Jalyn N. Krause

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Experiences

Systems Engineer I, Space Telescope Science Institute Baltimore, MD | Sept. 2023-Present

Responsible for the certification, integration and testing of the James Webb Space Telescope, primarily contributing to the Operations Scripts Subsystem (OSS) for ground segment and flight operations support.

- ➢ Design tests to certify the JWST on-board Javascripts to ensure requirements are met for flight use.
- ➢ Automate the process of creating test cases for quarterly OSS certification using Python and C Shell.
- ➢ Maintain proper configuration of JWST simulator hardware and software at multiple NASA labs.
- ➢ Respond to routine and anomalous flight operation events by coordinating OSS command responses.
- ➢ Knowledge Project Manager responsible for the facilitating and archiving of cross-mission knowledge spanning 3+ space telescope missions (i.e, Hubble, James Webb, Roman) for a 25-person group.

Assistant Staff, MIT Lincoln Laboratory Lexington, MA | Oct. 2021-May 2023

Modeling & Analysis Team Member in the Advanced Laser Technology and Application Group.
My role was to develop, test and validate software to predict global optical and atmospheric conditions.

- ➢ Point of contact for independently developed GUI to exchange results with external collaborators.
- ➢ Expand existing ground-based modeling software to support space-based systems and geometries.
- ➢ Leverage LEEDR, HITRAN, and MODTRAN softwares to model and analyze atmospheric effects.
- ➢ Simulate 50M+ images and refine machine learning algorithms to predict object orientation (Python).
- ➢ Optimize computation time and high volume data storage with MIT LL supercomputer (Linux; Bash).

Research and Publications

Research Assistant, UW-Madison Dept. of Astronomy Madison, WI | May 2019-Aug. 2021
Streamline a Python pipeline to reduce high-redshift galaxy spectra obtained from the Hubble ST and centralize the code repository on GitHub for improved collaboration between a multi-national team.

Publication: Gallagher, John S.; et al., incl. Krause, Jalyn: *An Imaging and Spectroscopic Exploration of the Dusty Compact Obscured Nucleus Galaxy Zw 049.057.* 12 August 2024.

Research Assistant, UW-Madison Dept. of Astronomy Madison, WI | Jan. 2018-Aug. 2021
Design a Python algorithm using regression statistics to classify the metallicity profiles of 800+ star-forming galaxies from the SDSS survey to study the evolution of dense stellar activity.

Publication: Swiggum, Cameren; Tremonti, Christy; et al., incl. Krause, Jalyn: *Understanding the Nature of an Unusual Post-Starburst Quasar with Exceptionally Strong NeV Emission.*10 March 2022.

Education

The University of Wisconsin-Madison, Madison, WI — September 2016-May 2021

Bachelor of Science, Astrophysics
Bachelor of Science, Physics
Certificate, Environmental Studies

Awards: UW-Madison's Computer Science NEST Innovation Competition (2nd Place)

Johns Hopkins University, Baltimore, MD — Intended Start date: September 2025

Masters of Science, Space Systems Engineering