MARINA M. DUNN

205 Woodcrest Ct., Franklin, TN 37067   615-525-8174   astromarinadunn@gmail.com

github.com/marinadunn   linkedin.com/in/marina-dunn

PROFILE

Developer-driven, highly motivated graduate student with a strong background in science outreach, telescope operations, hardware & software troubleshooting, and software engineering. Currently researching data science and machine learning applications for astrophysics datasets. Passionate about enabling a better environment for marginalized groups in STEM.

EDUCATION

UNIVERSITY OF CALIFORNIA, RIVERSIDE – M.S. ENGINEERING: DATA SCIENCE – RIVERSIDE, CA – JUNE 2021– PRESENT

UNIVERSITY OF CALIFORNIA, BERKELEY – ADDITIONAL COURSES IN DATA SCIENCE – BERKELEY, CA – JUNE - AUGUST 2020

UNIVERSITY OF ARIZONA – BACHELOR OF SCIENCE IN ASTRONOMY – TUCSON, AZ – RECEIVED MAY 2018

SKILLS

- Programming Skills: Python, C, Unix, Linux, SQL, Apache Spark, Microsoft Office, Github, TensorFlow, scikit-learn. Astronomy software: IRAF, DS9
- Technical Skills: Object-oriented programming, machine learning techniques, software/hardware troubleshooting, customer service, mentoring and managing large teams, preparing technical reports, writing research proposals, public speaking and technical presentations
- Certifications: HAM Radio, ITAR Export Control Training, Apple Certified iOS Technician (ACiT), Systems Tool Kit (STK)
- Relevant coursework: classical and quantum physics, theoretical and observational astrophysics, computational programming with astrophysics applications (experience with galactic data modeling and analysis), orbital dynamics, mathematics

WORK EXPERIENCE

DATA SCIENCE ENGINEER – APPLE INC.   JAN 2021 - JUNE 2021

- As part of Apple's Strategic Data Systems (SDS) team, developed and maintained data pipeline using Python and Teradata for mitigating internal fraud, waste and abuse within AppleCare Support.

DATA ENGINEER – APPLE INC.   JAN 2020 - JULY 2020

- As part of Data Analytics server engineering team, wrote and deployed code using Apache Spark, Python, and SQL, that processes and analyzes diagnostics and usage data from customer iOS devices to provide a daily report of characteristics like software adoption, to inform other Apple teams how to improve the OS.

TECHNICAL EXPERT (PREVIOUSLY TECHNICAL SPECIALIST)– APPLE INC.   OCT 2018 - PRESENT

- Resolve customer technical issues at the Apple Store Genius Bar, including software and hardware troubleshooting and repairs.
- Provide exceptional customer support, demonstrate ability to be flexible and knowledgeable as Apple products and services evolve.
- Support additional departments when needed, such as visual merchandising, creative sessions (coding and visual art), and inventory operations.

CHIEF TELESCOPE OPERATOR – UNIVERSITY OF ARIZONA   AUGUST 2014 - MAY 2018

- Oversaw weekly operations of on-campus telescopes, led nightly public science lectures, and managed team of telescope operators.
- Organized private and educational STEM outreach events in local Tucson community

INSTRUCTIONAL SPECIALIST – UNIVERSITY OF ARIZONA   JUNE 2015, JUNE 2018, JUNE 2019

- Developed educational content and oversaw operations annually for students at Astronomy Camp, led by Dr. Don McCarthy.
- Mentored students in basic principles of astronomy, physics, engineering, environmental science, and computing using inquiry-based learning techniques.
- Facilitated all-night astronomy observing sessions and educated students about large-aperture telescopes, electronic instrumentation, and image-processing analysis software.
- Administered medical care, worked extended/irregular hours, and managed large groups of students full-time for periods as long as eight days/nights at both Kitt Peak National Observatory and Mt. Lemmon Sky Observatory.

RESEARCH EXPERIENCE

RESEARCH ASSISTANT – UNIVERSITY OF ARIZONA   JUNE 2016 - SEPTEMBER 2017

- Built and tested radio telescope antenna prototypes, presented preliminary results for the Office of Naval Research (ONR), resulting in full project funding. Presented research at the 2017 American Astronomical Society conference in Grapevine, TX.

- Participated in proposal process for large-scale space missions, including the NASA mission GUSTO. Managed budgets, consulted with astronomy, optical, mechanical, and electrical engineering teams, organized preparations for the NASA site visit in January 2017.
- Analyzed sub-millimeter data of $^{12}CO(3-2)$ and $^{13}CO(3-2)$ molecular transitions to better understand the dynamic processes of the Interstellar Medium inside giant molecular clouds.

RESEARCHER – UNIVERSITY OF ARIZONA, ASTRONOMY CLUB   JANUARY 2015 - MAY 2018

- Observed pre-stellar cores on the Arizona Radio Observatory Telescope at Kitt Peak, AZ throughout the school-year. Assessed dense, massive starless clumps that would be good candidates for inflow motion to create stars. Collaborated to publish work in the Astrophysical Journal in 2018. (Supervisor: Dr. Yancy Shirley, Steward Observatory)

RESEARCHER – UNIVERSITY OF ARIZONA   AUGUST 2014 - DECEMBER 2016

- Observed transiting exoplanets while operating the Kuiper 61" Telescope at Mt. Bigelow, AZ, collected and analyzed data, and characterize planetary atmospheres. Presented research at the 2016 American Astronomical Society conference in Kissimmee, FL on exoplanet data reduction methods. (Supervisor: Dr. Robert Zellem, JPL)

VOLUNTEER & OUTREACH EXPERIENCE

ASTRONOMER – VANDERBILT UNIVERSITY DYER OBSERVATORY   JUNE 2009 - PRESENT

- Volunteered as an astronomer and space camp counselor at Vanderbilt Dyer Observatory, operating various telescopes, leading monthly telescope evening lectures/tours, teaching school groups about astronomy/physics concepts, and performing science experiments.

UNIVERSITY OF ARIZONA, ASTRONOMY CLUB   AUGUST 2014 - MAY 2018

- Mission: to inspire and assist anybody with a passion or interest in astronomy and science. Provide undergraduate students opportunities to work on astronomy research projects with professional astronomers who care deeply about astronomy education.

OUTREACH COORDINATOR   JAN 2016 - JAN 2017
PRESIDENT   JAN 2017 - JAN 2018

- Organized meetings and fundraisers, and partnered with schools to provide more than 300 star parties, using telescopes and creating activities aimed at teaching kids about planetary science, astrophysics, and math for the local Tucson community, including elementary and middle school STEM nights, at no-cost in order to increase STEM awareness.
- Established the Astronomy Tutoring of Majors and Minors (ATOMM) program, a free tutoring service for astronomy/physics/math classes.

TIMESTEP STUDENT LEADER – UNIVERSITY OF ARIZONA   AUGUST 2015 - MAY 2018

- Led discussion groups for Tucson Initiative for Minority Engagement in Science and TEchnology Program (TIMESTEP) focused on topics such as how to be successful in academia, and how to retain underrepresented minorities in STEM fields
- Coordinated hands-on workshops for battling stereotypes in academia, and developing skills to achieve career goals.

AWARDS & GRANTS

- Astronomy Department Graduate School Application Scholarship (2018) - University of Arizona Steward Observatory
- Honors College Alumni Legacy Grant (2016) - University of Arizona Honors College
- Langadas Astronomy Department Scholarship (2017) - University of Arizona Steward Observatory
- Arizona Excellence Scholarship (2014) - University of Arizona

PROFESSIONAL MEMBERSHIPS & SERVICE

AMERICAN ASTRONOMICAL SOCIETY, WOMEN IN PHYSICS, WOMEN IN COMPUTER SCIENCE, WOMEN IN OPTICS, TUCSON INITIATIVE FOR MINORITY ENGAGEMENT IN SCIENCE AND TECHNOLOGY PROGRAM (TIMESTEP), AMERICAN PHYSICAL SOCIETY, SOCIETY OF WOMEN ENGINEERS, SOCIETY OF PHYSICS STUDENTS

CONFERENCE PRESENTATIONS (POSTER UNLESS NOTED)

Undergraduate

Ryleigh Fitzpatrick, M., et al. "A Study of the Effects of Underlying Assumptions in the Reduction of Multi-Object Photometry of Transiting Exoplanets." *American Astronomical Society Meeting Abstracts #227*, vol. 227, Jan. 2016, p. 138.07.

Dunn, Marina Madeline, et al. "TeraHertz Space Telescope (TST)." *American Astronomical Society Meeting Abstracts #229*, vol. 229, Jan. 2017, p. 238.30.

PUBLICATIONS

Undergraduate

Calahan, Jenny, et al. "Searching for Inflow Towards Massive Starless Clump Candidates Identified in the Bolocam Galactic Plane Survey." *The Astrophysical Journal*, vol. 862, no. 1, July 2018, p. 63. *arXiv.org*, doi:10.3847/1538-4357/aabfea.

REFERENCES

DR. GURTINA BESLA

Associate Professor, University of Arizona Steward Observatory

933 North Cherry Avenue, Tucson, AZ 85721-0065

gbesla@as.arizona.edu

(520) 621-6082

DR. DON MCCARTHY

Astronomer, University of Arizona Steward Observatory

933 North Cherry Avenue, Tucson, AZ 85721-0065

dmccarthy@as.arizona.edu

(520) 621-6082

DR. TOM FLEMING

Astronomer and Senior Lecturer, University of Arizona Steward Observatory

933 North Cherry Avenue, Tucson, AZ 85721-0065

taf@email.arizona.edu

(520) 621-6082

DR. YANCY SHIRLEY

Associate Professor, University of Arizona Steward Observatory

933 North Cherry Avenue, Tucson, AZ 85721-0065

yshirley@as.arizona.edu

(520) 621-6082

CARLO MAZZONI

Data Engineer (Field Engagement & Analytics), Apple Inc.

20300 Stevens Creek Blvd., Cupertino, California, 95014

mazzoni@apple.com

+1 (408) 862-0444

MIKE SHARP

Data Science Engineer Manager (SDS), Apple Inc.

Austin, TX 78727

sharp@apple.com

+1 (512) 318-6644