Patricia Puente

ppuente@arizona.edu | LinkedIn | Github | website

EDUCATION

University of Arizona | Tucson, Arizona
PHD in Applied Mathematics | **Minor in Hydrology**| August 2024
Master of Science in Applied Mathematics | December 2020
- **Honors:** National Science Foundation Graduate Fellowship Recipient 2021 – 2024
- **Relevant Coursework:** Statistical Machine Learning, Numerical Analysis, Analysis of Hydrologic Systems, Fundamental Hydrologic Systems Approach

Texas Woman's University | Denton, Texas
Bachelor of Science in Mathematics | **Minor in Computer Science**| May 2019
- **Honors:** Magna Cum Laude, Math Alliance Scholar, Kappa Mu Epsilon Mathematics Honor Society
- **Relevant Coursework:** Big Data & High-Performance Computing, Applied Computational Thinking, Database Management, Intro to Computer Programming – Python

EXPERIENCE

NSF Graduate Research Fellow | University of Arizona
Tucson, Arizona | August 2021 – Present
- Applied nonlinear analysis and embedding on streamflow paleo-reconstructed time series to identify long term variability and patterns of predictability in the Upper Colorado River Basin (UCRB)
- Compared four paleo-reconstructed streamflow time series at the UCRB by consistent nonlinear methods
- Used paleo-reconstructed streamflow datasets to perform analysis on RStudio
- Presented on-going work at two conferences

Data Science Intern | Transcend Engineering | Bethel, Vermont
May 2022 - August 2022
- Improved hyperparameters in machine learning model by optimization methods
- Collaborated with a team of software engineers, and data scientist to implement and increase optimization speed
- Implemented workflow for pre-training data processing

Undergraduate Researcher | James Madison University
Harrisonburg, Virginia | May 2018 – July 2018
[Study of a Mathematical Model for Meat Cooking]
- Developed Matlab-programmed mathematical model for two-dimensional meat cooking process
- Performed nondimensionalization to ensure the system is conserved
- Communicated professionally with group members to complete tasks under extreme time constraints
- Presented work at conference and co-authored publication

Undergraduate Researcher | Arizona State University
Phoenix, Arizona | June 2017 – July 2017
[Study of a Household Model of German Cockroach Infestations and their Effects on Symptoms of Atopic Asthma]
- Conducted in depth study of atopic asthma and German cockroach life cycle to create a mathematical model with focus on infestations
- Performed sensitivity analysis of each parameter in the model
- Communicated professionally with group members to complete tasks under extreme time constraints
- Presented work at conference and co-authored publication

TEACHING & MENTORING EXPERIENCE

Peer Mentor | Mathematics and Statistics Mentoring Program | University of Arizona
Tucson, Arizona | September 2021 – December 2022
- Supported first year mentee by providing a safe and open environment to talk about academic and personal issues
- Promoted good habits to create a graduate student work/life balance

Teaching Assistant | College Algebra | University of Arizona
Tucson, Arizona | August 2020 – May 2021
- Developed teaching material and led small group meetings weekly
- Created exam questions and graded assignments
- Held weekly office hours (3 hours/week) and provided technical guidance

Mentor Coordinator | Women in STEM Mentorship Program | University of Arizona
Tucson, Arizona | August 2019 – May 2021
- Fostered mentor – mentees relationship by providing weekly meeting supplies and resources
- Conducted weekly check-ins via email for mentors

Mathematics and Computer Science Tutor | Texas Woman's University
Denton, Texas | August 2017 – May 2019
- Provided problem solving strategies for Algebra, Trigonometry, Calculus I and II, and Database Management (SQL)
- Increased awareness of undergraduate research experiences (REUs) to students in STEM fields
- Organized and led review sessions for small groups before major exams

PUBLICATIONS & PRESENTATIONS
- Talk, Connections Between Low Frequency Streamflow Extremes and Nonlinear Dynamics in the Upper Colorado River Basin, El Día del Agua y la Atmosphera 2022
- Poster Presentation, Exploring the Role of Nonlinear Dynamics on Low Frequency Extreme Streamflow Events, American Geophysical Union (AGU) Fall Meeting 2021
- Poster Presentation, Identifying Patterns in Long Term Streamflow Variability and Predictability in the Upper Colorado River Basin using a Nonlinear Dynamic Approach, American Geophysical Union (AGU) Fall Meeting 2020
- Panelist, Student Creative Arts and Research Symposium, "How to engage in research?", Texas Woman's University 2019
- Nelson, H., S. Deyo, S. Granzier-Nakajima, **P. Puente**, K. Tully, and J. Webb. "A Mathematical Model for Meat Cooking." European Physical Journal plus 135.3 (2020): European Physical Journal Plus, 2020-03-23, Vol.135 (3). Web.
- Poster Presentation, A Mathematical Model for Meat Cooking, Joint Mathematics Meetings 2019
- Kaur, A., Funderburk, K., Campaña, A., **Puente, P.**, & Ríos-Soto, K. (2019). A household model of German cockroach infestations and their effects on symptoms of atopic asthma. Letters in Biomathematics, 1-26.
- Panelist, Consejos Colectivos: Improving STEM success at Hispanic Serving Institutions. "How to improve student/faculty relationships and involvement in research?" 2018
- Poster Presentation, 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

CONFERENCES
- American Geophysical Union (AGU) Fall Meeting | New Orleans, Louisiana | December 2021
- Math Alliance Annual Meeting | Virtual | November 2021
- American Geophysical Union (AGU) Fall Meeting | Virtual | December 2020
- Joint Mathematics Meetings | Baltimore, Maryland | January 2019
- Latinx in the Mathematical Sciences Conference | Los Angeles, California | March 2018
- Consejos Colectivos: Improving STEM success at Hispanic Serving Institutions | Dallas, Texas | February 2018
- Regional Math Alliance Meeting | New Orleans, Louisiana | February 2018
- Math Alliance Annual Meeting | St. Louis, Missouri | November 2017
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) |Salt Lake City, Utah | October 2017

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