Ella Marin

+1 203-312-4168 · emarin4@uw.edu

Education

University of Washington, Seattle, WA — **June 2030, Expected**
ARCS Scholar, Astronomy Ph.D.

Dartmouth College, Hanover, NH — **June 2025**
Bachelor of Arts, Major in Physics with High Honors, Minors in Spanish and Astronomy — **GPA 3.76/4.0**
Honors Thesis: Probing Dark Matter Via Stellar Stream Structure and Satellite Galaxies

Research Training

Lab of Dr. Burçin Mutlu-Pakdil, Dartmouth, Hanover, NH — **January 2023 - present**
Researcher & Observer, Funded by a competitive Undergraduate Research Assistantship Award at Dartmouth
Projects/Tasks Listed with most recent first

- Reducing radio spectra to determine velocities of satellite dwarfs and confirm relation to their hosts. Part of an effort to establish a statistical sample of dwarfs in a range of environments. *Fall 2024 - Spring 2025*
- Assisted graduate student by using match filter algorithm to produce maps for three dwarf galaxies. I discovered evidence of extended structures, resulting in co-authorship (Casey et al., in prep), *October-December 2023*
- Identified three dwarf galaxies as candidates for further study (Reticulum II, Cetus II, & Tucana II). Queried their Dark Energy Survey data on these galaxies to create spatial plots and reproduce color-magnitude diagrams consistent with Mutlu-Pakdil et al., 2018. *June - September 2023*
- As a part of Dark Energy Survey, used Lensrater, a python tool to classify objects, to confirm identified low surface brightness galaxies (LSBGs) and remove any artifacts from the catalog. Completed 13 samples of 1000 objects each. *March 2023*
- Conducted visual inspection using Legacy Survey Sky Browser to discover and confirm LSBGs. Galaxies I discovered are now currently undergoing further study by Dr. Mutlu-Pakdil's group. Identified over 100 objects from 8 regions in total. *January-March 2023*

Northern Arizona University/Lowell Observatory, Dr. Philip Massey, Flagstaff, AZ — **June 2024 - August 2024**
NSF sponsored Research Experience for Undergraduates

- Confirmed the discovery of three galactic Wolf-Rayet stars (THA 14-54, THA 34-2, LSI III +44 21) - resulting in a publication: Marin et al., "The Discovery of Three Galactic Wolf-Rayet Stars" Astronomical Journal, 2024
- Developed and secured approval for a Gemini poor-weather proposal to observe the galactic binary LSI III +44 21
- Calculated the mass ratio of the two bodies in a Wolf-Rayet binary located in the Large Magellanic cloud (LMC 173-1)
- Developed and secured approval for a Gemini fast-turnaround proposal to obtain additional spectra for LMC 173-1

Stream Team Research Group, Dr. Ana Bonaca, Carnegie Observatories, Pasadena, CA — **January 2024 - March 2024**
Stipend Supported Research Intern

- Extracted and mapped the Ylgr stellar stream using Gaia DR3 data and python tools
- Derived the orbit of Ylgr and produced models to further understand its structure
- First author on a paper in preparation (Marin et al., in prep)

Lab of Dr. David Lutz, Dartmouth, Hanover, NH — **January 2022 - June 2022**
Research Assistant, Funded by an award from the Dartmouth Women in Science Program (WISP) (2 terms)

- Coded and designed sensor stations using Arduino software to monitor environmental conditions in landscapes nearby Dartmouth. Constructed, installed, and monitored these stations.
- Used R for statistical analysis on parameters from the previous years' environmental data

Presentations

"The Discovery of Three Galactic Wolf-Rayet Stars" — **January 14, 2025**

- AAS winter 2025 conference, Tuesday, Jan 14, 10:50 - 11:00 am

"The Discovery of Three Galactic Wolf-Rayet Stars" — **August 6, 2024**

- At final Northern Arizona REU presentation meeting to faculty and students

"**An analysis of unique structural features of stellar stream Ylgr"** — **April 29, 2024**

- At Dartmouth Astronomy Journal Club to faculty and graduate students

Ella Marin
+1 203-312-4168 · emarin4@uw.edu

"**An analysis of unique structural features of stellar stream Ylgr"** **March 13, 2024**
- At *Carnegie Tea,* an internal end-of-term meeting to faculty and students

Honors and Awards

Physics and Astronomy Chair's Prize **Spring 2025**

Citation for Excellence in Observational Techniques Course (ASTR 61) **Fall 2023**

Completion of Learning Fellows Program Pedagogy Series **May 17, 2024**

Observing Experience

Astronomy 61 Observational Techniques Course, Dartmouth, Hanover, NH **September 2023 - November 2023**
- Calculated the gain, read noise, and dark current of a given CCD to obtain reliable measurements
- Remotely operated MDM Observatory 1.3m McGraw - Hill telescope to take photometric exposures of NGC 7331
- Used pyraf and ds9 to reduce and align exposures taken in three filters to produce a precise color image
- Performed aperture photometry on globular cluster Pyxis and IC 4499 in 2 filters
- Used spectroscopic data from 1.3 m McGraw Hill telescope to determine redshift and estimate the distance of NGC 7217

MDM Observing Trip, Kitt Peak, AZ **December 6-8, 2023**
- Observed in person on the 1.3m McGraw Hill Telescope at the MDM Observatory for 2 nights
- Designed a target list of galaxies, nebula, globular clusters, and planets, took photometric exposures, and reduced data

Training on Blanco 4m Telescope, Cerro Tololo International Observatory, La Serena, Chile **June 2-4, 2023**
- DECam Local Volume Exploration Survey (DELVE) group is an international collaboration seeking to image the entire high-Galactic latitude southern sky using Blanco 4m - trained on-site as a DELVE lead observer over 2 nights
- Operated the telescope and measured the seeing, air mass, and other observing parameters to monitor weather and telescope cameras for best observations
- Experience was published on Dartmouth Faculty website here: link
- Continued to observe as lead observer for additional 6 additional nights with more planned

Teaching & Outreach

Learning Fellow for Dartmouth Introductory Electricity and Magnetism Course **March 2024 - June 2024**
- Attended every lecture and assisted students with in-class problem solving
- Led weekly recitation sessions to work through problems and held office hours during exam weeks
- Participated in a supplementary pedagogy course to strengthen my teaching skills

Women in Science Program Peer Mentor **Fall 2023 & Fall 2024**
- Guided and advised two first year students through science course selection and the research-matching process

Stellar Steam Classes, Carnegie Observatories, Pasadena, CA **Winter 2024**
- Developed programming notebooks for stellar stream lessons for local high school groups
- Managed the execution of these lessons for two groups

Skills

Proficient in Python, ds9 and pyraf/iraf
Experience in AstroimageJ
Fluent in Spanish