

# Nathaniel E. B. Kerman

---

2607 Mapleton Ave  
Boulder, CO 80304

**E-mail:** Nathaniel.Kerman@Lasp.Colorado.edu  
**Website:** [Astronat.org](http://Astronat.org)  
**Phone:** (203) 605-9856

**Advanced skillset in data collection and analysis for the physical sciences.**

**Problem solving, project management, and teaching experience. Excels in both leadership and collaborative environments.**

## SKILLS

**Programming:** Python (expert); All major operating systems and shells; Git; Docker; AWS cloud tools

**Data Analysis:** Advanced astrophysics/math training; Statistics; Data-mining; Diagnosing and hypothesis-testing; Data reduction and analysis; Basic machine learning; basic Zemax optical modelling

**Presentation and Communication:** Office suite; Blender; Adobe suite; Photography; Science education/outreach

**Interpersonal:** Development, planning, and execution of collaborative projects; Building teaching tools (software and hardware); Teaching and curriculum-development for scientific topics; Management and motivation

**Other relevant skills:** Scientific literature reading/reviewing/editing; Spanish competency

## WORK EXPERIENCE

---

*University of Colorado, Boulder: Astrophysical & Planetary Sciences*

### Instructor of Record

August 2023 — Present

Teaches upper-level undergraduate course: **ASTR 3800**: “Introduction to Scientific Data Analysis and Computing”. Course focused on statistical methods, hypothesis testing, and applying scientific data analysis techniques in Python. Designed curriculum and implemented 30 two-hour lectures, including workshops, tutorials, and assignments. Conducted periodic surveys and assessments and used the outcomes to shape the course, ensuring students’ continued engagement and success. Manages a teaching assistant.

---

*Laboratory for Atmospheric and Space Physics (LASP)*

### Data Systems Software Engineer II

October 2022 — Present

Serves as liaison between the engineering team building the CLARREO Pathfinder instrument and the Science Data System team building its data processing pipeline. With Engineering team, diagnoses instrumental effects and uncertainties, and designs data correction algorithms to compensate for these effects. With Data Systems team, implements those algorithms at scale, writing efficient and modular Python code to run on cloud servers.

---

*Space Telescope Science Institute (STScI)*

### Associate Science Support Analyst I

August 2020 — September 2021

### Associate Science Support Analyst II

September 2021 — March 2022

### Science Support Analyst I

March 2022 — October 2022

Worked to improve calibration and longevity of the Hubble Space Telescope (HST), with focus on the Cosmic Origins Spectrograph (COS) instrument. Spent 20% “science time”, building 3D-printed teaching tools to communicate astronomy to students with blindness/visual impairment. Managed HST/JWST reference files. Presented COS work at conferences of the AAS. Served as deputy lead of group monitoring COS for anomalies.

---

*Yale Center for Astronomy and Astrophysics; University of Chile*

### Research Assistant

June 2016 — August 2019  
*Summers (June – August) only*

---

*DEMOS Science Outreach; Leitner Family Observatory and Planetarium*

### Outreach Leader

August 2016 — May 2020

---

*Yale Summer Program for Astrophysics*

### Observing/Teaching Assistant

July 2017 — December 2018

## EDUCATION

---

### Yale College, Yale University

August 2016 — May 2020

*Graduated Bachelor of Science with Honors in the Study of Astrophysics, 2020*

Coursework focused on Physics, Math, Astronomy. Cumulative GPA of 3.8

**Special Studies:** Instrumentation and Optics (Thesis), Exoplanets, Black Holes/AGN, Science Photography

**Interests:** [Astronomers for Planet Earth](#); Volunteering as STEM tutor; Public outreach; Amateur astronomy; Music

**Publications:**

- [1] "[A Galaxy-Scale Fountain of Cold Molecular Gas Pumped by a Black Hole](#)" **Paper** – G. Tremblay et al. 2018 (The Astrophysical Journal)
- [2] "[Improving the Wavelength Calibration of the Extreme PREcision Spectrograph \(EXPRES\)](#)" **Undergraduate Thesis & Poster** – N. Kerman 2020 (AAS 235)
- [3] "[Updated Status and Performance of The Cosmic Origins Spectrograph](#)" **Poster** – T. Fischer et al. 2021 (AAS 237)
- [4] "[Jupyter Notebook Walkthroughs for Working with The Cosmic Origins Spectrograph](#)" **Poster** – N. Kerman et al. 2021 (AAS 238)
- [5] "[Updated Status and Performance of The Cosmic Origins Spectrograph](#)" **Poster** – R. Plesha et al. 2021 (AAS 238)
- [6] "[Extending the life of the Cosmic Origins Spectrograph \(COS\) with new lifetime positions](#)" **Poster** – D. Sahnou et al. 2021 (Proceedings of the SPIE, Volume 11821)
- [7] "[Updated Status and Performance of the Cosmic Origins Spectrograph](#)" **Poster** – N. Kerman et al. 2022 (AAS 240)
- [8] "[COS 2030: New Lifetime Positions for FUV Spectroscopy with the Cosmic Origins Spectrograph](#)" **Poster** – W. J. Fischer et al. 2022 (AAS 240)
- [9] "Science with the Cosmic Origins Spectrograph into the 2030's" **Poster** – M. Rafelski et al. 2023 (AAS 241)
- [10] "[Updated Status and Performance of The Cosmic Origins Spectrograph](#)" **Poster** – T. Fischer et al. 2023 (AAS 241)
- [11] "[The G160M Spectral Resolution of the COS FUV Channel at Lifetime Position 6](#)" **Instrument Science Report White Paper** – N. Kerman et al. 2023 (STScI Instrument Science Report COS 2023-02(v1))
- [12] "[The G160M Spatial Resolution of the COS FUV Channel at Lifetime Position 6](#)" **Instrument Science Report White Paper** – N. Kerman et al. 2023 (STScI Instrument Science Report COS 2023-04(v1))
- [13] "[Creation of the LAMPTAB reference file for use at Lifetime Position 6](#)" **Instrument Science Report White Paper** – N. Indriolo et al. 2023 (STScI Instrument Science Report COS 2023-09(v1))
- [14] "Derivation of the COS FUV Dispersion Solutions at Lifetime Position 6" **Instrument Science Report White Paper** – W. Fischer et al. 2023 (*expected*).