

curriculum vitae of
Ryan J. Herring

DEPARTMENT OF EARTH, ENVIRONMENTAL AND PLANETARY SCIENCES, BROWN UNIVERSITY

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RESEARCH INTERESTS

My research primarily focuses on obtaining a quantitative understanding of morphodynamics, geomorphology, stratigraphy, marine geophysics, and halokinesis. Through the course of my research, I seek to derive fundamental relationships in sediment transport using my knowledge of mathematics to study, through experiments and observations, the geomorphological processes of our world and others, with a special emphasis on applying my knowledge of surface processes to Titan and comets via remote sensing, spectral mineralogy, and machine & deep learning. I love teaching and am also heavily involved in outreach and STEM education, and am always looking for new and exciting opportunities.

Keywords: Planetary Geology, Titanian & Cometary Geomorphology, Experimental Morphodynamics, Remote Sensing, Marine Geophysics, Geomorphometrics, Stratigraphy, Halokinesis.

EDUCATION

2028 (Anticipated)	PhD in Earth, Environmental, and Planetary Sciences Adviser: Samuel Birch	BROWN UNIVERSITY, USA
2025 (Anticipated)	MS in Earth, Environmental, and Planetary Sciences Adviser: Samuel Birch	BROWN UNIVERSITY, USA
2022	MS in Earth System Sciences Dissertation: Elucidating geomorphometric controls on Gulf of Mexico minibasin morphology Adviser: Wonsuck Kim Committee Members: Nam Chil Woo, Woong Mo Koo GPA: 3.94/4.00	YONSEI UNIVERSITY, REPUBLIC OF KOREA
2019	BS in Geological Sciences Major: Geosciences/Geology (Formerly: Petroleum Engineering & Geophysics) Minor: Mathematics ¹ Adviser: Cornel Olariu	THE UNIVERSITY OF TEXAS AT AUSTIN, USA

RESEARCH EXPERIENCE

Sep. 2023 – Present	Doctoral Researcher Department of Earth, Environmental and Planetary Sciences (DEEPS) Brown University Adviser: Samuel Birch
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¹The Jackson School of Geosciences did not recognise minors on transcripts for the 2016-2018 degree catalogue, but all of the requirements for a mathematics minor were completed per the University of Texas' regulations.

Jul. 2022 – Sep. 2023	Researcher GOM/Chicxulub Research Group Dynamic Stratigraphy Research Group Institute for Geophysics (UTIG) The University of Texas at Austin Advisers: John Goff, Eric Prokocki, David Mohrig, Dan Duncan, Marcy Davis
Jun. 2020 – Sep. 2020	Postgraduate Research Scientist (Intern) Atmosphere, Climate, and Ecosystem Science Team (ACES) Earth System Observations Group (EES-14) Earth and Environmental Sciences Division (EES) Los Alamos National Laboratory (LANL) Triad National Security National Nuclear Security Administration (NNSA) United States Department of Energy (DOE) Advisers: Anastasia Piliouras, Jon Schwenk, Joel Rowland
Feb. 2020 – Jul. 2022	Researcher Morphodynamics and Quantitative Stratigraphy Research Group Department of Earth System Sciences Institute of Natural Science Yonsei University Adviser: Wonsuck Kim Students: Maria Paula Borja Tibaduiza, Esoo Yun
Aug. 2019 – Jun. 2020	Researcher GOM/Chicxulub Research Group Quantitative Sedimentology Research Group Institute for Geophysics (UTIG) The University of Texas at Austin Advisers: John Goff, David Mohrig, Eric Prokocki, Dan Duncan, Marcy Davis
Jun. 2019 – Jun. 2020	Researcher Dynamic Stratigraphy Research Group Department of Geological Sciences (DGS) The University of Texas at Austin Advisers: Cornel Olariu, Mark Helper, Ron Steel
Jun. 2019 – Aug. 2019	GIS Programmer & Software Engineer (Intern) Groundwater Advisory Unit (GAU) Railroad Commission of Texas (RRC) Supervisors: Norman Gearhart, James Harcourt, Royce Massey
May 2019 – Jun. 2019	Expedition Geophysicist/Crew Member & Team 3 Leader Team 3 Marine Geology and Geophysics Expedition GOM/Chicxulub Research Group Institute for Geophysics (UTIG) The University of Texas at Austin Expedition Leaders: Sean Gulick, John Goff, Chris Lowery, Dan Duncan, Marcy Davis, Steffen Saustруп Team 3 Crewmates: Chujie Liu, Tharit Tangkijwanichakul

Jan. 2017 – Jun. 2019

Undergraduate Researcher

Dynamic Stratigraphy Research Group
 Morphodynamics and Quantitative Stratigraphy Research Group
 Department of Geological Sciences (DGS)
 The University of Texas at Austin
 Advisers: Cornel Olariu, Mark Helper, Wonsuck Kim, Ron Steel

Jan. 2017 – Mar. 2017

Undergraduate Research Collaborator

Dynamic Stratigraphy Research Group
 Department of Geological Sciences (DGS)
 The University of Texas at Austin
 Advisers: Austin Clayton, Cornel Olariu, Logan West

PUBLICATIONSREFEREED JOURNAL PUBLICATIONS [N = 1]Published:

- [1] Wu, C., Kim, W., **Herring, R.**, Cardenas, B., Dong, T., Ma, H., Moodie, A., Tsai, F., Li, A., Nittrouer, J., 2023. Pace of meandering and avulsion set river sinuosity near coast on Earth and Mars, *Nature Geoscience*, doi: 10.1038/s41561-023-01231-1.

THESES [N = 1]

- [1] **Herring, R.**, 2022. Elucidating geomorphometric controls on Gulf of Mexico minibasin morphology [MS thesis]: *Yonsei University*.

CLASSIFIED REPORTS [N = 1]UNCLASSIFIED REPORTS [N = 1]Published:

- [1] **Herring, R.**, Piliouras, A., Schwenk, J., Rowland, J., 2020. Autonomous Machine Learning Identification of Arctic River Ice via Sentinel-1 C-SAR, *United States Department of Energy SULI*, LA-UR-20-28771.

STUDENTS' PUBLICATIONS [N = 2]

Research group members: [†]Postdoctoral researcher, ^{*}Postgraduate student, [§]Undergraduate student.

Published:

- [2] [§]Yun, E., **Herring, R.**, Kim, W., 2022. Origin of the roughness transition in Gulf of Mexico minibasin bathymetry [BS thesis]: *Yonsei University*.
- [1] [§]Borja, M., **Herring, R.**, Kim, W., 2021. Morphometric analysis and dimensional trends in Gulf of Mexico minibasin geometries [BS thesis]: *Yonsei University*.

FIRST-AUTHORED CONFERENCE PRESENTATIONS [N = 14]

*Oral presentation

Research group members: [†]Postdoctoral researcher, ^{*}Postgraduate student, [§]Undergraduate student.

Published:

- [14] **Herring, R.**, Kim, W., [§]Borja, M., [§]Yun, E., 2022. Elucidating geomorphometric controls on Gulf of Mexico minibasin morphology, 2022 *American Geophysical Union Annual Meeting*, Abstract EP22E-1386.

- [13] ***Herring, R.**, Kim, W., §**Borja, M.**, §**Yun, E.**, 2022. Elucidating Linkages in Variations of the First Eccentricity and Rim Rugosity of Gulf of Mexico Minibasin Geometries via Geomorphometric and K-Function Cluster Analysis in Concert with Viscous Substrate Flume Experimentation, *2022 Gilbert Club Annual Meeting*.
- [12] **Herring, R.**, Kim, W., §**Borja, M.**, §**Yun, E.**, 2021. Elucidating linkages in variations of the first eccentricity and rim rugosity of Gulf of Mexico minibasin geometries via geomorphometric analysis of bathymetric data, *2021 American Geophysical Union Annual Meeting*, Abstract EP45C-1539.
- [11] **Herring, R.**, Kim, W., §**Borja, M.**, 2021. Morphometric analysis and basinal dimensional trends in Gulf of Mexico minibasin geometry, *2021 Korean Society of Economic and Environmental Geology Spring Geological Science and Technology Joint Conference*, Abstract PL-6.
- [10] ***Herring, R.**, §**Borja, M.**, Kim, W., 2020. Basinal dimensional trends in Gulf of Mexico minibasin geometry, *2020 American Geophysical Union Annual Meeting*, Abstract EP065-02.
- [9] ***Herring, R.**, Piliouras, A., 2020. Autonomous Machine Learning Identification of Arctic River Ice via Sentinel-1 SAR, *20th Annual Los Alamos National Laboratory Student Symposium*.
- [8] ***Herring, R.**, Piliouras, A., 2020. Autonomous Machine Learning Identification of Arctic River Ice via Sentinel-1 SAR, *United States Department of Energy SULI*.
- [7] **Herring, R.**, Olariu, C., Helper, M., 2020. Deducing the Timing and Magnitude of Late Quaternary Mississippi River Deltaic Progradation and Retrogradation Coeval with the Waning Phase of the Last Glacio-eustatic Cycle by Modelling Volumetric Flooding Rate and Sediment Discharge Since the Cessation of the Late Wisconsin Glacial Stage, *9th Annual Jackson School Student Research Symposium*, Abstract U-9.
- [6] ***Herring, R.**, Olariu, C., Helper, M., 2019. The Fate of the Mississippi River Sediment Amidst the Waning Phase of the Last Glacio-eustatic Cycle: A Volumetric Quantification and Modelling of Late Quaternary Deposition Coeval with the Cessation of the Late Wisconsin Glacial Stage, *2019 American Geophysical Union Annual Meeting*, Abstract EP32A-07.
- [5] **Herring, R.**, Olariu, C., Helper, M., 2019. The Fate of the Mississippi River Sediment Amidst the Waning Phase of the Last Glacio-eustatic Cycle: A Volumetric Quantification and Modelling of Late Quaternary Deposition Coeval with the Cessation of the Late Wisconsin Glacial Stage, *2019 RioMAR Annual Meeting*.
- [4] **Herring, R.**, Olariu, C., Helper, M., 2019. The Fate of the Mississippi River Sediment During the Last Glacio-eustatic Cycle: A Volumetric Quantification, *2019 American Association of Petroleum Geologists SWS Annual Meeting*, Abstract 90343.
- [3] **Herring, R.**, Olariu, C., Helper, M., 2019. The Fate of the Mississippi River Sediment During the Last Glacio-eustatic Cycle: A Volumetric Quantification, *8th Annual Jackson School Student Research Symposium*, Abstract U-9.
- [2] **Herring, R.**, Olariu, C., 2018. The Fate of the Mississippi River Sediment During the Last Phase of the Last Glacio-eustatic Cycle: A Volumetric Quantification, *2018 RioMAR Annual Meeting*, Abstract P-1.
- [1] **Herring, R.**, Olariu, C., 2018. Calculation of the Volume of Late Quaternary Mississippi River Off Shelf Deposits, *7th Annual Jackson School Student Research Symposium*, Abstract SHP-U.

CO-AUTHORED CONFERENCE PRESENTATIONS [N = 3]

Research group members: † Postdoctoral researcher, ‡ Postgraduate student, § Undergraduate student.

Published:

- [3] Wu, C., Kim, W., Moodie, A., Cardenas, B., **Herring, R.**, Dong, T., Ma, H., Tsai, F., Li, A., Nittrouer, J., 2021. Pace of Meandering and Avulsion Set River Sinuosity near Coast on Earth and Mars, *2021 American Geophysical Union Annual Meeting*, Abstract EP31A-07.

- [2] §Yun, E., **Herring, R.**, Kim, W., 2021. Origin of the roughness transition in Gulf of Mexico minibasin bathymetry, *Yonsei University Department of Earth System Sciences Undergraduate Research Festival*.
- [1] §Borja, M., **Herring, R.**, Kim, W., 2021. Morphometric analysis and dimensional trends in Gulf of Mexico minibasin geometries, *Yonsei University Department of Earth System Sciences Undergraduate Research Festival*.

INVITED TALKS AND LECTURES

EXTERNAL TALKS

- 11 Mar. 2022 **Gilbert Club Annual Meeting**, Berkeley, USA
“Elucidating Linkages in Variations of the First Eccentricity and Rim Rugosity of Gulf of Mexico Minibasin Geometries via Geomorphometric and K-Function Cluster Analysis in Concert with Viscous Substrate Flume Experimentation”
- 16 Dec. 2020 **American Geophysical Union (AGU) Annual Meeting**, San Francisco, USA
“Basinal Dimensional Trends in Gulf of Mexico Minibasin Geometry”
- 14 Aug. 2020 **Los Alamos National Laboratory Student Symposium**, Los Alamos, USA
“Autonomous Machine Learning Identification of Arctic River Ice via Sentinel-1 SAR”
- 12 Aug. 2020 **United States Department of Energy SULI**, Los Alamos, USA
“Autonomous Machine Learning Identification of Arctic River Ice via Sentinel-1 SAR”
- 05 Aug. 2020 **Non-group, Los Alamos National Laboratory**, Los Alamos, USA
“Automated Identification of Arctic River Ice via Sentinel-1 SAR”
- 12 Dec. 2019 **American Geophysical Union (AGU) Annual Meeting**, San Francisco, USA
“The Fate of the Mississippi River Sediment Amidst the Waning Phase of the Last Glacio-eustatic Cycle”

UNIVERSITY TALKS

- 02 Nov. 2022 **Dynamic Stratigraphy Research Group**, Austin, USA
“Geomorphometric Controls on Gulf of Mexico Minibasin Morphology”
- 10 Jun. 2022 **MS Final Thesis Defence, Yonsei University**, Seoul, Republic of Korea
“Elucidating Geomorphometric Controls on Gulf of Mexico Minibasin Morphology”
- 08 Jun. 2022 **Morphodynamics and Quantitative Stratigraphy Research Group**, Seoul, Republic of Korea
“Elucidating the Geomorphometric Controls of Eccentricity, Rugosity, and Divergence Upon Gulf of Mexico Minibasin Morphology”
- 25 Apr. 2022 **MS Pre-Defence, Yonsei University**, Seoul, Republic of Korea
“Positive Correlation Between the Eccentricity and Rugosity of Gulf of Mexico Minibasins”
- 06 Apr. 2022 **Morphodynamics and Quantitative Stratigraphy Research Group**, Seoul, Republic of Korea
“Linking Eccentricity and Rugosity Variations of Gulf of Mexico Minibasin Geometries”
- 11 Mar. 2022 **Yonsei University Frontier Seminar**, Seoul, Republic of Korea
“Elucidating Linkages in Variations of the First Eccentricity and Rim Rugosity of Gulf of Mexico Minibasin Geometries via Geomorphometric and K-Function Cluster Analysis”
- 25 Feb. 2022 **Morphodynamics and Quantitative Stratigraphy Research Group**, Seoul, Republic of Korea
“Weighted K-Function Cluster Analysis of Geomorphometrical Parameters of Gulf of Mexico Minibasins”
- 02 Nov. 2021 **Modelling of Depositional Mechanics Course**, Seoul, Republic of Korea
“Quantifying the First Eccentricity and Rugosity of Experimental Minibasins”
- 25 Oct. 2021 **Environmental Hydrodynamics Laboratory**, Seoul, Republic of Korea
“Deducing Subsurface Minibasin Halokinetic Architecture via Geomorphometric Analysis of Bathymetric Data”
- 01 Oct. 2021 **Yonsei University Frontier Seminar**, Seoul, Republic of Korea
“Elucidating Linkages in Variations of the First Eccentricity and Rim Rugosity of Gulf of Mexico Minibasin Geometries via Geomorphometric Analysis of Bathymetric Data”
- 23 Sep. 2021 **Modelling of Depositional Mechanics Course**, Seoul, Republic of Korea
“Deriving Centroidal Density Controls Upon Minibasin Rim Rugosity via Flume Experimentation”

29 Jul. 2021	Morphodynamics and Quantitative Stratigraphy Research Group , Seoul, Republic of Korea “Morphometric Analysis and Basinal Dimensional Trends in Gulf of Mexico Minibasin Geometry”
16 Apr. 2021	Yonsei University Frontier Seminar , Seoul, Republic of Korea “Morphometric Analysis and Basinal Dimensional Trends in Gulf of Mexico Minibasin Geometry”
08 Apr. 2021	Morphodynamics and Quantitative Stratigraphy Research Group , Seoul, Republic of Korea “Morphometric Analysis and Basinal Dimensional Trends in Gulf of Mexico Minibasin Geometry”
03 Apr. 2021	Yonsei University Department of Earth System Sciences , Seoul, Republic of Korea “Morphodynamics and Quantitative Stratigraphy Laboratory: Research and Opportunities”
04 Nov. 2020	Morphodynamics and Quantitative Stratigraphy Research Group , Seoul, Republic of Korea “Autonomous Machine Learning Identification of Arctic River Ice via Sentinel-1 C-SAR”
08 Jun. 2020	Morphodynamics and Quantitative Stratigraphy Research Group , Seoul, Republic of Korea “Basinal Dimensional Variations in Gulf of Mexico Minibasin Geometry”
30 Mar. 2020	Morphodynamics and Quantitative Stratigraphy Research Group , Seoul, Republic of Korea “The Fate of the Mississippi River Sediment Amidst the Waning Phase of the Last Glacio-eustatic Cycle”
04 Dec. 2019	Dynamic Stratigraphy Research Group , Austin, USA “The Fate of the Mississippi River Sediment Amidst the Waning Phase of the Last Glacio-eustatic Cycle”
10 Jun. 2019	University of Texas Institute for Geophysics (UTIG) , Austin, USA “Stratigraphic Interpretation of Corpus Christi Bay Area via MCS Seismic/CHIRP Data and Divulging the Geomorphological Impacts of Hurricane Harvey to the Coastal Environment”

CONFERENCES

Dec. 2022	103 rd American Geophysical Union (AGU) Annual Meeting (Presenter & Volunteer)
Mar. 2022	38 th Gilbert Club Annual Meeting (Speaker)
Dec. 2021	102 nd American Geophysical Union (AGU) Annual Meeting (Presenter)
Jun. 2021	Korean Society of Economic and Environmental Geology Conference (Presenter)
Jun. 2021	SEPM International Sedimentary Geosciences Congress (ISGC)
Mar. 2021	37 th Gilbert Club Annual Meeting
Dec. 2020	101 st American Geophysical Union (AGU) Annual Meeting (Speaker & Presenter)
Aug. 2020	20 th Annual Los Alamos National Laboratory Student Symposium (Speaker)
Aug. 2020	United States Department of Energy SULI (Speaker)
Feb. 2020	9 th Annual Jackson School Student Research Symposium (Presenter)
Dec. 2019	100 th American Geophysical Union (AGU) Annual Meeting (Speaker)
Dec. 2019	RioMAR Annual Meeting (Presenter)
Apr. 2019	American Association of Petroleum Geologists (AAPG) SWS (Presenter)
Mar. 2019	University of Texas Institute for Geophysics (UTIG) PLATES Symposium
Mar. 2019	50 th Lunar and Planetary Science Conference (LPSC)
Feb. 2019	8 th Annual Jackson School Student Research Symposium (Presenter)
Dec. 2018	RioMAR Annual Meeting (Presenter)
Nov. 2018	Applied Geodynamics Laboratory (AGL) Annual Meeting
Jun. – Jul. 2018	University of Texas Planetary Habitability Pop-Up Institute
Feb. 2018	7 th Annual Jackson School Student Research Symposium (Presenter)
Feb. 2017	6 th Annual Jackson School Student Research Symposium

WORKSHOPS

Mar. 2023	ArcGIS for Planetary Science
Dec. 2020	Machine Learning and Deep Learning for the Environmental and Geosciences
Dec. 2020	Python for Remote Sensing: Analysis, Visualisation, and Workflow for Earth Scientists
Apr. 2019	EU-In-Time-Rise Workshop on Geochronology and Mars Exploration (Session Chair)

FIELD EXPERIENCE

May – Jun. 2019	Marine Geology and Geophysics Expedition in the Gulf of Mexico	UT INSTITUTE FOR GEOPHYSICS
	<i>Collected, processed, and interpreted multibeam echosounder (MBES) sonar, side-scan sonar, multichannel seismic (MCS), and CHIRP data, in addition to collecting and performing sedimentological analyses on piston/push/box cores and grab samples over the course of 3 weeks aboard the R/V Brooks McCall and the R/V Scott Petty. Combined these in order to investigate the geomorphological effects of Hurricane Harvey in and offshore of the Corpus Christi Bay and map the lowstand Nueces River valley from the Last Glacial Maxima. Presented findings as team to sponsors.</i>	
Oct. 2018	Bastrop (USA)	THE UNIVERSITY OF TEXAS
	<i>Utilised GIS to accurately map contacts between Tertiary terrigenous clastic units, and map the location and orientation of morphological changes within the units.</i>	
May 2018	Pedernales Falls State Park (USA)	THE UNIVERSITY OF TEXAS
	<i>Mapped/described sedimentary structures within Pennsylvanian limestone and sandstone units, and mapped the geometry of a carbonate buildup within the limestone unit.</i>	
Apr. 2018	Austin (USA)	THE UNIVERSITY OF TEXAS
	<i>Measured sections of a Cretaceous limestone unit at multiple localities, and determined lithofacies and correlations between sections.</i>	
Mar. 2018	Bastrop (USA)	THE UNIVERSITY OF TEXAS
	<i>Mapped/described Tertiary terrigenous clastic units and identified river pebbles from outcrops for provenance determination.</i>	
Mar. 2018	Llano & Inks Lake State Park (USA)	THE UNIVERSITY OF TEXAS
	<i>Mapped/described folded Precambrian marbles and the geometry of a Cambrian/Precambrian nonconformity within the Llano Uplift.</i>	
Feb. 2018	Marble Falls (USA)	THE UNIVERSITY OF TEXAS
	<i>Mapped/described Pennsylvanian and Quaternary turbidite units.</i>	
Jan. 2018	Mason Mountain Wildlife Management Area (USA)	THE UNIVERSITY OF TEXAS
	<i>Mapped the geometry of a Cretaceous/Precambrian nonconformity within the Llano Uplift.</i>	
May 2017	Austin (USA)	THE UNIVERSITY OF TEXAS
	<i>Identified invertebrate marine fossils within a Cretaceous chalk unit at multiple localities, including Ammonoidea, Heteraster texanus, Inoceramidae, Exogyra ponderosa, Exogyra tigrina, Lispodethes texana, serpulid worm tubes, etc.</i>	
Oct. 2015	Llano Uplift (USA)	THE UNIVERSITY OF TEXAS

TEACHING EXPERIENCE

Feb. 2023 – Present	Instructor of Mathematics	LONE STAR COLLEGE – UNIVERSITY PARK
	<i>Taught vector/multivariable/differential/integral calculus, pre-calculus, trigonometry, algebra, computer programming with Python, etc. Held seminars to help students prepare for the mathematics portion of the Texas Success Initiative (TSI) examination, which dictates their placement in university level mathematics courses.</i>	
Sep. 2022 – Jan. 2023	Lead Instructor of Mathematics	MATHNASIUM
	<i>Taught differential and integral calculus, pre-calculus, geometry, algebra, etc.</i>	
Jan. 2016 – Feb. 2020	Volunteer Sedimentary Geology Tutor	THE UNIVERSITY OF TEXAS AT AUSTIN
	<i>Hosted informal weekly review lectures for engineering classmates in sedimentary geology course covering the material learned during the official lecture time due to popular request after helping classmates understand course concepts. Prepared notes over course lectures and study guides to help students prepare for exams.</i>	

MENTORED STUDENTS

UNDERGRADUATE STUDENTS

Spring 2020 – Present	María Paula Borja Tibaduiza, <i>BS in Earth System Sciences, Yonsei University.</i>
Spring 2020 – Spring 2022	Esoo Yun, <i>BS in Earth System Sciences, Yonsei University.</i>

ACADEMIC HONOURS AND AWARDS

2020	Fellow (FRAS)	ROYAL ASTRONOMICAL SOCIETY
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2020 – 2021	BK21 Fellowship for Leading Universities & Students (4x)	REPUBLIC OF KOREA
	<i>Research fellowship awarded by the Korean Ministry of Education & the National Research Foundation of Korea “to produce the next generation of world class leaders in their fields.” Initially provided with a ₩500,000 per month stipend, but later received several raises up to ₩800,000 per month.</i>	
2020	Outstanding Undergraduate Poster, 2nd Place	UT JSG STUDENT RESEARCH SYMPOSIUM
	<i>Awarded by The University of Texas Jackson School of Geosciences and ConocoPhillips for the best research poster of the undergraduate division.</i>	
2019 – 2022	Global Leader Fellowship	YONSEI UNIVERSITY
	<i>Most prestigious fellowship at Yonsei University, awarded to a maximum of 7 newly admitted postgraduate students per application period. Covers full entrance and tuition fees, and provides a ₩500,000 per month stipend.</i>	
2019	Fellow (FGS)	GEOLOGICAL SOCIETY OF LONDON
2019	William S. Flores Sr. Field Scholarship	THE UNIVERSITY OF TEXAS AT AUSTIN
2019	2nd Annual UGS Scholarship, 1st Place	UNDERGRADUATE GEOLOGICAL SOCIETY
	<i>For “embodying the values of the Jackson School of Geosciences” and for being “heavily involved in research, seminars, as well as connecting with fellow undergraduates and faculty of our department.”</i>	
2018	1st Annual UGS Scholarship, 1st Place	UNDERGRADUATE GEOLOGICAL SOCIETY
	<i>For “embodying the values of the Jackson School of Geosciences” and for being “heavily involved in research, seminars, as well as connecting with fellow undergraduates and faculty of our department.”</i>	
2017	University Honours	THE UNIVERSITY OF TEXAS AT AUSTIN
2016	University Honours	THE UNIVERSITY OF TEXAS AT AUSTIN
2015	Foresters Competitive Scholarship	FORESTERS FINANCIAL
2015	West Point Bridge Design Competition, Top 50	THE US MILITARY ACADEMY AT WEST POINT
	<i>National structural engineering competition with several thousand competitors. Awarded by The US Military Academy at West Point, and the American Society of Civil Engineers.</i>	
2014	Engineering 12EE Energy Contest, 1st Place	TEXAS A&M UNIVERSITY
	<i>Led team in designing the most efficient wind turbine which was more than twice as efficient as the 2nd place design through proper application of Betz’s law.</i>	
2014	Eagle Scout	BOY SCOUTS OF AMERICA, TROOP 440

PUBLIC OUTREACH, COMMUNITY SERVICE, AND LEADERSHIP

Sep. 2023	Host & Visiting Planetary Scientist for NASA Downlink	
	<i>Hosted NASA Downlink for a 5th grade science class at Sofia Academy, where students got to speak with astronauts aboard the International Space Station, as part of the Rhode Island Science Teachers Association (RISTA) Astronaut Lollapalooza. Spoke with students about the paths they can take to become involved in studying space, my personal path to studying planetary sciences, and answered all of their questions about space exploration and life aboard the International Space Station.</i>	
Jul. 2023 – Aug. 2023	Mathematics Lecturer & Host for Lone Star College TSI Mathematics Exam Preparation Seminars	
	<i>Held seminars to help students prepare for the mathematics portion of the Texas Success Initiative (TSI) examination, which dictates students’ placement in university level mathematics courses.</i>	
Dec. 2022	American Geophysical Union (AGU) Annual Meeting Poster Hall Evening Assistant	
	<i>Worked with AGU staff to assist presenters with their presentations and prepare the poster hall for the next day’s presentations.</i>	
Sep. 2022 – Present	Ambassador for The University of Texas Center for Planetary Systems Habitability	
	<i>Serving as an ambassador for The University of Texas Center for Planetary Systems Habitability in order to raise funds to enable graduate and undergraduate students to conduct exploratory research projects in planetary habitability as part of the 40 Hours for the Forty Acres giving campaign.</i>	
Mar. 2020 – Jul. 2022	Peer Reviewer for Morphodynamics and Quantitative Stratigraphy Laboratory	
	<i>As the Morphodynamics and Quantitative Stratigraphy Research Group at Yonsei University is located in Korea and composed of non-native English speakers, serving as a peer reviewer within the lab, helping fellow lab members develop their manuscripts before submission to journals for publication.</i>	
Mar. 2020 – Jul. 2022	Ambassador for Morphodynamics and Quantitative Stratigraphy Laboratory	
	<i>Serving as an ambassador to the public and the wider scientific community for the Morphodynamics and Quantitative Stratigraphy Research Group. Represented the research group at outreach events in order to recruit new students to the lab.</i>	

Oct. 2019 – Present	<p>Ambassador for UT Institute for Geophysics Marine Geology and Geophysics Field Course</p> <p><i>Serving as an ambassador to the public and the media for the University of Texas Institute for Geophysics Marine Geology and Geophysics Field Course in order to raise funds to support future expeditions, by shooting videos and publishing media about my experience, and working to educate the public about the importance of the expedition. Helped to raise \$12,308, surpassing the \$10,000 goal.</i></p>
Sep. 2019 – Feb. 2020	<p>Geoscience Ambassadors</p> <p><i>As an ambassador, worked to develop my story on how I became a geoscientist to share with my home community in order to educate the members of my community on what the geosciences are and get people interested in studying geosciences.</i></p>
May 2019	<p>OnRamps</p> <p><i>Gave presentations to high school students in the OnRamps programme about why they should pursue a university education in STEM and a degree in the geosciences.</i></p>
Apr. 2019	<p>Session Chair at EU-In-Time-Rise Workshop on Geochronology and Mars Exploration</p> <p><i>Chaired session on Martian analogues.</i></p>
Sep. 2018	<p>GLOW Undergraduate Research Panel</p> <p><i>Panelist for the Geoscience Leadership Organization for Women's undergraduate research panel. Spoke to undergraduate students about how to get involved in research, what doing research was like, and how to have good time management in order to properly balance their work life with their personal and school lives.</i></p>
Oct. 2017	<p>Palæontological Society of Austin's 27th Annual Fossil Fest</p> <p><i>Ran the University of Texas' exhibit at the event and educated children and parents about dinosaur evolution into birds and why, phylogenetically, certain organisms are classified as dinosaurs while others are not.</i></p>
May 2014 – Sep. 2015	<p>Northwest Assistance Ministries</p> <p><i>Office in Administration and Development, managed volunteer recruitment and coordination of volunteer activities related to poverty alleviation.</i></p>
Aug. 2003 – Sep. 2015	<p>Boy Scouts of America, Troop/Crew 440</p> <p><i>Eagle Scout giving back to scouting as an Assistant Scoutmaster at Troop 440. Held many leadership positions in both Boy Scouts and Venture Scouts teaching outdoor skills and lead thousands of hours of community service. Achieved rank of Brotherhood in the Order of the Arrow, scouting's honour society. Backpacked 170 km in the Rocky Mountains at Philmont Scout Ranch.</i></p> <p><u>Leadership positions held:</u> Assistant Scoutmaster, Junior Assistant Scoutmaster, Vice President of Programme, Vice President of Administration, Assistant Senior Patrol Leader, Patrol Leader, Assistant Patrol Leader, Quartermaster, Secretary, Scribe, Denner, Assistant Denner.</p>

TECHNICAL SKILL SET

Computer Software:

Remote Sensing: ENVI, Google Earth Engine, ESA SNAP.

Geophysical Acquisition/Processing/Interpretation: Fledermaus, Landmark, Teledyne CARIS (HIPS & SIPS), Paradigm, QINSy, VMT, EdgeTech Discover, Fugawi, WinRiver II, Okular, Omniviewer.

Lidar: Agisoft Metashape, Leica Cyclone.

GIS: Esri ArcGIS (Pro, ArcMap, ArcScene, ArcCatalog, Collector), Global Mapper, QGIS.

Hydrological Modelling: HYDRUS.

Engineering CAD: Autodesk (AutoCAD, Inventor), Solidworks, PTC Creo, SketchUp.

Mathematics/Statistics: Mathematica, MATLAB, SPSS, Simulink.

Relational Database: Oracle, Access.

IDE: Spyder, Anaconda, JupyterLab, PyCharm (Professional), RStudio, TeXstudio, Texmaker, Overleaf.

Particle Analysis: GRADISTAT, Femto PSS.

Miscellaneous: Adobe (Photoshop, Illustrator), Schlumberger BlueView, Neuralog, Vernier Logger Pro.

Programming Languages:

Python, MATLAB, R, JavaScript, SPSS, SQL, IDL, VBA, Wolfram, Mathematica, L^AT_EX.

Operating Systems:

Linux/UNIX.

Other Technical Skills:

- Skilled in machine learning and deep learning of satellite derived data.
- Skilled in mathematics, including vector calculus and differential equations, as well as proof writing for higher dimensional non-Euclidean geometries.
- Skilled in collecting, processing, and interpreting multibeam echosounder (MBES), side-scan sonar, multichannel seismic (MCS), and CHIRP seismic data.
- Skilled in conducting flume experiments of 3D minibasins, 2D/3D deltas, 2D/3D alluvial fans, 3D meandering rivers, 2D/3D æolian bedforms, and 2D turbidity currents.
- Skilled in numerical modelling and geomorphometric analysis.
- Skilled in analysis of multispectral and hyperspectral data from the Earth, the moon, Mars, and Titan from wavelengths across the electromagnetic spectrum, including VNIR, thermal infrared, ultraviolet, and radar.
- Skilled in deriving topography from Lidar and stereogrammetry, and in use of SAR and InSAR data.
- Skilled in interpretation of remote sensing data, including via spectral mineralogy, environmental metrics such as NDVI/EVI, and spectral mixture analysis.
- Skilled in optical mineralogy and petrographic microscope use.
- Skilled in collecting and performing sedimentological analyses on piston/push/box cores and grab samples.
- Skilled in processing and interpretation of data obtained via wireline logging, including gamma ray, neutron porosity, electrical resistivity, spontaneous potential, and nuclear magnetic resonance (NMR).
- Skilled in various forms of engineering CAD software, 3D modelling software, and 3D printing, as well as machine shop work (mill, lathe, etc.).
- Possesses strong knowledge of palæontology and skilled at identifying fossils.

Non-programming Languages:

English (native), Classical Latin (in progress), Русский (limited), Deutsch (limited), Français (limited), 한국 (very limited), 廣東話 (formerly fluent).

RELEVANT COURSEWORK

**postgraduate-level coursework*

Geology/Geophysics:

Marine Geology and Geophysics Field Course*, Planetary Geology/Tectonics*, Lunar Exploration*, Remote Sensing/SAR (2x)*, Morphodynamics/Quantitative Stratigraphy (2x)*, Geofluids Dynamics*, Stratodynamics (2x)*, Depositional Mechanics Modelling*, Geomorphology*, GIS/GPS*, Biogeochemistry*, Environmental Geology*, Structural Geology*, Field/Stratigraphic Methods, Sedimentary Geology (3x)*, Igneous/Metamorphic Petrology (2x), Palæontology (2x)*, Research Design/Data Analysis (9x)*, Ethics in Geosciences (2x)*.

Mathematics:

Structure of Modern Geometry* (Proof writing for higher dimensional non-Euclidean geometries), Vector Calculus*, Ordinary and Partial Differential Equations with Linear Algebra*, Differential Calculus, Integral Calculus, Multivariable Calculus.

Engineering/Physics:

Hydraulics/Open Channel Flow*, Engineering/Energy and the Environment*, Petroleum Engineering, Geosystems Engineering MATLAB*, Mechanical Engineering, Engineering Mechanics*, Engineering Physics I (Mechanics, Heat, Wave Phenomena) & Engineering Physics II (Electricity and Magnetism, Optics, Atomic Phenomena) with laboratories.

Biochemistry/Chemistry:

Astrobiology*, Chemistry I & II with laboratories.

MEDIA COVERAGE

INTERVIEWS

- 1 Dec. 2019 **The University of Texas Institute for Geophysics**
 Ryan Herring, *Marine Geology & Geophysics Field Course Alumni 2019* <url>

RESEARCH GROUPS

- Aug. 2019 – Jun. 2020 **Quantitative Sedimentology Research Group**
The University of Texas Department of Geological Sciences Research Group
- Aug. 2019 – Sep. 2023 **GOM/Chicxulub Research Group**
The University of Texas Institute for Geophysics Research Group
- Jun. 2018 – Present **The University of Texas Centre for Planetary Systems Habitability (CPSH)**
Successful interdisciplinary effort to establish a Centre for Planetary Systems Habitability at the University of Texas
- Oct. 2017 – Aug. 2022 **Morphodynamics and Quantitative Stratigraphy Research Group**
The University of Texas and Yonsei University Research Group
- Jan. 2017 – Jun. 2020 **RioMAR Consortium**
Research consortium between the Colorado School of Mines, The University of Texas, and Yonsei University
- Jan. 2017 – Present **Steel Research Group (Dynamic Stratigraphy Workgroup)**
The University of Texas Department of Geological Sciences Research Group

PROFESSIONAL AFFILIATIONS AND STUDENT ORGANISATIONS

- Sep. 2023 – Present **Brown University GeoClub**
- Jun. 2021 – Jul. 2022 **The Korean Society of Economic and Environmental Geology (KSEEG)**
- Feb. 2021 – Present **European Astronomical Society (EAS)**
- Oct. 2021 – Present **Royal Astronomical Society (RAS)**
Fellow (FRAS)
- Sep. 2019 – Feb. 2020 **The University of Texas Mathematics Club**
- Sep. 2019 – Feb. 2020 **Geoscience Ambassadors**
Ambassador
- Nov. 2019 – Present **American Geophysical Union (AGU)**
- Feb. 2019 – Feb. 2020 **Society of Petrophysicists and Well Log Analysts University of Texas Student Chapter**
- Aug. 2018 – Feb. 2020 **Texas Geophysical Society (TGS)**
- Aug. 2018 – Feb. 2020 **American Association of Petroleum Geologists (AAPG) University of Texas Student Chapter**
- Aug. 2018 – Feb. 2020 **Geoscience Leadership Organization for Women (GLOW)**
- Oct. 2017 – Present **Geological Society of London**
Fellow (FGS)
- Jun. 2017 – Feb. 2020 **Undergraduate Geological Society (UGS)**
- Jan. 2016 – Jan. 2017 **Texas State Parks Club**
- Aug. 2015 – Jun. 2017 **American Association of Drilling Engineers (AADE) University of Texas Student Chapter**
- Aug. 2015 – Jun. 2017 **Society of Petroleum Engineers (SPE) University of Texas Student Chapter**
- Aug. 2015 – Jun. 2017 **The University of Texas Polo Team**
Club team member

HOBBIES AND INTERESTS

Teaching, research, fieldwork, scouting, backpacking, polo, piano, flying, sailing, oil painting, opera.

REFERENCES

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