Jacob Pilawa

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STATEMENT OF PURPOSE

I am a rising senior applying to graduate school in Astrophysics in the Fall and Winter of 2019 as a candidate for a PhD. My broad interests are the formation and evolution of galaxies and compact objects, astroparticle physics, physics and astronomy outreach, and making science more accessible for all.

EDUCATION

Colgate University (Hamilton, New York) *August 2016 - Present*

Bachelor of Arts in Astronomy/Physics
Astronomy/Physics GPA: 3.99/4.00
Cumulative GPA: 4.00/4.00
Alumni Memorial Scholar

Cardiff University (Cardiff, Wales, UK) *January 2019 - June 2019*

Off-Campus Study Program
First (I) Classification (All Courses)

RESEARCH & WORK EXPERIENCE

*lead to co-authored publication

Research

***Modeling and Simulations Engineer** June 2019 - Present
The Aerospace Corporation *El Segundo, California*

On-site internship in the Photonics and Microtechnologies Departments at The Aerospace Corporation in El Segundo, California. Focused on understanding and simulating the dynamics of echo state networks (a type of recurrent neural network used for temporal, non-linear systems) and implementing using optical computer technology.

***NSF Research Experiences for Undergraduates (REU) Fellow** May 2018 - August 2018
University of Wyoming *Laramie, Wyoming*

Observational astronomy research as an NSF REU Fellow. Performed panchromatic analysis on data taken (30+ nights) at the 2.3m Wyoming Infrared Observatory telescope and archival GALEX & Spitzer Space Telescope data. Involved astronomical image acquisition and calibration as well as modeling star formation histories in Python.

Undergraduate Summer Research Fellow May 2017 - August 2017
Colgate University *Hamilton, New York*

Research conducted with Dr. Thomas Balonek on R-band microvariability of quasars, blazars, and AGN. Involved complete operation of Foggy Bottom Observatory, image analysis and data extraction, statistical determination of time-domain variability, and programming for data analysis.

Work

Co-Instructor of UNST350 (Innovation Fellowship Program) Fall 2018 - Present
with Prof. Karen Harpp *Colgate University*

Designed, prepared for, and lectured the class University Studies 350 alongside Prof. Karen Harpp at Colgate University. This included more than one year of learning human-centered design methodologies and applying them to the Colgate Core Curriculum Self-Study.

Science Outreach Educator Fall 2017 - Present
Colgate University Visualization Laboratory *Colgate University*

Physics and astronomy outreach in the 18-foot dome theater on Colgate's campus by planning and conducting planetarium shows and skytalks throughout the year.

Physics & Astronomy Tutor Fall 2017 - Present
Physics Astronomy Department *Colgate University*

Tutored the following physics classes: Physics 131 (Fall 2017, Fall 2018, Fall 2019), Physics 232 (Spring 2017), Astronomy 220 (Fall 2018, Fall 2019)

PUBLICATIONS & SELECTED CONFERENCE PRESENTATIONS

Publications

U. Paudel, M. Luengo-Kovac, **J. Pilawa**, T. J. Shaw, G. Valley, "Classification of time-domain waveforms using a speckle-based reservoir computer," Under Submission to Optica (2019).

D. Dale, **et al.**, "Radial Star Formation Histories in 32 Nearby Galaxies," The Astrophysical Journal, 2019 (in preparation)

Selected Conference Presentations

U. Paudel, M. Luengo-Kovac, **J. Pilawa**, G. C. Valley, T. J. Shaw, "Reservoir computer using speckle in a multimode waveguide," Invited Talk, Photonics West, San Francisco, CA, February 2020.

J. Pilawa, D. Dale, et al., "EDGES: Radial Star Formation Histories of NGC4143 and UGC07639," Poster Presentation (Galaxy Evolution), AAS 223, Seattle, Washington, January 2019.

J. Pilawa, K. Eckart, R. Stahlin, "The 2015-2016 Optical Outburst and Historic Light Curve of Blazar OJ287," Poster Presentation, KNAC 2017 Symposium, Colgate University, New York, September 2017.

STRENGTHS & SKILLS

Programming	Proficient: MATLAB, R, Python Familiar: IRAF
Software	LaTeX, LabVIEW, Microsoft Office, TOPCAT
Languages	French (Bilingual Fluency) Welsh (Beginner Proficiency)
Professional Memberships	American Astronomical Society (AAS) American Physical Society (APS)
Skills	Astrophotography, Adobe Lightroom & Photoshop

AWARDS & HONORS

Phi Beta Kappa Honor Society	Fall 2019
Dean's Award with Distinction	All Eligible Semesters
George W. Cobb Fellow Award	2017 - 2018, 2018 - 2019
Lila & Curtiss '25 Frank Scholarship	Spring 2019
Tamblyn Family Endowed Scholarship Fund	Spring 2019
Pi Beta Phi French Honors Society	Inducted Spring 2018
Sigma Pi Sigma Physics Honor Society	Inducted Fall 2018
Phi Eta Sigma National Honor Society	Inducted Fall 2017