Patricia Puente

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EDUCATION

University of Arizona | Tucson, Arizona
PhD Applied Mathematics | Minor in Hydrology — Expected December 2024
M.S. Applied Mathematics — December 2020

Texas Woman's University | Denton, Texas
B.S. Mathematics | **Minor in Computer Science** — May 2019

RESEARCH EXPERIENCE

Graduate Research Assistant — 2021 – Present
University of Arizona | Department of Hydrology and Atmospheric Sciences
Advisor: Dr. Laura Condon

- Performed nonlinear analysis on streamflow time series to identify patterns of predictability in RStudio
- Identified connections between streamflow and dynamical predictability across the Colorado River Basin
- Developed workflow to retrieve and access remote sensing data from Planet Labs

This work is funded by the National Science Foundation Graduate Research Fellowship Program.

Data Science Intern — May 2022 - August 2022
Transcend Engineering | Bethel, Vermont

- Collaborated with a team of software engineers and data scientist to implement and improve optimization speed for machine learning model in Python
- Implemented workflow for pre-training data processing

This work was funded by the Department of Energy Small Business Innovation Research (DOE-SBIR) Program.

Undergraduate Researcher — May 2018 – July 2018
James Madison University | Department of Mathematics & Statistics
Advisor: Dr. Hala Nelson & Dr. John Webb

- Developed mathematical model for two-dimensional meat cooking process in Matlab
- Collaborated with group members to communicate and present our work in publication and conferences

Undergraduate Researcher — June 2017 – July 2017
Arizona State University | Mathematical and Theoretical Biology Institute
Advisor: Dr. Karen Rios-Soto

- Conducted in depth study of atopic asthma and cockroach life cycle to create an Susceptible Exposed Infectious Removed (SEIR)-like mathematical model focusing on infections
- Evaluated model by performing sensitivity analysis

TEACHING EXPERIENCE

Graduate Teaching Assistant | University of Arizona — Fall 2020 – Spring 2021
Course: College Algebra

- Developed teaching material and led small group (~6 students) meetings weekly
- Created exam questions and graded assignments for 120 students

Tutor | Texas Woman's University — Fall 2017 – Spring 2019
Courses: Algebra, Trigonometry, Calculus I & II, Database Management (SQL)

- Clarified problems to students and guided them through problem solving strategies
- Promoted awareness of undergraduate research experiences (REUs) to students in STEM
- Initiated and organized review sessions for small groups before major exams

FELLOWSHIP

National Science Foundation Graduate Research Fellowship Recipient — 2021 – 2024

HONORS & AWARDS

Best Oral Presentation Award, Pima County Flood Control 2022
Travel Award, Joint Mathematics Meetings 2019
Travel Award, Latinx in the Mathematical Sciences Conference 2018
Travel Award, Annual Math Alliance Meeting 2018
Travel Award, Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) 2017

PUBLICATIONS

Published in peer-reviewed journals

1. Nelson, H., S. Deyo, S. Granzier-Nakajima, **Puente P**., Tully K., and Webb J. "A mathematical model for meat cooking", European Physical Journal 135, **2020.**
2. Kaur, A., Funderburk, K., Campaña, A., **Puente, P**., and Ríos-Soto, K. "A Household Model of German Cockroach Infestations and Their Effects on Symptoms of Atopic Asthma", Letters in Biomathematics 6, **2019.**

Manuscripts in Preparation

3. **Puente, P.**, Rajagopalan, B., Condon, LE. "Understanding Temporal Variability and Predictability of Streamflow Signatures in the Colorado River Basin"

SERVICE

Treasurer, SACNAS Chapter | University of Arizona Fall 2023 – Present

- Manage and allocate the organization finances
- Plan and organize professional development workshops

Peer Mentor, Mathematics and Statistics Mentoring Program | University of Arizona Fall 2021 – Fall 2022

- Supported first year mentees, providing a safe and open environment to talk about academic experience
- Promoted good habits to create a work/life balance

Mentor Coordinator, Women in STEM Mentorship Program | University of Arizona Fall 2019 – Spring 2021

- Fostered mentor – mentees relationships by providing weekly meeting supplies and resources
- Scheduled weekly check-ins via email with mentors

PRESENTATIONS

Oral Presentations

1. **Puente, P.** "Connections Between Low Frequency Streamflow Extremes and Nonlinear Dynamics in the Upper Colorado River Basin", *El Día del Agua y la Atmosphera* 2022

Poster Presentations

1. **Puente, P.**, Rajagopalan, B., Woodson, D., Condon, L.E., "Exploring the Role of Nonlinear Dynamics on Low Frequency Extreme Streamflow Events", *American Geophysical Union (AGU) Fall Meeting* 2021
2. **Puente, P.**, Condon, L.E., Rajagopalan, B., "Identifying Patterns in Long Term Streamflow Variability and Predictability in the Upper Colorado River Basin using a Nonlinear Dynamics Approach", *American Geophysical Union (AGU) Fall Meeting* 2020
3. **Puente, P.**, Kaur, A., Funderburk, K., Campaña, A., Ríos-Soto, K., "A household model of German cockroach infestations and their effects on symptoms of atopic asthma", *Society for Advancement of Chicanos/Hispanics and Native Americans in Science* (*SACNAS)* 2017

Invited Talks

1. Panelist, "How to engage in research?", *Student Creative Arts and Research Symposium*, 2019
2. Panelist, "How to improve student/faculty relationships and involvement in research?", *Consejos Colectivos: Improving STEM success at Hispanic Serving Institutions* 2018

SKILLS & INTERESTS

Research & Analysis Skills: Numerical and Statistical Analysis, Data Visualization
Technical Skills: Python, R, SQL, Matlab, Latex, Notion, Excel
Professional Skills: Fluent in Spanish and English, Customer Service, Collaboration, Attention to Detail, Adaptability, Organization
Interests: Advocate for Underrepresented Minorities in STEM, Specialty Coffee, Soccer