# Daniel K. Giles

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## Publications and Abstracts

**Systematic Serendipity: Outlier Scoring for the Kepler Mission.**
Giles D., Walkowicz L. M., 2020, *in prep.*

**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

## 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** — 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

**English Instructor, Instructor and Presenter** — Summer 2016, 2017
Tsinghua University

**English Instructor, Instructor and Presenter** — Summer 2017
Institute of Modern Physics, Chinese Academy of Sciences

**Detecting the Unexpected, Participant** — Spring 2017
Library of Congress

**Networking Symposium, Panelist** — Fall 2015
Westminster College

## Research

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

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

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

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

## 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