Daniel K. Giles

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Publications and Abstracts

Systematic Serendipity: Outlier Scoring for the Kepler Mission
Giles, D., Walkowicz, L. M., 2020, *submitted to MNRAS.*

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.

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

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

Education

Illinois Institute of Technology, Chicago, IL   *Expected Spring 2020**
PhD in Physics
Thesis Title: Systematic Serendipity
Thesis Advisor: Lucianne Walkowicz

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

*delayed by COVID-19

Professional

Teaching Assistant, Illinois Institute of Technology   Fall 2015-Spring 2019
Classes: Classical Mechanics, Electricity and Magnetism,
    Electronics, and Computational Methods
Professors: David Gidalevitz, Gayle Ratliff, Alan
    Glodowski, Yagmur Torun, and Jeffery Terry

Tutor, Illinois Institute of Technology, Varsity Tutors   2015-*Present*
Subjects: Classical Mechanics, Electricity and Magnetism,
    Algebra, and Calculus

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

Teaching Assistant, Westminster College   Spring 2012
Class: Classical Mechanics
Professor: Craig Caylor

Invited Talks and Roles

NASA Technosignatures Workshop, Participant
Universities Space Research Association
Fall 2018

Decolonizing Mars, Participant
Library of Congress
Summer 2018

Research Colloquia, Speaker
Westminster College
Spring 2018

Sigma Pi Sigma, Speaker
Illinois Institute of Technology
Spring 2018

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

Detecting the Unexpected, Participant
Space Telescope Science Institute
Spring 2017

Networking Symposium, Panelist
Westminster College
Fall 2015

Research

Systematic Serendipity, Illinois Institute of Technology and the Adler Planetarium
Developed an anomaly detection framework to identify outlying data in large, photometric databases
Advisor: Lucianne Walkowicz
Fall 2015-Present

Space Weathering on Meteors, Adler Planetarium
Investigated the relationship of space weathering and close planetary encounters on the Karin family of meteors
Supervisor: Mark Hammergren
Spring 2015

VERITAS, Adler Planetarium
Modelled gamma ray production methods from active galactic nuclei for comparison to VERITAS observations
Supervisor: Jeffery Grube
Fall 2013-Spring 2015

Sights of a Changing Universe, Westminster College
Advisor: Thomas Oberst
Presented at URAC (2012, Westminster College, Presentation) and NCUR (2012, Weber State University, Poster)
Fall 2011–Spring 2012

Grants and Awards

Illinois Space Grant Consortium Fellowship
2016-2019

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

Illinois Institute of Technology Research Scholarship
2013-2014

Albright Scholarship
2009-2012

Young Presbyterian Scholars
2009-2012