021

- Held bi-weekly meetings to revise application materials for graduate school
- Will attend King's College London for Physics MSc in Fall 2022

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

RELEVANT COURSES

Intermediate Data Analytics & Machine Learning

Spring 2017

CS Foundations for Data Science

Spring 2017

Quantitative Analysis of Physical Data

Spring 2017

Math Modeling: Methods and Tools (I,II)

Fall 2015-Spring 2016

Methods of Computational Physics

Fall 2016

Data Analysis & Visualization

Fall 2016

Computational Modeling & Data Analytics Capstone

Fall 2016

JOURNAL CLUB TALKS

MIT Brown Bag Lunch, invited

May 2022 (Exp.)

Harvard CfA Talk

April 2022 (Exp.)

Caltech Tea, invited (*online*)

Mar 2022 (Exp.)

Princeton Thunch, invited (*online*)

Feb 2022

Yale Galaxy Lunch, invited (*online*)

Mar 2021

UIUC Journal Club

May 2021

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Feb 2019

CONFERENCE POSTERS

Illinois Astrofest #1 (*Champaign, IL, USA*)

Apr 2019

Water Workshop (*Zurich, Switzerland*)

Feb 2018

American Astronomical Society Meeting #231 (*Baltimore, MD, USA*)

Jan 2018

Virginia Biocomplexity Institute Research Symposium (*Blacksburg, VA, USA*)

Nov 2016

American Astronomical Society Meeting #227 (*Kissimee, FL, USA*)

Jan 2016

National Science Foundation REU Symposium (*Arlington, VA, USA*)

Oct 2015

Virginia Tech Undergraduate Research Symposium (*Blacksburg, VA, USA*)

Jul 2015

Virginia Collegiate Honors Council Spring Conference (*Richmond, VA, USA*)

Apr 2015

WORKSHOPS & SUMMER SCHOOLS

LSSTC Enabling Science Broker Workshop II (*online*)

Apr 2021

KROME Astrochemistry Bootcamp (*online*)

Feb 2021

LSSTC Enabling Science Broker Workshop I (*online*)

Oct 2020

DotDotAstronomy (*online*)

Aug 2020

GPAP Plasma Physics Summer School (*Swarthmore, PA, USA*)

Apr 2019

Summer School in Statistics for Astronomers XV (*State College, PA, USA*)

Jun 2019

La Serena School for Data Science (*La Serena, Chile*)

Aug 2018

SELECTED OUTREACH

Astro[Sound]Bites | Founder and Co-Host

Nov 2019–Present

- Founded bi-weekly technical astronomy podcast
- 36 episodes, >7k downloads, 200 listeners/episode in 55 countries

Astronomy on Tap, Champaign-Urbana | Organizer

Aug 2020–Present

- Designing posters, emceeing and scheduling speakers for monthly public talks (remote as of 2020)

Astronomical Society of the Pacific | Design Tester

Mar 2019 – May 2020

- Evaluated new outreach strategies for improving audience engagement in STEM events

Education Justice Project Workshop Coordinator	Jan 2019 – Present
<ul style="list-style-type: none"> • Designing data science workshops at Danville Correctional Center for 30 incarcerated students 	
Universe Awareness Astronomy Ambassador	Jan 2017 – Jun 2018
<ul style="list-style-type: none"> • Coordinated research talks, stargazing events in Los Alamos 	
The Story Of Foundation Exhibit Researcher	Dec 2016 – Dec 2017
<ul style="list-style-type: none"> • Spearheaded creation of sound-based astronomy exhibit in Goa, India using Python, Arduino; viewed by >2k students 	
Computational Modeling Club Vice President	Aug 2016 – May 2017
<ul style="list-style-type: none"> • Created and led student mentorship program • Coordinated 3-day hackathon of 100 students 	
IAU Office of Astronomy for Development Intern	Aug 2016 – Sept 2016
<ul style="list-style-type: none"> • Designed and led secondary school science activities for National Science Week with SAAO, reaching >1.2k students 	
American Astronomical Society Astronomy Ambassador	Jan 2015 – Jan 2016
<ul style="list-style-type: none"> • Participated in 2-day outreach training • Hosted stargazing nights at Virginia Tech (in English) and Berthe et Jean, Gabon (in French) 	

OUTREACH TALKS

Astronomy on Tap Champaign-Urbana (<i>Champaign, IL, USA</i>)	Dec 2021
Communicating Astronomy with the Public (<i>online</i>)	May 2021
Bay Area Science Festival, invited (<i>online</i>)	Oct 2020
Champaign-Urbana Astronomical Society, invited (<i>online</i>)	Oct 2020
PechaKucha Night Vol. 31, invited (<i>Champaign, IL, USA</i>)	Mar 2020
Astronomy on Tap Champaign-Urbana (<i>Champaign, IL, USA</i>)	Feb 2020
AAS Astronomy Ambassadors Alumni Panel, invited (<i>Seattle, WA, USA</i>)	Jan 2020
Communicating Astronomy with the Public (<i>Fukuoka, Japan</i>)	Mar 2018
UNM Community Education Program, invited (<i>Los Alamos, NM, USA</i>)	Feb 2018
The Story of Space, invited (<i>Goa, India</i>)	Nov 2017
Academy of Science Commencement Address, invited (<i>Sterling, VA, USA</i>)	Jun 2017
CMDA Commencement Address, invited (<i>Blacksburg, VA, USA</i>)	May 2017
Spark, Virginia TEDx Event (<i>Blacksburg, VA, USA</i>)	Nov 2016

ACADEMIC SERVICE

Reviewer for the AAS Journals	Ongoing
UIUC Astronomy Graduate Admissions Committee Member	Oct 2021–Present
<ul style="list-style-type: none"> • Weekly meetings with three faculty members to coordinate recruitment. Individually scored ~100 applications and selected students for admission to the UIUC graduate program 	
UIUC Transient Lunch Co-Founder	Jan 2022–Present
<ul style="list-style-type: none"> • Created/hosted bi-weekly meetings (~20 people) to discuss recent transient papers and host remote speakers. 	
DESC Sprint Week 2021 Local Organizing Committee	Sept 2021–Oct 2021
<ul style="list-style-type: none"> • Designing hack schedule and coordinating logistics for ~100 attendees in team of 16 	
IAU Junior Member Working Group Associate Member	Jul 2021–Aug 2021
<ul style="list-style-type: none"> • Drafted official UNESCO position paper on youth engagement in team of 40 on behalf of 400 NGOs • Representing the IAU in UNESCO's 75th anniversary event: "Beyond Celebrations: A Call for Youth Engagement!" 	
LSST/DESC APS-IDEA Team Member	Jan 2021–Present
<ul style="list-style-type: none"> • Discuss collaboration-wide initiatives for increasing diversity 	
Society for Equity in Astronomy Journal Club Host	Jan 2021–Present
<ul style="list-style-type: none"> • Lead monthly department-wide discussions on select DEI topics 	
Graduate Student Astro-ph Organizer	Aug 2019–Aug 2020
<ul style="list-style-type: none"> • Coordinated graduate student presentations and discussions of recent publications 	
VT Honors Odyssey Fellowships Selection Committee Member	Mar 2018

MEDIA

PechaKucha Night CU (2020). [Alex Gagliano](#). YouTube.

NCSA (2020). [NCSA and U of I Announce new Center Surveys](#). NCSA/UIUC.
Hille, K (2018). [Hubble Uncovers Thousands of Globular Star Clusters](#). NASA.
UNAWWE (2017). [‘Story Of Space’ Astronomy Festival By UNAWWE Ambassador](#). UNAWWE.
VT (2017). [Scholarship winners Alex Gagliano and Amy Harris honored](#). VT.
TEDxTalks (2017). [Looking out to Look in](#). YouTube.
Mackay, S (2017). [Undergraduates assist in economic impact study](#). Virginia Tech.
Angelus, A. D. (2017). [Virginia Tech group overcomes cultural seclusion](#). Collegiate Times.
Madrid, J. (2016). [Alex Gagliano presenting his AAS Poster](#). ATNF.
Geddie, J. L. (2013). [Alex Gagliano extends talent towards to the stars](#). Loudoun Times.

**ACTIVE
COLLAB-
ORATIONS**

LSST Transient and Variable Stars (TVS) Collaboration • Dark Energy
Science Collaboration (LSST/DESC) • Young Supernova Experiment (YSE) •
the ANTARES Project • the PLAsTiCC Team • American Statistical Association