Mobile: (575) 635-0430 **Sarah M. Giles** giles.sarah.m@gmail.com

Education

2018-2024 Ph.D. Geology, Columbia University, Department of Earth and Environmental Sciences
Advisor: Dr. Nicholas Christie-Blick, **Graduation Date: February 14th, 2024**

2018-2021 M.Phil. Geology, Columbia University, Department of Earth and Environmental Sciences

2018-2020 M.A. Geology, Columbia University, Department of Earth and Environmental Sciences

2014-2018 B.S. Geology, Texas A&M University-College Station, *Magna Cum Laude*

Technical Experience

1. **Geoscientist, Low Carbon Solutions, Exxonmobil, December 2023 – Present**
2. **Ph.D. Research, Sedimentology, Stratigraphy, and Geochemistry, South Australia and eastern California-August 2018-Present**
    - Integrated sedimentology, stratigraphy, geochemistry, and structure project incorporating field mapping, high-resolution sequence stratigraphy, petrography, and isotopic analyses to evaluate the origin and timing of mid-Ediacaran phenomena in Australia and California.
    - Associated expertise: Process sedimentology in clastic and mixed systems, petrographic analysis on siliciclastic/carbonate rocks, carbon and oxygen isotope analyses, Scanning Electron Microscope (SEM) applications, U-Pb geochronology on calcite and detrital zircons, K-Ar geochronology on glauconite, field geology, sequence stratigraphy, cement stratigraphy, Neoproterozoic geoscience.
3. **Geology Intern, Ovintiv Inc. Fall 2022**
    - Intern project included rock core description and depositional environment interpretation, 3D stratigraphic modeling in Petrel, and seismic interpretation.
4. **Research Assistant, Basin Analysis and Salt Tectonics Utah-October 2019-Present**
    - Formulated a collaborative research project investigating the characteristics of salt-sediment-fluid interactions at the Onion Creek salt diapir in Fisher Valley, Utah through the application of cement stratigraphy and structural restorations. This project supplemented the Ph.D. research of a student at the University of Texas at El Paso who evaluated halokinetic deformation at the Onion Creek Salt Wall (Lankford-Bravo, 2021).
5. **Research Assistant, Salt Sediment Interactions Research Consortium (SSIRC), University of Texas at El Paso-January 2016-July 2018**
    - Conducted research evaluating the sedimentology and stratigraphy of the Patawarta supra-salt minibasin in the Flinders Ranges, South Australia.
    - Utilized field mapping, carbon and oxygen isotope analyses, vein-fill fluid inclusion analysis, cathodoluminescence imaging analysis, petrographical analysis on siliciclastic/carbonate rocks. Conducted vein-fill fluid inclusion analysis and cathodoluminescence analysis to investigate the fluid flow characteristics of Patawarta diapir in the Flinders Ranges, South Australia
    - Advisor: Dr. Rachelle Kernen, Dr. Katherine Giles
6. **Research Assistant, Climate-Tectonic Interactions, Texas A&M University- July 2017-May, 2018**
    - Conducted a research project investigating pluton exhumation pathways in the Oregon Cascades Range. Utilized U-Pb zircon geochronology, Ar/Ar feldspar geochronology, (U-Th)/He apatite thermochronology, and HeFTy thermal-pathway modelling.
    - Advisor: Dr. Nicholas Perez
7. **Geology Intern, Texas A&M Energy Institute-June-August 2017**
    - Conducted a project performing sediment core preparation, sampling, description, and interpretation. Well: Texaco #1 Navajo J, Aneth Field, Utah, USA.
8. **Research Assistant, Soil Moisture Influence on Land-Atmosphere Interactions-August 2015-May 2017**
    - Evaluated land-atmosphere interactions in Oklahoma using in-situ soil measurement data and clustering statistical analysis. Utilized, ArcGIS, Matlab, and Excel.
    - Advisor: Dr. Steven Quiring
9. **Geoscience Intern, Environmental Protection Agency-May-August 2015**

- Geoscience intern at the EPA Region 6 Management of Contaminated Sites Task Force. Conducted water geochemistry analyses, filter description for air pollution monitoring, site mapping, and contributed to the EPA Region 6 environmental blog.

Fellowships

2024-2026 **NSF Earth Sciences (EAR) Postdoctoral Fellowship**
- Title: Using numerical modeling and synthetic stratigraphy generation to evaluate the impacts of extreme storms on delta channel mobility

2023 **GSAS Teaching Scholar** – Columbia University
- Instructor for Sedimentology and Stratigraphy

2019-2023 **NSF Graduate Student Research Fellowship**
2021-2023 **Lead Teaching Fellowship** – Columbia Center for Teaching and Learning
2018-2019 **Dean's Fellowship, Columbia University**

Funded Projects

1. A subaerial origin for the mid-Ediacaran Wonoka canyons: Implications for the Shuram excursion in South Australia
   Funding: 2020 GSA Graduate Student Research Grant ($2,500), 2020 Chevron Student Initiative Grant ($1,500), 2020 Explorer's Club Mamont Student Research Grant ($2,500)
2. The impacts of salt-related fluids on cementation at the Onion Creek Salt Diapir, UT and the Beltana Diapir, South Australia: Implications for fluid flow, carbon storage, and hydrocarbon exploration in regions influenced by salt tectonics
   Funding: 2023 Stephen E. Laubach Structural Diagenesis Award ($2,500)
3. Ediacaran regional sea-level drawdown triggers extensive allochthonous salt breakout and the incision of kilometer-deep paleocanyons, Flinders Ranges, South Australia
   Funding: 2021 AAPG Graduate Student Research Grant ($1,800), 2022 AAPG Gordon I. Atwater Memorial Student Grant ($3,000)
4. Ediacaran detrital zircon provenance in South Australia: Constraining the age of the Shuram excursion and Ediacaran paleogeographic reorganization
   Funding: NSF AGeS2 Student Geochronology Grant ($8,500), 2021 Chevron Student Initiative Grant ($1,600)
5. Origin of the Ediacaran Johnnie incisions, Nopah Range, eastern California: Implications for the Shuram excursion and other Ediacaran canyons globally
   Funding: 2021 GSA Graduate Student Research Grant ($1,500), 2022 SEPM Student Research Grant – Gerald M. Friedman Endowment ($1,250)
6. Evaluating the application of using Laser Diffraction Granulometry to determine process controls on grain size distributions in modern rivers and submarine channels
   Funding: 2022 Chevron Student Initiative Grant ($1,058)
7. Creating a Columbia University course focused on diversity, equity, and inclusion that has run from Fall 2020-Present. Course name: "A Seminar on Race, Climate Change, and Environmental Justice"
   Funding: Columbia University Graduate Equity Initiative Grant – (Co-PI, $540,795)

Total amount of funding awarded as principal investigator: $27,708

Grants and Awards

2023 GSA Stephen E. Laubach Structural Diagenesis Research Award - $2,500
2022 SEPM Student Research Grant – Gerald M. Friedman Endowment - $1,250
2021 **Graduate Equity Initiative Grant** (co-PI) – $540,795
2021 AAPG Gordon I. Atwater Memorial Grant - $3,000
2020 **NSF AGeS2** Geochronology Grant - $8,000
2020 **GSA** Graduate Student Research Grant - $2,500
2020 **AAPG** General Fund Graduate Research Grant -$1,800
2020 **SEPM-NSF** Travel Grant
2020 **ISGC** Travel Grant
2020 Chevron Student Initiative Fund Grant -$1,500
2019 **Explorer's Club** Mamont Research Grant - $2,500

2019 GSA Graduate Student Research Grant - $1,500
2018 Chevron Student Initiative Fund Grant - $1,600
2018 College of Geosciences Outstanding Senior Award, Texas A&M University
2018 Geoscience Silver Medallion Scholar Award
2017 George Bush Presidential Library Research Travel Grant
2017 TAMU Geology & Geophysics Research Travel Grant
2017 AIPG-TX Foss Scholarship
2017 ConocoPhillips Field Camp Scholarship
2017 Chevron Field Camp Scholarship
2017 Distinguished Student in Geosciences Award, Texas A&M College of Geosciences
2017 GSA South-Central Conference Best Poster Presentation-Honorable Mention
2017 TAMU Geology & Geophysics Research Symposium 2nd Place Poster Presentation
2017 Student Ambassador Nomination for Texas A&M Institute of Advanced Research Study

Publications

Giles, S.M., Christie-Blick, N. and Lankford-Bravo, D.F., 2023. A subaerial origin for the mid-Ediacaran Johnnie valleys, California and Nevada: Implications for a diachronous onset of the Shuram excursion. *Precambrian Research*, *397*, p.107187.

Giles, S.M., Giles, K.A., Rowan, M.G., Maza, K., Christie Blick, N. and Lankford Bravo, D.F., 2024. Did mid Ediacaran regional sea level drawdown trigger extensive allochthonous salt breakout and the incision of kilometre deep palaeocanyons, Flinders Ranges, South Australia?. *Terra Nova*. P. 1-10. DOI: 10.1111/ter.12724

Pesek, M.E., Perez, N.D., Meigs, A., Rowden, C.C. and **Giles, S.M.**, 2020. Exhumation timing in the Oregon Cascade Range decoupled from deformation, magmatic, and climate patterns. *Tectonics*, *39*(9), p.e2020TC006078.

Conference Papers

Kernen, R.A., Giles, K.A., Fischer, M.P., **Giles, S.M.,** Lehrmann, A., Rowan, M.G., Evaluating Exploration Potential of Suture Zones or Encased Minibasins Using an Outcrop Example from the Neoproterozoic Patawarta Salt Canopy, Central Flinders Ranges, South Australia. AAPG 2017 Conference Paper

Giles, S.M., Kernen, R.A., Lehrmann, A., Giles, K.A., 2016, Evolution of a suprasalt minibasin: Neoproterozoic (Ediacaran) Patawarta salt sheet, Flinders Ranges, South Australia. South-Central GSA 2016 Conference Paper

Lehrmann, A., Kernen, K.A., **Giles, S.M.,** Giles, K.A., 2016, Timing of allochthonous salt emplacement of the Neoproterozoic (Ediacaran) Patawarta salt sheet, Flinders Ranges, South Australia: Evidence from the subsalt minibasin. South-Central GSA 2016 Conference Paper

Recent Conference Abstracts

2020-2022

Giles, S., 2024, Diagenetic overprinting by salt diapiric fluids at the Beltana and Pinda diapirs, South Australia: Implications for paleoclimate records, carbon storage, and hydrocarbon exploration. SEPM International Sedimentary Geosciences Congress, Flagstaff, Arizona.
https://virtual.oxfordabstracts.com/event/public/4532/submission/77

Giles, S., Christie-Blick, N. and Lankford-Bravo, D., 2021, December. Reconstruction of a sinuous mid-Ediacaran slope canyon in the Flinders Ranges of South Australia: Implications for the origin of the canyons and the Shuram carbon isotope excursion. In AGU Fall Meeting Abstracts (Vol. 2021, pp. PP25B-0906).

Giles, S.M., Giles, K.A., Rowan, M.G., Christie-Blick, N., Lankford-Bravo, D.F., 2021, Did Neoproterozoic (Ediacaran) regional sea-level drawdown trigger extensive allochthonous salt breakout and incision of the Wonoka paleocanyons, Flinders Ranges, South Australia? 2021 Australian Earth Sciences Convention

Giles, S.M., Christie-Blick, N., 2021, Correlation of stratigraphic sequences to evaluate downstream transitions within the Wonoka canyon at Umberatana syncline, South Australia, 2021 Australian Earth Sciences Convention, https://www.aesconvention.com.au/correlation-of-stratigraphic-sequences-to-evaluate-downstream-transitions-within-the-wonoka-canyon-at-umberatana-syncline-south-australia/

Giles, S., Christie-Blick, N., Lankford-Bravo, D.F., and Ramirez, M., 2020, Potential Gaskiers connection for two mid-Ediacaran paleocanyons: Evidence from the Wonoka canyons, South Australia and the Johnnie incisions, eastern California: Geological Society of America, Abstracts with Programs, v. 52, No. 6, doi: 10.1130/abs/2020AM-354131.

Christie-Blick, N., Geyer, W.R., and **Giles, S.,** 2020, Coriolis deflection of hyperpycnal flow in delta front sediments in the mid-Ediacaran (~580 Ma) Wonoka canyon at Umberatana syncline, South Australia: Geological Society of America, Abstracts with Programs, v. 52, No. 6, doi: 10.1130/abs/2020AM-354107

Lankford-Bravo, D.F., **Giles, S.M.,** 2020, Supplementing the field experience in geoscience education and research: A module-based teaching approach using interactive 3D outcrop models: Geological Society of America, Abstracts with Programs, v. 52, No. 6, doi: 10.1130/abs/2020AM-360030

Stine, J.M., Lankford-Bravo, D., **Giles, S.**, Geissman, J., 2021, December. Using Magnetic Fabrics to Quantify the Deformation of the North Onion Creek Salt Shoulder and Evaluate Deformation Timing, Paradox Basin, Utah. In AGU Fall Meeting Abstracts (Vol. 2021, pp. GP41A-08)

Lankford-Bravo, D.F., Giles, K.A., Langford, R., **Giles, S.M.,** 2020, Comparing heterogeneities in syn-depositional styles of deformation within the Cutler Group, Onion Creek Salt Diapir, Utah. Geological Society of America, Abstracts with Programs, v. 52, No. 6, doi: 10.1130/abs/2020AM-360056

Lubash, R., Aguinaga, E., **Giles, S.**, Chang, C., 2022, Utilization of Sediment Grain size Analysis to Evaluate the Origin of Ediacaran Paleocanyons in South Australia and Eastern California. Geological Society of America Abstracts with Programs. Vol. 54, No. 3, 2022. doi: 10.1130/abs/2022NE-375205

Aguinaga, E., Lubash, R., Chang, C., **Giles, S.**, 2022, Evaluating the Application of Using Laser Diffraction Granulometry to Determine Process Controls on Grain Size Distributions in Modern Rivers and Submarine Channels. Geological Society of America Abstracts with Programs. Vol. 54, No. 3, 2022. doi: 10.1130/abs/2022NE-375195

Ramirez, M.R., **Giles, S.M.**, Lankford-Bravo, D.F., 2020, Evaluation of the syndepositional tectonism hypothesis for the formation of the Ediacaran Johnnie incisions in eastern California using structural restoration analyses: Geological Society of America, Abstracts with Programs, v. 52, No. 6, doi:10.1130/abs/2020AM-357007.

2016-2017

Giles, S.M., Pesek, M.E., Perez, N.D., 2017, Analysis of the Exhumation Pathways Experienced in the Cascades Range. American Geophysical Union Conference 2017 Poster Presentation

Kernen, R.A., Giles, K.A., Fischer, M.P., **Giles, S.M.,** Lehrmann, A., Rowan, M.G., Evaluating Exploration Potential of Suture Zones or Encased Minibasins Using an Outcrop Example from the Neoproterozoic Patawarta Salt Canopy, Central Flinders Ranges, South Australia. AAPG 2017 Conference Paper

Giles, S.M., Kernen, R.A., Lehrmann, A., Giles, K.A., 2016, Evolution of a suprasalt minibasin: Neoproterozoic (Ediacaran) Patawarta salt sheet, Flinders Ranges, South Australia. *2016 TAMU Geology & Geophysics Research Symposium, 2nd Best Poster Presentation Award*

Lehrmann, A., Kernen, K.A., **Giles, S.M.,** Giles, K.A., 2016, Timing of allochthonous salt emplacement of the Neoproterozoic (Ediacaran) Patawarta salt sheet, Flinders Ranges, South Australia: Evidence from the subsalt minibasin. South-Central GSA 2016 Conference Paper

Giles, S.M., McRoberts, B., Quiring, S., 2016, Investigating the Local Forcing Effect of Soil Moisture on Temperature and Precipitation in Oklahoma. American Geophysical Union Conference

Teaching Experience

Fall 2023 **Columbia University Instructor – Sedimentology and Stratigraphy**

- Instructor for an undergraduate sedimentology and stratigraphy course. Sole developer of all course content and taught a lecture and lab section for the course as a 2023 GSAS Teaching Scholar.

2021-2022 **Lead Teaching Fellow for DEES at Columbia University**

- Created and facilitated two workshops on 1) incorporating 3D models into Earth science teaching to undergraduates; and 2) utilizing teaching experiences to improve science communication
- Created and led "Learning Lunches", a bi-monthly informal event where a faculty member had lunch with geoscience graduate students to mentor on course curriculum development and teaching practices.

Spring 2022 **TA and co-Instructor for Undergraduate Geology Field Excursion to Death Valley**

- Instructed a field day during the course where students were led through a geologic exercise I designed in my PhD field area (southern Nopah Range)
- Instructed students of geologic concepts in the field
- Helped co-organize certain logistical components of the trip

Spring 2021 & Fall 2020

Sedimentary Geology- Teaching Assistant at Columbia University

- Primary lab instructor
- Contributed to course lectures and exercises

Spring 2020 **Climate Science Class Instructor- High-school Science Honors Program hosted by Columbia University**

- Certified course taught by 3 Ph.D. students.
- Prepared a 45-min lecture on sequence-stratigraphy using sediment cores. Prepared 75-min in-class activity involving group competition.

Spring 2020 **Kindergarten Earth Science Tutor, Columbia Volunteer Tutor Program**

- Designed and led virtual (Zoom) mini-lessons and interactive demonstrations for kindergarten level children of Columbia University Medical Staff workers. Topics focused on a wide range of Earth Science subjects, including lessons on storms, climate, weather, and fossils.
- This tutoring group was formed in response to the 2020 COVID-19 pandemic, and was created to support essential staff workers who could not be present at home to aid in their children's learning.

Spring 2020 **Solid Earth Systems- Teaching Assistant at Columbia University**

- Designed lab assignments/exams and taught the lab section
- Contributed to field-trip outline and assignments

Spring 2019 **Field Geology in Death Valley- Teaching Assistant at Columbia University**

- Instructed students geological concepts while in the field

Spring 2019 **High-school Earth Science Instructor-Volunteer at Manhattan International High School**

- Prepared class assignments, handouts, and projects for 9th graders taking an introductory Earth science course
- Students primarily spoke English as their second language, so material needed to be clearly and effectively communicated for a diverse classroom of students

Science Communication and Outreach

2023- Present **GSA Sedimentary Geology Division Student Representative**

2021-Present **Creator and Host for SedsOnline Student Webinars**

- Designed and coordinated a bi-monthly seminar under the SedsOnline initiative that offers graduate students around the world an opportunity to present their research to the global sedimentology community and receive feedback. Recordings of the seminars are available at sedsonline.com.
- This opportunity provides students an opportunity to present their research to the global sedimentology community, and was designed to offer such an opportunity particularly to students who cannot travel to traditional opportunities (conferences, workshops) for various reasons.
- This work will be presented as a poster at the 2023 EGU General Assembly, titled "Creating impactful opportunities for students to share their geoscience research".

2021 **Chair of Graduate Research Symposium – Women in Science at Columbia**

- Coordinated and designed virtual research symposium to promote women in STEM and effective scientific communication
- Moderated a panel on how to how to bridge career divides and self-advocacy
- Facilitated abstract submission and review by Columbia faculty
- Identified and contacted sponsors to raise a total of $5,000 for the symposium
- Developed judging guidelines for presentations for Columbia faculty judges

2020 **GSA Annual Meeting Session Co-chair**

- Session title: "Interactions between Life, Tectonics, Climate, and Sedimentary Systems at the Neoproterozoic-Early Cambrian Transition"
- Created session topic and a special invited speaker panel component

2020-2022 **World Petroleum Council Young Professionals Member**

- Facilitated group discussion with energy professionals about energy education for K-12 students.

2019-2021 **Geology Chair on Colloquium Committee, Lamont-Doherty Earth Observatory**

- Served as the geology representative on the search committee for engaging scientific speakers that can lecture on multidisciplinary geoscience subjects.
- Host a round table discussion with the speaker where Columbia graduate students can ask the speaker questions related to science, career, and work-life balance.

2018-2020 **Experiment Instructor-Volunteer, Girl's Science Day Event, Women in Science at Columbia**

2018 & 2019 **Instructor, Lamont-Doherty Earth Observatory Open House**

- Hosted a booth with rock specimens and diagrams discussing how we use sedimentology and stratigraphy to evaluate depositional environments
- This was an event open to the public to come participate in scientific lectures and experiments

2018-2019 **Mentor, National Academy of Sciences 1000 Girls 1000 Futures Program**

- Mentored a female 10th grade student from Egypt on STEM modules and college preparation

Diversity, Equity, and Inclusion Training and Outreach

2021 **Co-chaired a 2021 American Geophysical Union Session titled "Innovative Initiatives in Conducting Community-Based Science and Training the Next Generation of Practitioners"**

2020-2021 **Co-created and led a DEI course at Columbia University**

- Course was designed as a seminar series/discussion group: "A Seminar on Race, Climate Change, and Environmental Justice."
- This series focuses on how climate, poverty, and racial injustice are linked, and how to act on those issues while promoting equity and inclusion
- This series can be taken for credit at Columbia University, and is co-led by Columbia faculty and graduate students. This will remain an on-going course after I graduate.
- This course was funded by a 2021 Graduate Equity Initiative Grant to which I was a co-PI, total funded was $540,795.

2021 **Unlearning Racism in Geoscience (URGE) Pod Member – Lamont-Doherty Earth Observatory**

- I completed the training program composed of eight two-week sessions aimed at addressing racism in geoscience and designing inclusive pedagogy

Supervised Undergraduate and Master's Research Projects

2024 **William Munday, St. Lawrence University, Toulouse France, (Masters Thesis Project)**

- Technical mentor and co-project creator with David-Lankford Bravo (bp) and Mark Fischer (Northern Illinois University).
- Title: Paleofluid compartmentalization at the Onion Creek Salt Diapir, UT

2021-2022 **Roy Lubash, Columbia Undergraduate, (Senior Thesis Project)**

- Created and co-supervised the project with Clara Chang (CU graduate student).
- **Student presented at the 2022 Northeastern GSA Meeting:**
  Lubash, R., Aguinaga, E., Giles, S., Chang, C., Utilization of Sediment Grain size Analysis to Evaluate the Origin of Ediacaran Paleocanyons in South Australia and Eastern California. Geological Society of America Abstracts with Programs. Vol. 54, No. 3, 2022. doi: 10.1130/abs/2022NE-375205
- **Student awarded the 2022 Northeastern GSA Urban Award for Non-Traditional Students**

2021-2022 **Edinson Aguinaga, Columbia Undergraduate, (Senior Thesis Project)**

- Created and co-supervised the project with Clara Chang (CU graduate student).
- **Student presented at the 2022 Northeastern GSA Meeting:**
  Aguinaga, E., Lubash, R., Chang, C., Giles, S., Evaluating the Application of Using Laser Diffraction Granulometry to Determine Process Controls on Grain Size Distributions in Modern Rivers and Submarine Channels. Geological Society of America Abstracts with Programs. Vol. 54, No. 3, 2022. doi: 10.1130/abs/2022NE-375195
- **Student awarded the 2022 Northeastern GSA Urban Award for Non-Traditional Students**

2021-2022 **Kiri Maza, Columbia Undergraduate ('20) – Diapir-derived detritus in the Wonoka canyon fill**

- Created project idea and methodology, mentored student on sample collection and analysis. Student conducted project while working as my field assistant in South Australia.
- Project title: "Diapir-derived detritus in the Wonoka canyon fill: Evidence for contemporary salt tectonics during canyon incision in the Flinders Ranges, South Australia"

2020-2021 **Juliet Tochterman, Columbia Undergraduate ('21) – Controls on isotopic variations in ooid grainstones**

- I created the research project idea and methodology. I supervised all lab work for the student project and developed teaching materials to communicate research concepts that the student was struggling with.
- Project title was "Investigating the lateral consistency of isotopic variations in a mid-Ediacaran ooid grainstone associated with the largest carbon-13 isotope anomaly in Earth history".

2019-2020 **Mia Ramirez, UTEP Undergraduate ('20) – Syndepositional tectonism in Death Valley**

- Co-supervised student with David Lankford-Bravo (PhD, bp geologist). I co-created the research project idea and helped the student write research grants to support travel and laboratory analyses.
- **Student presented a poster at the 2020 GSA Connects Online Meeting:**
  Ramirez, M.R., Giles, S.M., Lankford-Bravo, D.F., 2020, Evaluation of the syndepositional tectonism hypothesis for the formation of the Ediacaran Johnnie incisions in eastern California using structural restoration analyses: Geological Society of America, Abstracts with Programs, v. 52, No. 6, doi:10.1130/abs/2020AM-357007.
- **Student awarded the 2020 L. Austin Weeks Undergraduate Grant**

2019-2020 **Rachael Hill, UTEP Undergraduate ('20) – Paleofluid flow adjacent to a salt diapir**

- Co-supervised student with David Lankford-Bravo (PhD, bp geologist). Co-created project idea, methodology, and helped student write research grants to support field work travel and laboratory expenses.
- Project title: "Interactions between deformation and fluid alteration at the salt-sediment interface: Insights from the Onion Creek Diapir, Utah"
- **Presented as a student poster at the 2020 UTEP Colloquium**

2019-2020 **Hao Pham, UTEP Undergraduate ('20) -3D drone modeling for structural analysis**

- Co-created project idea and methodology, helped student write research grants to support field research travel.

- Project title: “Integration of 3D drone modeling and cement stratigraphy on the Permian Cutler Formation, Utah”
- **1st Place poster winner at the 2020 UTEP Colloquium**
- **Student awarded the 2020 L. Austin Weeks Undergraduate Grant**