Leah M. Fulmer

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Skills

Computational:
Data collection, cleaning, joining; data analysis and visualization; statistical and machine learning techniques; software development; Python, JavaScript, HTML, CSS, SQL, Tableau, Microsoft, Lisp, LaTeX, Unix/Bash.

Communication:
Specialized communication with diverse stakeholders, collaboration with users, internal and external reports; tutorial synthesis, education, academic journal publication, public speaking, poster presentation, networking.

Leadership:
Program management, including planning, execution, and delivery; budget management; research project lead.

World Languages:
English (native), Spanish (advanced: speaking, reading, writing).

Education

University of Washington September 2018 - June 2021
Master of Science in Astronomy Seattle, WA

University of Wisconsin-Madison September 2013 - May 2017
Bachelor of Science in Astronomy-Physics & Spanish Madison, WI

University of Chile & Pontifical Catholic University of Chile February 2016 - August 2016
Council on International Educational Exchange Study Abroad Santiago, Chile

Professional Development

Launch School August 2024 - Present
Mastery of Full Stack Web Development Madison, WI

- Mastering Python programming fundamentals and advanced concepts through Launch School's rigorous curriculum, including object-oriented programming, data structures, and algorithmic problem-solving.
- Developing proficiency in full-stack web development using Python, Flask, and JavaScript, with hands-on experience in database management, API design, and creating responsive web applications.

Codecademy January 2024 - June 2024
Certificate in Business Intelligence Data Analysis Madison, WI

- Cultivated advanced SQL querying techniques and statistical analysis methods to extract, transform, and interpret complex datasets, enabling data-driven decision making across various business scenarios.
- Demonstrated proficiency in creating impactful data visualizations and interactive dashboards using Tableau, empowering clear communication to technical and non-technical stakeholders (vizzes on Tableau Public).

Professional Experience

BadgerBots Robotics Corporation May 2022 - December 2023
Community Engagement Program Manager, Assistant Educator Madison, WI
Advisors: Johanna Taylor & Janelle Greene

- Led all communication, coordination, and growth initiatives related to the BadgerBots Community Engagement Program, making robotics education accessible to students of underrepresented backgrounds.
- Designed season schedule of weekly and monthly partner programming, bimonthly "pop-ups", and parallel learning initiatives with other after school educators, combining educational curricula and service networks.
- Managed program budget and presented fiscal activity internally and externally through seasonal reports.
- Designed original robotics curriculum; served as Assistant Educator during all educational instances.

National Optical Astronomy Observatory, now NSF's NOIRLab October 2017 - July 2018
Data Reduction Specialist Tucson, AZ
Advisors: Dr. Stephanie Juneau, Dr. Knut Olsen, & Dr. Mark Dickinson

- Processed and cleaned ("reduced") data from the ESO VLT Visible Imaging Multi-Object Spectrograph, producing a catalog of redshift measurements for our population of ∼400 galaxies to use in future studies.
- Synthesized public-facing scientific and technical tutorials to highlight the functionality of the Astro Data Lab's existing tools; tutorials written as Jupyter Notebooks directly querying the Astro Data Lab's archive.
- Performed initial development for a new spectral viewer and analysis tool hosted by the Astro Data Lab.

Research Experience

University of Washington September 2018 - June 2021
NSF Graduate Research Fellow Seattle, WA
Advisors: Prof. Daniela Huppenkothen and Prof. Mario Juric

- Explored automatic classification of time series data using machine learning techniques; placed particular focus on anomaly detection to efficiently access valuable data products from among billions of observations.

University of Wisconsin-Madison January 2014 - January 2020
Undergraduate Research Assistant Madison, WI
Advisor: Professor John (Jay) Gallagher, III

- Led a study of massive star evolution in the Small Magellanic Cloud, performing photometric, clustering, and spatial analyses of ∼1000 stars using Python (Fulmer et al. 2020, A&A, 633, A164; analysis on GitHub).
- Investigated the history of the galaxy NGC 5523, performing multi-wavelength photometry on its curiously asymmetrical features using the specialized analysis software IRAF (Fulmer et al. 2017, A&A, 598, 119).

Space Telescope Science Institute June 2017 - August 2017
Space Astronomy Summer Program Intern Baltimore, MD
Advisor: Dr. Mark Giuliano

- Developed a dynamic visualization tool for the analysis of *Hubble*, *James Webb*, and *Roman Space Telescope* scheduling constraints, implemented in Lisp, Javascript, CSS, and HTML (code, documentation on GitHub).
- Collaborated closely with users (telescope schedulers) and quickly adapted the tool to match their feedback.

Yale University June 2015 - July 2016
Dorrit Hoffleit Undergraduate Research Scholar New Haven, CT
Advisor: Professor Jeffrey (Jeff) Kenney

- Joined and tidied ultraviolet-through-infrared photometric data for 50 galaxies within the Virgo Cluster.
- Modeled the observational data with theoretical spectral energy distributions and derived physical properties from these models, communicating results as a poster at the 227^{th} American Astronomical Society Meeting.

Honors, Awards, & Societies

- NSF Graduate Research Fellowship : *National Science Foundation* 2020
- Doherty Award for Excellence in Astronomy : *UW-Madison Department of Astronomy* 2017
- Iron Cross Society : *Recognizing significant leadership and service at UW-Madison* 2016
- Phi Beta Kappa : *Alpha Chapter of Wisconsin* 2016

Talks, Workshops, & Community Service

- AAS Site Visit Team 2019 - 2023
  Selected Member : American Astronomical Society : Ithaca, NY
- AstroSites: How to Build & Publish a Professional Website 2019
  Selected Workshop & Published Webpage : 233^{rd} AAS Meeting : Seattle, WA : Link
- "A Dynamic Visualization Tool for the Analysis of SPIKE Scheduling Constraints" 2017
  Talk : Space Telescope Science Institute Summer Symposium : Baltimore, MD : Link