

ZIJIE GAO

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Education and Certification

University of Kansas (KU)

Ph.D. in Geology (Advisor: Dr. Mike Blum)

Expected Graduation: May 2026

Cumulative GPA: 4/4

University of Kansas (KU)

M.S. in Geology (Advisor: Dr. Jennifer Roberts)

Aug 2019 – Dec 2021

Cumulative GPA: 3.86/4

China University of Petroleum – Beijing (CUPB)

B.E. in Resource Exploration Engineering (Petroleum Geology)

Sept 2015 – June 2019

Cumulative GPA: 4.18/5 (3.72/4)

Small Unmanned Aircraft (Drone) Certificate issued by the U.S. Federal Aviation Administration

Oct 2024 – Present

Publications

Gao, Z., Auchter, J., Auchter, N., Blum, M. (*in prep, expected submission to Sedimentology in Jan 2026*) Sediment Gravity Flow Varieties and Process Controls in an Unconfined System: A Machine Learning Core Study from the Distal Bengal Fan.

Gao, Z., Blum, M., Auchter, J. (*in prep*) Outsized Impact of Rare Extreme Sediment Gravity Flow Events during the Middle-Late Pleistocene, Bengal Fan.

(5) **Gao, Z.** (2021). Investigating the Fate of Mg-Bearing Calcium Carbonates during Early Diagenesis. Master's Thesis, Available from ProQuest Dissertations & Theses Global Database. (UMI No. 28868559).

(4) Niu, H., Jiao, X., Xie, Q., Zhang, Y., Li, X., Wu, Z., Wang, B., Yang, X., Li, Y., & **Gao, Z.** (2020). Origin and Tectonic Implications of Granitoids from the Eastern Segment of the South Altyn Block, North-western China: Constraints from Petrogeochemistry, Zircon U–Pb Dating, and Lu–Hf Isotope Geochemistry. Geological Journal. DOI: 10.1002/gj.3863. Citation = 4.

(3) **Gao, Z.**, & Zhu, S. (2018). Controlling Factors of the Ordered Index of Dolomite. Science and Technology Innovation Herald, DOI: 10.16660/j.cnki.1674-098X.2018.08.033. [In Chinese]. National Journal in China. Citation = 14.

(2) Qin, Y., Zhu, S., Zhu, X., Jia, G., Tang, D., Chen, T., Zhang, W., & **Gao, Z.** (2017). Shallow Water Delta Sedimentation and Source to Sink Process in the South Slope Belt, Dongying Sag. Earth Science, DOI: 10.3799/dqkx.2017.000. [Core Journal in China]. Citation = 19.

(1) **Gao, Z.**, & Gao, T. (2017). Management Optimization of the University Volunteer Community. Environmental Education. [In Chinese]. National Journal in China. Citation = 1.

Citations current as of 7/16/2025, with citation counts sourced from Google Scholar and China National Knowledge Infrastructure (CNKI)

Conference

(4) **Gao, Z.**, Auchter, J., Auchter, N., Blum, M., 2025, Unsupervised Machine Learning Delineates the Variability of Turbidites in Unconfined Systems: A Distal Bengal Fan Case Study: American Geophysical Union Annual Meeting, New Orleans, LA, USA (abstract accepted)

(3) **Gao, Z.**, Auchter, J., and Blum, M., 2024, Statistical Analysis of the Thickness of Deepwater Sedimentary Deposits from IODP Expedition 354: Climatic Insights Gained Using a Data-Driven Approach: Geological Society of America Annual Meeting, Anaheim, CA, USA.

(2) **Gao, Z.**, Blum, M., and Auchter, J., 2024, Unveiling Sedimentary Dynamics in the Distal Bengal Fan: Insights from IODP Expedition 354 Core Site U1454b: International Association of Sedimentologists Annual Meeting, Aberdeen, Scotland, UK.

(2) Auchter, J., Goodbred, S.L., Sincavage, R., Ibn Salam, M., **Gao, Z.**, 2023, Extreme Floods from Source-to-Sink: Tracking Himalayan GLOFs through the Ganges-Brahmaputra Delta to the Deep Marine Bengal Turbidite Fan Using Radiocarbon Dating: American Geophysical Union Annual Meeting, San Francisco, CA, USA

- (1) Rodriguez-Colon, B.J., Roberts, J.A., and **Gao, Z.**, 2020, Assessing the Role of Solution Chemistry and Organic Matter in the Genesis of the Dengying Formation Dolostones at Sichuan Basin, China: Kansas Interdisciplinary Carbonates Consortium, Online.

Academic Service

Co-chair | Deep Water Session #1 of 2024 Annual Meeting of International Association of Sedimentology
Peer Reviewer for: *Sedimentology*

June 2024

Employment

Graduate Research Assistant | University of Kansas, Geology Department, Lawrence, KS Aug 2019 - Present

Project 3: Middle-Late Pleistocene Sediment Gravity Flow Deposits in the Distal Bengal Fan: Characteristics and Insights for the Propagation of Himalayan Climate Signals 2022 - Present

- Described IODP 354 cores and sampled for luminescence dating in Kochi Core Center, Japan (5 weeks total)
- **Secured over \$50,000 in fellowships and grants** for funding research activities, international travels, luminescence analytic cost and summer stipend
- Published three conference abstracts with two manuscripts currently in preparation; research will yield in total three dissertation chapters

Project 2: Microscopic Thin section and SEM Image Segmentation and Analysis with Deep Learning 2023 - Present

- Built deep learning pipeline integrating Meta's SAM foundation model for automated mineral grain segmentation in petrographic thin sections and SEM imagery
- Open-sourced implementation on GitHub with community engagement (1 fork, 5 stars)

Project 1: Investigating the Fate of Mg-Bearing Calcium Carbonates during Early Diagenesis under laboratory modeled high pressure environment 2019 - 2021

- Assembled Parr pressure reactor system and designed custom-built safety enclosure from scratch
- Conducted batch experiments and performed multi-analytical characterization including pH, alkalinity, XRD, and ICP-MS analyses
- Completed thesis research leading to Master of Science degree in Geology

Miscellaneous tasks

- Assisted labmate with field work in Kansas and Nebraska on the Ogallala formation
- Assisted advisor with river sand sampling in Bangladesh
- Provided editorial feedback on labmate's grant proposal
- Led drone acquisition and test runs, and developed workflows for drone-based 3D outcrop rendering
- Gained hands-on experience with detrital zircon U-Pb dating at the LaserChron Center, University of Arizona (3 days)
- Completed sample preparation training including sieving and mineral separation at Utah State University for luminescence analyses (5 days)

Geology Intern | Occidental Oil and Gas Corporation (Oxy), Midland Basin Appraisal, Houston, TX May 2023 – Aug 2023

- Mapped out reservoir properties, petrofacies, and pyrolysis data across the Midland Basin for four unconventional shale benches; leveraged **Python** for efficient QC and data integration
- Worked with petrophysicist and reservoir engineer to calculate OIP and EUR
- Proposed the landing zone, frac range, and location of a test well in key acreage, with drilling anticipated in 2024

Geology Intern | Civitas Resources Inc., Reservoir Characterization Department, Denver, CO May 2022 – Aug 2022

- Integrated 3D seismic volumes, completion design, strata information and treatment data into microseismic dataset with **python** and Transform.
- Built Spotfire visualization and analytic tool to calculate optimal well spacing, evaluate completion design and approximate the growth of fracture network with time
- The whole pipeline is applicable for the direct usage of similar projects with data plugged in

Hourly Student | University of Kansas, Geology Department, Lawrence, KS**May 2021 – Aug 2021**

- Performed XRD analysis to understand the mineralogy of Nebraska loess samples (n=274)

Graduate Teaching Assistant | University of Kansas, Geology Department, Lawrence, KS**Aug 2019 – Present**

- GEOL 542 Energy and Society Lab; 2019 Fall
- GEOL 541 Geomorphology Lab; 2023 Fall
- GEOL 311 Mineralogy Lab; 2022 Fall & 2023 Fall & 2025 Fall
- GEOL 302 Oceanography Lab; 2019 Fall
- GEOL 171/172 Earthquakes and Natural Disasters; 2025 Spring
- GEOL 103 Geology Fundamentals Lab; 2020 Spring & 2020 Fall
- GEOL 101 The Way the Earth Works; 2020 & 21 & 25 Spring & 2022 Fall

Undergraduate Researcher | National Key Lab of Oil & Gas Exploration, Beijing, China**Dec 2018 – Jun 2019**

- Summarized general petrography, reservoir property, diagenesis of target reservoir with **Python**
- Evaluated the controlling factors during reservoir evolution and predicted locations of good reservoirs
- Developed **python** scripts to help colleagues extract and calculate desired data from well-logging dataset

Grants & Awards

KU Geology Summer Scholarship (\$4,500)	2025
American Association of Petroleum Geologists (AAPG) Roger W. Stoneburner Memorial Grant (\$3,000)	2025
KU Research Excellence Initiative Grant-Writing Incentive Fund (\$1,000)	2025
KU Graduate Student Travel Fund (\$750)	2024
Geological Society of America (GSA) South Central Travel Grant (\$300)	2024
International Association of Sedimentologists (IAS) Post-graduate Research Grant (€1,000 ~ \$1,090)	2024
Geological Society of America (GSA) Research Grant (\$2,500)	2024
International Association of Sedimentologists (IAS) Travel Grant (€200 ~ \$209)	2024
KU Geology Summer Research Grant (\$4,500)	2024
The Geological Society, London - Research Grant (£ 1,666 ~ \$2,057)	2024
American Association of Petroleum Geologists (AAPG) R. Dana Russell Memorial Grant (\$3,000)	2024
International Ocean Discovery Program (IODP) Schlanger Fellowship (\$30,000)	2024
Society for Sedimentary Geology (SEPM) Graduate Student Research Grant (\$726)	2023
Jackson Fellowship	2023
D.A. McGee Scholarship	2023
Angino-Ferry Geochemistry Scholarship	2022 & 2020
University of Kansas Graduate Fellowship	2021
Kansas Geological Foundation Research Scholarship (\$500)	2021
Geological Society of America (GSA) Graduate Research Award (\$1,250)	2020

-----Below are Undergraduate Awards at CUPB-----

Dean's list	2019
Finalist of Li Siguang Excellent Undergraduate Award (highest geology undergraduate award in China)	2018
First place of National Geological Competition – Field work section	2018
Top ten Undergraduate Technology Innovation Star	2018
Beijing Merit Student (Top 0.5%)	2018
Outstanding Undergraduate Leader	2018
First Prize Scholarship of CUPB	2018
Champion of Geological Skill Competition	2018
First place of Comprehensive Geoscience Knowledge Competition	2018
First place of CUPB Geoscience Undergraduate Colloquium	2017
Second place of Asia and Pacific Mathematical Contest in Modeling	2017
Second place of May Day Mathematical Contest in Modeling	2017
Second place of Comprehensive Geoscience Knowledge Competition	2017
National Scholarship (Top 1%)	2016 & 2017
First place of CUPB Mathematical Contest in Modeling	2016
Third prize of Calculus Contest	2016

Field Trips and Short Courses

Santa Cruz Island Field Trip (Instructors: <i>Daniel Muhs and Scott Minor</i> , USGS Geologist)	Sept 2024
ArcGIS Pro Workshop (Instructor: <i>Zoe Ponterio</i> , Cornell University)	Sept 2024
Deep Water Clastic Short course (Instructor: <i>Adam McArthur</i> , University of Leeds)	June 2024
Digital Outcrop Methodology (Instructor: <i>John Howell</i> , University of Aberdeen)	June 2024
Geology Field Safety Training (Instructor: <i>Kevin Bobacs</i> , ExxonMobil Geologist)	Aug 2023
Source to Sink Field Trip, Arkansas (Instructor: <i>Mike Blum</i> , KU)	Mar 2023 & Oct 2024
Deep Water Short Course (Instructor: <i>Brad Prather</i> , Shell Geologist)	Dec 2022
Grand Canyon Rafting Field Trip, Arizona (Instructor: <i>Mike Talyor</i> , KU; and <i>Paul Kapp</i> , University of Arizona)	July 2022
Fluvial Processes and Systems, Colorado, Wyoming and Utah (Instructor: <i>Mike Blum</i> , KU)	May 2021 & 2023
Modern Geomorphology and Records in Outcrops, Nebraska and Colorado (Instructor: <i>Mike Blum</i> , KU)	Oct 2021
River Process Regime Recognized in Outcrops, Book cliffs, Utah (Instructors: <i>Ron Steel and Cornel Olariu</i> , UT Austin)	Aug 2018

Community Service

Volunteer KU International Student Orientation and Health Check	Aug 2025
Volunteer KU New Student Recruitment at the 2024 GSA Annual Meeting	Sept 2024
▪ Introduced KU's Geology and Environmental Science programs, funding opportunities, and recommended faculty specialties to prospective students based on their academic backgrounds and research interests.	
Secretary Association For Women Geoscientists (AWG) - Osage Chapter	Sept 2020 – Sept 2021
▪ Took charge of social media and recorded weekly meetings	
Lecturer Li Siguang GeoTeachers Team	Jun 2017–Jun 2018
▪ Taught basic sedimentary geology to students in four primary schools (in total over 200 students)	
▪ Collaborated with the teaching team to develop engaging geology courses at primary school level	
Coordinator Organizational Department in Volunteers Association	Jun 2016 – Jun 2017
▪ Organized various volunteering or teaching activities for primary schools	
▪ Led the team to win the second place of the Best Volunteer Organizations at CUPB	

Professional Societies

American Geophysical Union	2025 – Present
The Geological Society, London – Elected Fellow	2024 – 2025
International Association of Sedimentologists – Student member	2023 – present
Society for Sedimentary Geology (SEPM) – Student member	2023 – 2024
American Association of Petroleum Geologists – Student member	2019 – present
Geological Society of America – Student member	2019 – 2020; 2023 – present
Association of Women Geologists – Student member	2019 – 2020

Computer Skills

Python, Machine learning, Deep Learning, Visual Studio Code, Github, Spotfire, Petrel, ArcGIS Pro, Transform, CorelDraw, Adobe Illustrator, Matlab, SPSS, C language