Daniel K. Giles

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Publications

Searching the SN 1987A SETI Ellipsoid with TESS
Cabrales, B., Davenport, J., Sheikh, S., Croft, S., Siemion, A., **Giles, D.,** Cody, A.M., *AJ,* 167, 101.

Searching the SETI Ellipsoid with Gaia
Davenport, J., Cabrales, B., Sheikh, S. Croft, S., Siemion, A., **Giles, D.,** Cody, A.M., 2022, *AJ*, 164, 117.

A method for finding anomalous astronomical light curves and their analogues
Martínez-Galarza, J.R., Bianco, F., Crake, D., Tirumala, K., Mahabal, A.A., Graham, M. J., **Giles, D.**, 2021, *MNRAS,* 508*,* 5734-5756.

Systematic Serendipity: Outlier Scoring for the Kepler Mission
Giles, D., Walkowicz, L. M., 2020, MNRAS, 499, 524.

Systematic Serendipity: A Test of Unsupervised Machine Learning as a Method for Anomaly Detection
Giles, D., Walkowicz, L. M., 2019, MNRAS, 484, 834.

Professional Experience

Postdoctoral Researcher, The SETI Institute — January 2021-February 2024
XRP Project – From Exocomets to Technosignatures: Hidden Occulters in Planetary Systems

Researcher, Frontier Development Laboratory — Summer 2020
Heliophysics Starspots team

Teaching/Research Assistant, Illinois Institute of Technology — 2013-2020
Classes: Classical Mechanics, Electricity and Magnetism, Electronics, and Computational Methods

Technical Analyst, The Boeing Company — 2012-2013
Group: Product Integrity and Safety, Post-production Modifications

Education

Illinois Institute of Technology, Chicago, IL — Completed December 2020
Ph.D. in Physics
Thesis Title: *Systematic Serendipity: A Method to Discover Anomalous Astrophysics*
Thesis Advisor: Lucianne Walkowicz

Westminster College, New Wilmington, PA — Completed May 2012
B.S. in Physics

Selected Proceedings

Technosignatures with TESS: The Search for Hidden Stellar Occulters
Giles, D., 2021, The 2021 Assembly of the Order of the Octopus, A Virtual Conference for early-career researchers in SETI, id.25.

From Dust to Technosignatures: Searching for Stellar Occulters with Machine Learning
Giles, D., 2021, 72nd International Astronautical Congress 2021, IAC-21,A4,1,10,x67003.

***RotNet*: Fast and Scalable Estimation of Stellar Rotation Periods Using Convolutional Neural Networks**
FDL Starspots Team, 2020, Machine Learning and the Physical Sciences Workshop, NeurIPS 2020.

Presentation: Systematic Serendipity: Automated Anomaly Detection and Prioritization for Large Datasets
Giles, D., Walkowicz L. M., 2020, *American Astronomical Society*, 235, 232.02.

Presentation: Systematic Serendipity: A Signal-Agnostic Search for Technosignatures Using Unsupervised Machine Learning
Giles, D., Walkowicz, L. M., 2019, *Astrobiology Conference*, 308.6.

Presentation: Systematic Serendipity: A Method to Discover the Anomalous
Giles, D., Walkowicz L. M., 2018, *American Astronomical Society*, 231, 332.03.

Invited Roles and Talks

Berkeley SETI Research Center, REU and Intern Mentor/Supervisor 2020-2023
UC Berkeley

NASA Technosignatures Workshop, Participant Fall 2018
Universities Space Research Association

Decolonizing Mars, Participant Summer 2018
Library of Congress

Research Colloquia, Speaker Spring 2018
Westminster College

Sigma Pi Sigma, Speaker Spring 2018
Illinois Institute of Technology

Scientific English Course, Instructor and Presenter Summer 2016, 2017
Tsinghua University, Institute of Modern Physics

Detecting the Unexpected, Participant Spring 2017
Space Telescope Science Institute

Networking Symposium, Panelist Fall 2015
Westminster College

Grants and Awards

NASA XRP: From Exocomets to Technosignatures: Hidden Occulters in Planetary Systems 2021-2024

Large Synoptic Survey Telescope Data Science Fellowship Program Fellow 2017-2019

Illinois Space Grant Consortium Fellowship 2016-2019

Illinois Institute of Technology Research Scholarship 2013-2014

Albright Scholarship 2009-2012

Young Presbyterian Scholars 2009-2012