

JAMES LILLY

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Seattle, WA

PROJECTS/RESEARCH

University of Wyoming

Laramie, WY

Software Engineer

March 2021 – July 2022

- Examined 100 GB of Hubble Space Telescope images for PHANGS-HST project (\$1.2. million)
- Developed seeded watershed algorithm in Python to determine physical properties of stellar clusters
- Improved run-time efficiency of mass data-sorting algorithm by 50%
- Generated visualizations & topographical maps of 38 galaxies for use in several research publications
- Applied stellar evolution models to image data to determine best-fit stellar ages and metallicities
- Delivered weekly verbal and written reports on key research initiatives in scrums with stakeholders

University of Arizona/NASA Space Grant

Tucson, AZ

Data Scientist

Aug 2018 – May 2020

- Automated identification of substructures in images of galactic star-forming regions with Python
- Investigated multi-dimensional parameter space to refine hierarchical structure maps of molecular clouds in radio-wavelength images
- Compared physical properties of stellar cores measured by various watershed algorithm techniques

WORK EXPERIENCE

Seattle Public Schools

Seattle, WA

Substitute Teacher

September 2022 – Present

- Shepherded “Precalculus” and “Math in Society” classes at Nova High School as long-term substitute
- Tailor and present novel lesson plans to groups of 20+ students in grades K-12
- Collaborate with teachers district-wide to ensure seamless continuation of lessons on short notice

University of Wyoming

Laramie, WY

Graduate Teaching Assistant

Aug 2020 – May 2021

- Guided weekly discussions and labs for undergraduate mechanics and electromagnetism courses
- Partnered with lab coordinator to design experimental setups and record instructional lab videos
- Led introductory Python workshop for undergraduate summer research program

National Radio Astronomy Observatory

Charlottesville, VA

Data Analyst

May 2018 – Aug 2018

- Analyzed GB data cubes of radio-wavelength images from the Green Bank Telescope using Python
- Thrived in Agile software development team and delivered several multi-media presentations

EDUCATION

University of Wyoming

Laramie, WY

Master of Science in Physics (GPA: 4.00)

May 2022

University of Arizona, Honors College

Tucson, AZ

Bachelor of Science in Physics and Astrophysics with Honors (GPA: 3.78)

May 2020

TECHNICAL SKILLS

Programming Languages: Python, C, SQL, HTML, Visual Basic, IRAF

Software/Libraries: GitHub, Microsoft Office, Jupyter, Anaconda (Pandas, NumPy, SciPy, Matplotlib)

Operating Systems: Windows, Unix, Linux