Keyan Gootkin

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EDUCATION

UNIVERSITY OF WASHINGTON | BS in Astronomy & Physics

Expected June 2021 | Seattle, WA | Cum. GPA: 3.74/4

College of Arts and Sciences

Relevent Courses

Physics

200 level: Mathematical Methods (2 quarters) •Thermodynamics •Quantum Mechanics

300 level: Mechanics •E&M •Quantum Mechanics

Astronomy

Contents of the Galaxy •Cosmology and Extragalactic Astronomy •Programming for Astronomical Methods •Research (4 quarters) •High Energy Astrophysics •Statistical Methods in Astrophysics •Public Outreach in Astronomy

RESEARCH

UW MASSIVE STARS GROUP | Undergraduate Researcher

Nov 2017 – Feb 2018 | 5 Hrs/Week | Seattle, WA

Searched for evidence of asteroseismic occilations in the Wolf-Rayet star WR-124 using high-precision time-series photometry with Trevor Dorn-Wallenstein and Dr. Emily Levesque. Constructed a Python pipeline to perform aperture photometry

Jan 2018 - Present | 5-10 Hrs/Week | Seattle, WA

Analyzing over 13 years of spectropolarimetric data of the Luminous Blue Variable (LBV) star P Cygni. This type of data can be used to constrain the geometry of the star's circumstellar environment. Our work has shown evidence of asphericity at the base of the wind, and challenges assumptions made about previously used methods for determining the interstellar polarization. Publication of this work is to be submitted to the Astrophysical Journal by October of 2019.

NASA GODDARD | Space Weather Forecaster & Research Intern

June - August 2018 | 40 Hrs/Week | Greenbelt, MD

Created a benchmark data-set of coronal mass ejection (CME) measurements for use in CME propagation model validation. Through the creation of this data-set we analyzed the spread in measurements of CMEs. Received intense training and experience in Space Weather Forecasting at the Community Coordinated Modeling Center at the NASA Goddard Space Flight Center. Training included: Identifying space weather events, working modeling software, and making predictions in order to protect NASA solar system missions from the harmful effects of space weather events.

OUTREACH

UNIVERSITY OF WASHINGTON MOBILE PLANETARIUM | Volunteer and Leader

2017-Present

Leading groups of 4-6 volunteers in giving mobile planetarium shows throughout the greater Seattle area several times per academic quarter. Outreach efforts are focused on elementary-middle school age children from traditionally under-represented groups in astronomy. In charge of transporting and setting up the planetarium, coordinating with event planners, ticketing, and giving 15 minute shows to 35 children at a time using World Wide Telescope.

UNIVERSITY OF WASHINGTON PLANETARIUM | Volunteer

2018-Present

Given more than 10, hour-long planetarium shows to groups of 40, ranging in age from toddlers to the elderly using World Wide Telescope

THEODORE JACOBSEN OBSERVATORY | Presenter and Volunteer

2018-Present

Volunteer at monthly open house nights, demonstrating spectral lines, operating telescopes, and giving hour-long talks to 50 members of the public on two occasions

ASTRONOMY FOR THE BLIND & VISUALLY IMPAIRED | Volunteer

Aug 2019

Presented astronomy concepts for a dozen children (ages 3 to 18) with varying degrees of visual impairment. Presented topographical maps, braile books, physical demonstrations, and gave a special planetarium show.

WORK

UW ASTRONOMY DEPARTMENT

Astronomy 101 Grader

Spring Quarter 2019 | Seattle, WA

Graded 60 Astro 101 quizes per week, including essay questions. Communicated with fellow graders, TAs, and lecturer Dr. Chris Laws in a professional manner.

Theodore Jacobsen Observatory Coordinator

2019-2020 Academic Year | Seattle, WA

Organizing open house nights at Theodore Jacobsen Observatory—intended to educate the public and provide them access to UW astronomers. Includes booking speakers & volunteers, managing reservations, updating the observatory's website, coordinating with the Seattle Astronomical Society, setting up/putting away demonstrations and telescopes, and communicating effectively with the faculty in charge of the observatory, Dr. Bruce Balick.

PUBLICATIONS

First-Author Publications

In Preparation	13 Years of P Cygni Spectropolarimetry: Investigating Mass-loss Through Hα, Periodicity, and Ellipticity in q-u Space	The Astrophysical Journal
Jun 2019	New Stars in the Sky	Theodore Jacobsen Observatory Newsletter
Jan 2019	13 Years of Spectropolarimetry of P Cygni	American Astronomical Society, AAS Meeting #233

SKILLS

PROGRAMMING LANGUAGES

Advanced

Python (including matplotlib, numpy, pandas, astropy, sympy, emcee, and other packages)
LaTeX

Intermediate

Unix • Git • CSS & HTML

Beginner

C++ • IDL • Javascript • Julia • SQL

AWARDS

2019-2020	Washington Research Foundation Fellowship
2019	Washington Space Grant Summer Undergraduate Research Program Recipient
2018-2019	College of Arts and Sciences Dean's List
2018	Washington State Opportunity Scholar

EXTRA-CURRICULARS

Jun 2019-Present	Outreach Coordinator	UW League of Astronomers
Jun 2019-Present	Chair	Mobile Planetarium Committee
2018-Present	Member	Mobile Planetarium Committee
2017-Present	Member	UW League of Astronomers