

Nicholas Saunders

RESEARCH SUPPORT SCIENTIST · NASA AMES

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Education

BS Astronomy & Comprehensive Physics

BA Comparative Literature (Cinema Studies)

Aug 2013 - Jun 2018

UNIVERSITY OF WASHINGTON

Seattle, WA

- Departmental Honors in Astronomy — Washington NASA Space Grant — Irving and Louise Donnergaard Endowment
- Astronomy GPA: 3.7/4.0 — Comparative Literature GPA: 3.9/4.0

Research Experience

Research Support Scientist — Kepler/K2 Guest Observer Office

Aug 2018 - present

NASA AMES RESEARCH CENTER

Moffett Field, CA

- Developing and maintaining open source community software to assist with the analysis of data from the *Kepler/K2* mission

Student Researcher — Detection of Transiting Exoplanets

Jan 2016 - Aug 2018

UNIVERSITY OF WASHINGTON — *advisors: Rory Barnes, Rodrigo Luger*

Seattle, WA

- Simulated a forward model of CCD detectors
- Developed python code to reduce instrumental noise for *Kepler/K2* photometry and exoplanet transit detection

Observation

Jul 2017

MANASTASH RIDGE OBSERVATORY

Ellensburg, WA

- 10 Full Nights — Photometry with 0.8m telescope

Student Researcher — LSST Citizen Science

Jun 2017 - Aug 2018

UNIVERSITY OF WASHINGTON — *advisor: Andrew Connelly*

Seattle, WA

- Created an online project interface to identify and characterize transient objects in LSST data using Zooniverse citizen science web portal

Planetary Science Intern

Apr 2011 - Jun 2013

THE BEAR FIGHT INSTITUTE — *advisors: Tom McCord, Bernard Nordmann*

Winthrop, WA

- Generated mosaicked satellite-imagery maps for surface of Mars and the Moon
- Analyzed composition of the Moon's surface using reflectance spectroscopy

Academic Employment

Data Visualization Analyst

Jun 2018 - Aug 2018

UNIVERSITY OF WASHINGTON

Seattle, WA

- Used Tableau to create visualizations that demonstrate elementary & high school student learning as part of the UW Astrobiology Mobile Planetarium outreach program

Teaching Assistant — Astronomy Department

Mar 2018 - Jun 2018

UNIVERSITY OF WASHINGTON

Seattle, WA

- Led multiple weekly in-class sections, taught intro astronomy material
- Collaborated with team of T.A.s and professor
- Assisted students in lab assignments

Planetarium Organizer

Jan 2018 - Aug 2018

UNIVERSITY OF WASHINGTON

Seattle, WA

- Scheduled planetarium presentations
- Managed ticket sales and social media

Student Assistant — Astronomy Department

Jan 2017 - Mar 2018

UNIVERSITY OF WASHINGTON

Seattle, WA

- Graded assignments for multiple upper-division astronomy courses
- Led planetarium presentations for students

Publications

- Saunders, N.**, Luger, R., Barnes, R. (2019) [The Pointing Limits of Transiting Exoplanet Light Curve Characterization with Pixel Level De-correlation](#). arxiv:1903.09629
- Feinstein, A.D., Montet, B.T., Bean, J.L., Bedell, M.E., Christiansen, J., Foreman-Mackey, D., Hedges, C., Luger, R., **Saunders, N.**, Scolnic, D., Vinícius de Miranda Cardoso, J. (2019) [eleanor: A tool for extracting light curves from the TESS Full-Frame Images](#). arxiv:1903.09152
- David, T., Cody, A., Hedges, C., Mamajek, E., Hillenbrand, L., Ciardi, D., Beichman, C., Petigura, E., Fulton, B., Isaacson, H., Howard, A., Gagné, J., **Saunders, N.**, Rebull, L., Stauffer, J., Vasisht, G., Hinkley, S. (2019) [A warm Jupiter-sized planet transiting the pre-main sequence star V1298 Tau](#). arXiv:1902.09670
- Mahabal, A., Rebapragada, U., Walters, R. et al. including **Saunders, N.** (2019) [Machine Learning for the Zwicky Transient Facility](#). PASP, 131, 997
- Hedges, C., **Saunders, N.**, Barentsen, G., Gully-Santiago, M., Cody, A.M., Vinícius de Miranda Cardoso, J. (2019) [A Hot Jupiter Exoplanet Candidate towards the Galactic Center Identified in Kepler/K2 Campaign 9 Microlensing Survey](#). RNAAS, 3, 1
- Barentsen, G., Hedges, C., **Saunders, N.**, Cody, A.M., Gully-Santiago, M., Bryson, S., Dotson, J. (2018) [Kepler's Discoveries Will Continue: 21 Important Scientific Opportunities with Kepler & K2 Archive Data](#). arXiv:1810.12554
- Cody, A.M., Barentsen, G., Hedges, G., Gully-Santiago, M., Dotson, J., Barclay, T., Bryson, S., **Saunders, N.** (2018) [A catalog of 29 open clusters and associations observed by the Kepler and K2 Missions](#). RNAAS, 2, 4
- Luger, R., Kruse, E., Foreman-Mackey, D., Agol, E., **Saunders, N.** (2018) [An Update to the EVEREST K2 Pipeline: Short Cadence, Saturated Stars, and Kepler-like Photometry down to Kp = 15](#). AJ, 156, 99

Talks

- Saunders, N.**, "Analysis of Simulated Kepler/K2 Exoplanet Transit Parameters," AAS 233, Seattle, WA, Jan 2019
- Saunders, N.**, "Simulated CCD Photometry: An Application for K2 Sputtering," Kepler/K2 Science Office, NASA Ames, Moffett Field, CA, May 2018
- Saunders, N.**, "Searching for Exoplanets with Sputtering Space Telescopes," UW Undergraduate Research Symposium, Seattle, WA, May 2018
- Saunders, N.**, "Putting the Science in Science Fiction," Astronomy on Tap, Seattle, WA, Apr 2018
- Saunders, N.**, Luger, R., Barnes, R., "De-trending K2 Exoplanet Targets for High Spacecraft Motion," AAS 231, Washington DC, Jan 2018
- Saunders, N.**, "The Search for Habitable Worlds," Astrobiology Mini Talks, Museum of Flight, Seattle, WA, Apr 2018
- Saunders, N.**, Luger, R., "Sputtering Effects on K2 Systematics Removal," Kepler/K2 Guest Observer Office, NASA Ames, Moffett Field, CA, Oct 2017
- Saunders, N.**, "Effects of Pixel Sensitivity Variation on K2 Systematics Removal," UW Undergraduate Research Symposium, Seattle, WA, May 2017

Posters

- Saunders, N.**, Luger, R., "Quantifying Biases with Simulated Kepler/K2 Exoplanet Light Curves," Kepler SciCon V, Glendale, CA, Mar 2019
- Saunders, N.**, M. Gully-Santiago, C. Hedges, G. Barentsen, J. Dotson, "Exoplanet Science with the Lightcurve Python Package," AAS 233, Seattle, WA, Jan 2019

Outreach

Volunteer Presenter — Astrobiology Mobile Planetarium

Mar 2018

UNIVERSITY OF WASHINGTON

Eastern WA

- Presented planetarium shows with UW's inflatable dome to rural schools in WA to introduce the study of astrobiology

Undergraduate Liaison — Astronomy Department Faculty Board

Sept 2017 - Aug 2018

UNIVERSITY OF WASHINGTON

Seattle, WA

- Attended faculty meetings and reported undergraduate concerns
- Communicated with both faculty and students

Volunteer — Total Solar Eclipse NASA Outreach Event

Aug 2017

WASHINGTON NASA SPACE GRANT CONSORTIUM

Warm Springs, OR

- Organized educational outreach activities at a middle school on the Warm Springs Indian Reservation
- Assembled and managed telescopes for solar and planetary observation

Volunteer Presenter — UW Planetarium

Nov 2015 - Aug 2018

UNIVERSITY OF WASHINGTON

Seattle, WA

- Performed multiple shows each month for public and private audiences

Honors

- 2019 **Honorable Mention**, National Science Foundation Graduate Research Fellowship Program
- 2018 **Kudos of the Quarter**, University of Washington Astronomy Department
- 2016 **1st Place: Best Online Photo Essay**, Washington Newspaper Publishers Association
- 2016 **2nd Place: Best Video**, Washington Newspaper Publishers Association