

# Nicholas Saunders

GRADUATE STUDENT · INSTITUTE FOR ASTRONOMY, UNIVERSITY OF HAWAII AT MĀNOA

✉ saunders.nk@gmail.com | 🏠 nksaunders.space | 📷 nksaunders | 🐦 @nksaunders

## Education

---

### MS Astronomy

INSTITUTE FOR ASTRONOMY, UNIVERSITY OF HAWAII AT MĀNOA

- In progress, expected Jun 2021

Aug 2019 - present

Honolulu, HI

### BS Astronomy & Comprehensive Physics

#### BA Comparative Literature (Emphasis: Cinema Studies)

UNIVERSITY OF WASHINGTON

- 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

Aug 2013 - Jun 2018

Seattle, WA

## Research Experience

---

### Research Support Scientist — Kepler/K2 Guest Observer Office

NASA AMES RESEARCH CENTER

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

Aug 2018 - Aug 2019

Moffett Field, CA

### Student Researcher — Detection of Transiting Exoplanets

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

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

Jan 2016 - Aug 2018

Seattle, WA

### Student Researcher — LSST Citizen Science

UNIVERSITY OF WASHINGTON — *advisor: Andrew Connolly*

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

Jun 2017 - Aug 2018

Seattle, WA

### Planetary Science Intern

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

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

Apr 2011 - Jun 2013

Winthrop, WA

## Academic Employment

---

### Data Visualization Analyst

UNIVERSITY OF WASHINGTON

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

Jun 2018 - Aug 2018

Seattle, WA

### Teaching Assistant — Astronomy Department

UNIVERSITY OF WASHINGTON

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

Mar 2018 - Jun 2018

Seattle, WA

### Planetarium Organizer

UNIVERSITY OF WASHINGTON

- Scheduled planetarium presentations
- Managed ticket sales and social media

Jan 2018 - Aug 2018

Seattle, WA

### Student Assistant — Astronomy Department

UNIVERSITY OF WASHINGTON

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

Jan 2017 - Mar 2018

Seattle, WA

## Publications

---

- Hedges, C., **Saunders, N.**, Barentsen, G., Coughlin, J., Vinícius de Miranda Cardoso, J., Kostov, V., Dotson, J., Cody, A.M. (2019) [Four Small Planets Buried in K2 Systems: What Can We Learn for TESS?](#) *ApJL*, **880**, 1
- Saunders, N.**, Luger, R., Barnes, R. (2019) [The Pointing Limits of Transiting Exoplanet Light Curve Characterization with Pixel Level De-correlation.](#) *AJ*, **157**, 197
- 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., Rebbapragada, 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  \$K\_p = 15\$ .](#) *AJ*, **156**, 99

## Talks

---

- Saunders, N.**, "A Catalog of Uniform Exoplanet Parameters," CIPS Seminar, University of California, Berkeley, CA, Apr 2019
- 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 Lightkurve Python Package," AAS 233, Seattle, WA, Jan 2019

## Outreach

---

### Volunteer Presenter — Astrobiology Mobile Planetarium

UNIVERSITY OF WASHINGTON

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

Mar 2018

Eastern WA

### **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