Alexander T. Gagliano

703.994.2890 | gaglian2@illinois.edu
https://alexandergagliano.github.io
801 S. Wright St., 110 Coble Hall M/C 322, Champaign, IL 61820

EDUCATION

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
| PhD, Astronomy
Computational Science & Engineering Focus
Exp June 2023 | Champaign, Il

VIRGINIA TECH
| BS, Computational Modeling & Data Analytics (CMDA)
Physics Minor
May 2017 | Blacksburg, VA

- Major Rank: 1
- Honors Scholar
- Summa Cum Laude
- Cum. GPA: 3.90/4.00

PUBLICATIONS

Madrid, J. P., O'Neill, C. R., **Gagliano, A.T.** , & Marvil, J. R. (2018). A Wide-field Map of Intracluster Globular Clusters in Coma. ApJ, 867(2), 144.

Gagliano, A. , Smidt, J., Wiggins, B., & Jones, S. (2019), Astrochemistry in the Early Universe - I. Water Formation with Grackle. ApJ, in prep.

PRESENTATIONS

2018 **Toward Multisensory And Multidisciplinary Astronomy Outreach (Poster)**
CAP 2018, Japan

2018 **Water Formation In the Early Universe (Poster)**
Water Workshop, Switzerland

2018 **The Cosmological Origins of Water (Poster)**
231st AAS Meeting, Maryland

2017 **Cosmic Perspectives in a Globalized Society (Talk)**
The Story of Space, India

2017 CMDA Commencement Address (Talk)

2016 **Looking Out to Look In (Talk)**
Spark: Virginia Tech Tedx

RESEARCH & WORK EXPERIENCE

LOS ALAMOS NATIONAL LABORATORY | Postbac Fellow
Advisors: Dr. Aycin Aykutalp, Dr. Joseph Smidt
September 2017 – August 2018 | Los Alamos, NM

- Integrated AMR and particle-based cosmology simulations with improved supernovae model 26-species chemical reaction network in C, F90
- Writing a paper on results as first author and presented at two conferences
- Investigated machine learning techniques for sub-grid accretion models

LOS ALAMOS NATIONAL LABORATORY | Physics Intern
Advisors: Dr. Joseph Smidt, Dr. Brandon Wiggins
June 2017 – September 2017 | Los Alamos, NM

- Performed parallelized cosmological simulations with ENZO, yt
- Identified potential water formation sites in early universe

VIRGINIA TECH DEPARTMENT OF PHYSICS | Researcher
Advisor: Dr. Shunsaku Horiuchi
August 2015 – May 2017 | Blacksburg, VA

- Searched for gamma-ray emissions from nearby stars and galaxies
- Improved data reduction and binned likelihood analysis skills in Linux

VIRGINIA BIOCOMPLEXITY INSTITUTE | Software Intern
Advisors: Dr. Kristy Collins, Dr. Eric Nordberg
May 2015 – July 2015; January 2017 - May 2017 | Blacksburg, VA

- Invented an educational game using HTML5, Javascript, Construct2 for elementary school biology program of ∼300 students.
- Created Python scripts to scrape web data for epidemiology simulations

CERRO-TOLOLO OBSERVATORY | Researcher
Advisors: Dr. Juan Madrid, Dr. Katie Kaleida
January 2015 – March 2015 | La Serena, Chile

- Generated catalog of 22,676 star clusters from HST/ACS data using PyRAF
- Analyzed clusters by creating radial density maps, Color Magnitude Diagrams in Python (see publications section)

NASA GODDARD | Student Researcher
Advisor: Dr. Jeremy Schnittman
August 2011 – June 2013 | Greenbelt, MD

- Quantified efficiency of exoplanet detection for varying binary system parameters, using a χ^2-GOF model
- Implemented a Markov Chain in IDL for sampling of parameter space

HONORS & AWARDS

2018	2nd	SC18 Supercomputing Visualization Showcase
2018	$75k	2018 Illinois Distinguished Fellowship
2017	1 of 4	Virginia Tech Rhodes & Marshall Scholarship Nominee
2017	$1.4k	Academy of Integrated Science Distinguished Senior
2017	Top 1%	College of Science Outstanding Senior, Finalist
2017	Top 7%	Mathematical Contest in Modeling, Meritorious Winner
2016	$700	Astronomy Society of the Pacific Meeting Travel Grant
2015	$10k	Wayne & Claire Horton Fellowship
2015	$1k	Sigma Phi Epsilon Balanced Man Scholarship
2013	$1.5k	Loudoun Future Leaders Scholarship
2012	1st/200	International Space Olympics, Astrophysics Category
2012	$1k	Moody's Mega Math Competition, Honorable Mention

PRESENTATIONS

2016 **Using Networks to Measure Impact of Open Source R Packages (Poster & Talk)**
Biocomplexity Institute

2016 **Analysis of Globular Clusters in Coma Using HST/ACS data (Poster)**
227th AAS Meeting, Florida

2015 **Globular Cluster Systems in Coma (Poster)**
NSF REU Symposium

2015 **Elliptical Galaxies in the Coma Cluster with Unusually Poor Globular Cluster Systems (Talk)**
Virginia Honors Council

2015 **STEM Education Beyond the Classroom (Poster & Talk)**
Virginia Tech Research Symposium

2012 **Exoplanet Detection via Gravitational Microlensing (Talk)**
International Space Olympics, Russia

SOCIETIES & ORGANIZATIONS

2017 American Astronomical Society

2017 Phi Beta Kappa

2016 Phi Kappa Phi

2016 Omicron Delta Kappa

2014 National Society of Collegiate Scholars

PROGRAMMING

Intermediate:
R • Java • Matlab • C/C++ • Python • Mathematica

Familiar:
Arduino • Fortran • CSS • IDL • SuperCollider

LEADERSHIP & VOLUNTEER EXPERIENCE

EDUCATION JUSTICE PROJECT | Workshop Coordinator
January 2019 – Present | Urbana, IL
- Delivering introductory programming lessons at Danville Correctional Center

UNIVERSE AWARENESS | Astronomy Ambassador
January 2017 – June 2018 | Los Alamos, NM
- Coordinated research talks and stargazing events in Los Alamos
- Pioneered development of sonification modules using Arduino, Ultrasound sensors

THE STORY OF FOUNDATION | Exhibit Researcher
December 2016 – December 2017 | Goa, India
- Spearheaded design and implementation of a sound-based astronomy exhibit using Python, Arduino for local outreach, reaching >2k students
- Delivered 2 talks on increasing diversity and inclusivity in astrophysics

ONE LESS STRANGER SOCIAL SOCIETY | Co-Founder
January 2017 – May 2017 | Blacksburg, VA
- Organized campus dinners to foster community, cross-cultural discourse in collaboration with InclusiveVT (http://www.collegiatetimes.com/news/virginia-tech-group-overcomes-cultural-seclusion)

COMPUTATIONAL MODELING CLUB | Vice President
August 2016 – May 2017 | Blacksburg, VA
- Fostered intra-major collaboration through student mentorship program
- Oversaw planning and advised teams during 3-day hackathon of 100 students

VIRGINIA TECH ALUMNI ASSOCIATION | Director of Spirit
January 2016 – January 2017 | Blacksburg, VA
- Orchestrated rallies and coordinated with student groups, university
- Headed team of 10 to design and market university t-shirt, raised ~ $9k net revenue (36% increase from previous year)

IAU OFFICE OF ASTRONOMY FOR DEVELOPMENT | Intern
August 2016 – September 2016 | Cape Town, South Africa
- Designed and instituted secondary school science demonstrations in team of two for National Science Week with SAAO, reaching ~1.2k students total
- Generated 3D-printed gravitational wave models for tactile outreach

VIRGINIA TECH ATHLETICS | Math Tutor
January 2016 – May 2016 | Blacksburg, VA
- Educated 2 student athletes on calculus problem sets 2x/week

AMERICAN ASTRONOMICAL SOCIETY | Astronomy Ambassador
January 2015 – January 2016 | Blacksburg, VA
- Prepared outreach with ambassadors nationally during 2-day workshop
- Lectured and hosted stargazing nights at Virginia Tech (English) and Berthe et Jean, Gabon (French)

VIRGINIA TECH CREW TEAM | Vice President, Varsity Captain
May 2014 – May 2016 | Blacksburg, VA
- Raced in fastest novice boat, earning three 1st place medals in 1st season
- Motivated team of 40 peers during daily morning practices
- Planned and implemented team fundraising events, raising $4k/semester