Richard Panduro-Allanson

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EDUCATION

University of Nevada, Las Vegas
Master of Science in Geoscience
- Graduated: December 16, 2023
- Current GPA: 4.00

University of Nevada, Las Vegas
Bachelor of Science in Geology
- Graduated: May 16, 2020
- Current GPA: 3.61

Relevant Coursework: Applied Finite Element Analysis, Microstructures and Deformation Mechanisms, Mineral Physics, Mineralogy, Structural Geology, High-Performance Computing, Imaging and Image Proc for Engineers, Introduction to R

RELATED WORK EXPERIENCE

Post Master's Student – Computational Solid Mechanics **Jul. 1, 2024 – Current**
Los Alamos National Laboratory, T3 Division Solid Mechanics and Fluid Dynamics
- Develop codes to model wave propagation in Python

Research Assistant – Rock Deformation Simulations **Jan. 2, 2024 – Jun. 30, 2024**
University of Nevada, Las Vegas, Dr. Pamela Burnley's NeRD Lab
- Create and run finite element models of rock using MSC. Marc Mentat
- Analyze rock simulations using Python
- Maintain laboratory website
- Coordinator for GeoPaths Legends, an NSF-funded program to build pathways for young people to engage with geoscience
- Organize 6 different research projects, provide background information, and schedule visits

Graduate Research Assistant – Rock Deformation Simulations **May 24, 2021 – Dec. 16, 2023**
University of Nevada, Las Vegas, Dr. Pamela Burnley's NeRD Lab
- Used Finite Element Polycrystals (FEPX) to model the deformation of polycrystals
- Used Neper to build finite element models of mineral aggregates
- Created polycrystal models and conducted deformation simulations using Marc Mentat
- Applied graph theory clustering techniques to deformation modeling results
- Computed discrete Fourier transform of images using Mathematica and Python
- Computed the autocorrelation of models using Python
- Assisted with a 3-day teacher's workshop for GeoPaths Legends

Graduate Teaching Assistant – Geophysics **Aug. 29, 2022 – Dec. 16, 2022**
University of Nevada, Las Vegas
- Assisted 23 students with questions about gravity, magnetism, and seismic refraction
- Provided students with technical support for Excel and external applications

Graduate Teaching Assistant – Introductory Geology **Jan. 11, 2021 – May 21, 2021**

University of Nevada, Las Vegas

- Provided 2-hour long office hours every week, where I assisted students with course material
- Graded and provided feedback for 24 laboratory assignments every week
- Provided a lecture on igneous and metamorphic rocks and structural geology

Laboratory Researcher **Jun. 21, 2020 – Jan. 18, 2021**

University of Nevada, Las Vegas, Dr.Pamela Burnley's NeRD Lab

- Used Python code to convert images into data files for strain experiments
- Used Excel to curve fit image data
- Updated NeRD Lab website with WordPress

Undergraduate Laboratory Research Assistant **Nov. 11, 2018 – Jan. 1, 2021**

University of Nevada, Las Vegas, Dr. Elisabeth Hausrath Research Group

- Operated portable x-ray powder diffraction machine (Terra), inductively coupled plasma mass spectrometer (ICPMS), and atomic absorption spectrophotometer (AAS)
- Operated autoclave and other equipment in a fast-paced environment
- Synthesized clay material and whitlockite (chondrite meteorite relevant mineral)
- Grew snow algae, and bacteria strands, as well as calculated optical density to measure growth
- Conducted fieldwork at Walker Lake, Nevada; Klamath Mountains, California; Pitch Handle gulch, Nevada
- Dug meter-deep soil pits and assisted in drilling rock cores using a shaw backpack drill
- Balanced multiple tasks from multiple projects daily
- Maintained laboratory equipment to ensure accurate data and avoid cross-contamination
- Maintained laboratory stock

PUBLICATIONS

- Adcock, C. T., Hausrath, E. M., Rampe, E. B., Panduro-Allanson, R. D., & Steinberg, S. M. (2020). Resources from Water-Rock Interactions for Future Human Exploration of Mars. (Extended Abstract)

CONFERENCE PRESENTATIONS

- Panduro-Allanson, R.D., and Burnley P.C. *Measuring the Periodicity of Stress in Polycrystal Models*.
  - Poster presented at AGU Fall Meeting 2023 (December 2023).
  - Poster presented at Annual University of Nevada, Las Vegas Geosymposium (April 2023)
  - Poster presented at SSAP Conference (February 2023)
- Panduro-Allanson, R.D., and Burnley, P.C. (December, 2022). *Examining the Stress Distribution of Polycrystalline Models using the Two-Point Correlation Function*. Poster presented at AGU Fall Meeting 2022.
- Panduro-Allanson, R.D., and Burnley, P.C. (April, 2022). *Examining the Stress Distribution of a Polycrystal Model with Clustering Techniques*.
  - Poster presented at annual University of Nevada, Las Vegas Geosymposium , Las Vegas, Nevada (April, 2022).
  - Poster presented at GSA Joint Cordilleran & Rocky Mountain Section Meeting 2022 (March, 2022).
  - Virtual poster presented at the 2022 SSAP conference (February, 2022).
- Panduro-Allanson, R.D., and Burnley, P.C. (2021, April). *Comparing simulated stress of a quartz polycrystal from an elastic-plastic self-consistent (EPSC) model and a full-field model*. Virtual poster presented at the annual University of Nevada, Las Vegas Geosymposium, Las Vegas, Nevada.
- Panduro-Allanson, R.D., Hausrath, E.M., Adcock, C.T., Rampe, E.B., and Steinberg, S. (2020, April).

Water-rock Interactions on Mars: Production of H2 and Other Valuable Resources.

- Virtual poster presented at 2020 NV Space Grant and NV NASA EPSCoR Virtual Poster Competition (May, 2020).
- Virtual poster presented at the 2020 Spring Undergraduate Research Symposium, Las Vegas, Nevada (April, 2020).
- Virtual poster presented at the annual University of Nevada, Las Vegas GeoSymposium, Las Vegas, Nevada (April, 2020).

- Panduro-Allanson, R.D., Hausrath, E.M., Adcock, C.T., Rampe, E.B., and Steinberg, S. (2019, August). *Water-Rock Interactions on Mars: Production of H2 and Other Valuable Resources*. Lightning talk presented at the 2019 Summer Undergraduate Research Symposium, Las Vegas, Nevada.
- Panduro-Allanson, R.D., Guzman, D., and Genova, M. (2019, April). *Severity of Food Deserts in North Las Vegas*. Poster presented at the annual University of Nevada, Las Vegas GeoSymposium, Las Vegas, Nevada.

HONORS AND AWARDS

Bernada French Scholarship **July 2021**

- Awarded $1,800

NV NASA Programs 2020 Virtual Poster Competition 2nd Place for Upper Division Undergraduate Students **July 2020**

- Poster presentation was: Panduro-Allanson, R.D., Hausrath, E.M., Adcock, C.T., Rampe, E.B., and Steinberg, S. (2020, April). *Water-Rock Interactions on Mars: Production of H2 and Other Valuable Resources*.

University of Nevada, Las Vegas Geology Department Undergraduate Academic Achievement Award **April 2020**

Nevada National Science Foundation Established Program to Stimulate Competitive Research (EPSCoR) Undergraduate Research Opportunity Program Recipient (UROP) **Nov. 2019 - Present**

- Awarded $4,000 to carry out a research proposal titled: *Water-Interactions on Mars: Production of H2 and other valuable resources*.
- Conducting water-rock experiments on Martian Simulants
- Characterize Martian simulant with x-ray powder diffraction (XRD)
- Measuring hydrogen gas release using a gas chromatograph
- Measuring perchlorate release using an ion chromatograph
- Measuring iron and magnesium in solution using an atomic absorption spectrophotometer

Nevada NASA Space Grant Consortium **Jun. 2019 - Present**

- Awarded $4,000 to carry out a research proposal titled *Water-Interactions on Mars: Production of H2 and other valuable resources*.

Third Place in the Geosymposium GIS Poster Competition **May 2019**

- Awarded a certificate of achievement for a poster presentation titled: *Severity of Food Deserts in North Las Vegas*
- Manipulated census tract data to define low-income areas
- Transferred point data of grocery stores from Google Earth for geospatial analysis to define low-access areas
- Designated food deserts based on the degree of low access in low-income areas

COMMUNITY SERVICE

Volunteer **Jan. 2018 – Apr. 2019**

Inclusion Rocks! Introducing Underrepresented Students to the World Around Them Through Geoscience and Remote Sensing – Funded by NASA Space Grant

- Managed booths at UNLV and local events (Las Vegas Science and Technology Festival) and informed over a hundred children on geoscience topics
- Educated 80-120 K12 students about fluvial morphology and how to read topographic maps in a classroom setting during school visits
- Assisted on scaled-down solar systems tours around the UNLV campus
- Studied and contribute to teaching material

Volunteer **Jun. 2016 – Dec. 2017**

UNLV Center for Academic Enrichment and Outreach

- Assisted with running summer camps for 40 children
- Organized 40 parents for each presentation and family night

SKILLS

- Proficient in Microsoft Office, and Adobe
- Proficient with Python and Matlab
- Proficient with Marc Mentat, a finite element modeling software
- Proficient with ArcGIS
- Familiar with Finite Element Modeling software:
    - Ls-Dyna
    - HyperWorks
    - Neper, and FEPX
- Familiar with R, and Mathematica
- Familiar with PuTTy, and submitting high-performance computing jobs
- Familiar with PHREEQC, an aqueous geochemical modeling software
- Familiar with atomic absorption spectrophotometer, ion chromatograph and gas chromatograph, portable x-ray diffraction spectroscopy, electron backscatter diffraction, energy dispersive spectroscopy.