Dr. Michele L. Silverstein

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PROFESSIONAL SUMMARY

Astrophysicist with a strong foundation in quantitative analysis and software development. Over 13 years of experience analyzing complex scientific datasets, optimizing data pipelines, and coordinating interdisciplinary research projects. Skilled in scientific communication and stakeholder engagement. Proven ability to extract insights from large datasets and lead collaborative, data-driven projects from inception to publication.

TECHNICAL SKILLS

- ✧ **Core Competencies:** Data analysis, scientific research, project management, communication
- ✧ **Programming & Tools:** Python, IDL, Git, Bash, SQL, LaTeX, Microsoft 365, VSCode, Google Colab, prompt engineering for large language models (LLMs), MacOS, Linux, Windows
- ✧ **Data & Modeling:** Large dataset analysis, data visualization, raw data reduction and processing

SOFT SKILLS AND OTHER

- ✧ **Soft Skills:** stakeholder management, oral presentations, documentation, mentorship, critical thinking, problem solving, networking, cultural intelligence, team and cross-disciplinary collaboration, 38+ presentations, scientific outreach
- ✧ **Awards and Publications:** 2 best presentation awards, 18 peer-reviewed publications (2 first-author), 1 telescope operation manual, 4 grants and 9 observing proposals

EDUCATION

Ph.D., Astronomy	Georgia State University, Atlanta, GA	August 2019
M.S., Physics	Georgia State University, Atlanta, GA	May 2016
B.A., Physics	Cornell University, Ithaca, NY	May 2012

PROFESSIONAL EXPERIENCE

U.S. Naval Research Laboratory, Washington, D.C. 2023 - 2025

National Research Council Research Associate

- Developed, coordinated, and executed the optical branch of a 1.5-year astronomy research project by identifying and collaborating with experts, writing Python software to analyze online data for billions of stars, and interpreting results from a combined suite of datasets.
- Led sample creation and vetting for a radio data mining project using Excel, TOPCAT, SQL, and online databases, leading to the discovery of unprecedented emission from low-mass stars.
- Comprehensively characterized a star for a research publication by screening data quality, processing raw data, and extracting insights using cutting edge astronomy software tools.
- Developed and documented installable data visualization software using Python, available on GitHub: https://bit.ly/OrbitVis, during the “Code/Astro 2025” software engineering workshop.
- Selected best-candidate observing programs for NASA and the LCO Global Telescope Network by evaluating the scope, risks, and costs of dozens of research project proposals.
- Organized and hosted 19 speakers for the astronomy seminar series by inviting speakers, coordinating the schedule, spearheading IT, and navigating federal Navy paperwork.

University of Maryland, Baltimore County & NASA, Greenbelt, MD 2022 - 2023
Postdoctoral Research Associate

- Performed and published scientific research in the Astronomical Journal by leading and coordinating a research team of 27 global collaborators, spanning entry to senior career levels.
- Placed constraints on planetary properties fundamental to a research program by performing time-series modeling and searching for periodic signals in three years of data using Python.
- Guided a high school student through his first research experience by mentoring him in data mining and modeling, while supporting him in science communication competitions.

NASA Goddard Space Flight Center, Greenbelt, MD 2019 - 2022
NASA Postdoctoral Program Fellow

- Performed and published scientific research in the Astronomical Journal by leading and coordinating global research teams of up to 51 collaborators at a variety of career stages.
- Derived key parameters for the Goddard flares program by deploying my automated IDL and Python software for stars and calibrating telescope data, leading to a research publication.
- Reduced barriers to productivity and performance throughout the workforce by partnering with leadership to optimize hiring practices and fund housing for summer 2023 interns.
- Collected stakeholder data by developing surveys for the NASA community and leading group discussions.
- Identified outstanding business process problems by collecting and analyzing workforce data and recommended solutions to NASA Goddard senior staff.

Georgia State University & RECONS Institute, Atlanta, GA 2012 - 2019
Graduate Researcher

- Derived and analyzed fundamental properties of ~1600 low-mass stars in a uniform, consistent method by mining local and online databases, acquiring and processing new data, and developing automated software in IDL and Python. Achieved doctoral degree.
- Performed data mining and data visualization using IDL, Excel, and online tools to place constraints on the environments around nearby Sun-like stars. Achieved master's degree.
- Developed an unprecedented stellar dataset by performing six months of on-site and remote data acquisition using three telescopes.
- Advanced seven research publications by analyzing data using astronomy image processing software, IDL, and Perl and deriving key properties of thousands of stars.

Georgia State University, Atlanta, GA 2015 - 2018
SMARTS Graduate Fellow (Telescope Manager)

- Re-optimized data pipelines using Bash and advanced astro tools, performed engineering tests, and modernized and updated the documentation for commissioning of a new camera system.
- Managed data by screening, validating, and storing telescope observations monthly as they were acquired. Logged data quality in a database that included notes on problematic data.
- Expanded utility of Bash software and astronomy image analysis tools to additional facilities by optimizing data processing pipelines for multiple configurations and settings.
- Coordinated and scheduled scientists traveling from around the world to use the telescope while accounting for their scientific, cost, and timeline requirements and serving as point of contact.
- Completed a three-year, multi-facility, 400-star observing program faster than the projected timeline by leading scheduling, acquiring data on-site, tracking the development of deliverables, and accounting for quality requirements and schedule change risks.