

Hongliu Zeng

Professional Summary

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Professional Preparation

Academic Background

Ph.D. Geophysics, The University of Texas at Austin, 1994
M.A. Geology, Petroleum University, Dongying, China, 1985
B.A. Geology, Petroleum University, Dongying, China, 1982

Professional Appointments

Research professor, BEG (December 2023-Present)
Seismic sedimentology (integration of seismic lithology and seismic geomorphology), seismic and sequence stratigraphy, seismic chronostratigraphy, thin-bed prediction, application of machine learning.

Present Position: Senior Research Scientist, Bureau of Economic Geology, The University of Texas at Austin (September 2012 - Present). Seismic sedimentology and geomorphology, seismic and sequence stratigraphy, seismic chronostratigraphy, thin-bed prediction

Guest Professor, Petroleum University of China (November 2005 - Present)

Guest Professor, China University of Geosciences (June 2011 - Present)

Guest Professor, Tongji University, Shanghai, China (June 2013 - 2018).

Guest Professor, China University of Geosciences (Wuhan) (October 2014-December 2019)

Research Scientist, Bureau of Economic Geology, The University of Texas at Austin (March 1997 - August 2012). Seismic sedimentology, reservoir characterization, and 3-D visualization.

Advanced Geoscientist, Texaco International Exploration (1996 - February 1997). Seismic sedimentology, reservoir characterization.

Geoscientist, Texaco, New Orleans (1994 - 1996). Seismic sedimentology, reservoir characterization.

Graduate Research Assistant, The University of Texas at Austin, Bureau of Economic Geology (1990 - 1993). 3-D seismic modeling and reservoir characterization.

Consultant, Huabei Oil Company and Bohai Bay Oil Corporation (1985 - 1989). Seismic data interpretation and reservoir characterization in several on-land and offshore basins.

Instructor of Seismic Stratigraphy, Petroleum University, Beijing (1985 - 1989).

Professional Registrations and Certificates

Texas Board of Professional Geoscientists, License Number 4773

Theses

Seismic stratigraphy of Long-Gu Basin, North-Central China: Petroleum University at Beijing, M.S. thesis, 1995

Dissertations

Facies-guided 3-D seismic modeling and reservoir characterization, The University of Texas at Austin, Ph.D. dissertation, 164 p., 1994

Continuing Education Courses Taken

Comprehensive neural network and NeuroSolutions: 5-day class offered by NeuroDimensions, Inc., Orlando, Florida, April 2002

Areas of Expertise

Areas of Expertise

3-D seismic processing, modeling, and inversion
application of machine learning
Characterization of thin-bed reservoirs
Seismic and sequence stratigraphy
Seismic sedimentology and geomorphology

Awards

Awards and Honorary Societies

Second Award for professional posters in GeoGulf 2023 conference for the presentation on "Mapping Massive (up to 500 m) Sandstones in Intraslope Subbasins with A Machine-Learning Enhanced Workflow: Guadalupe A Section, Lower Wilcox, South-Central Texas Coast", 2023

Honorable Mention, Best Poster Paper Presented at the SEG 2007 Annual Meeting for paper titled "Linear Amplitude Patterns in Corpus Christi Bay Frio Subbasin, South Texas", 2008

Co-Author, Second Place, Thomas A. Philpott Excellence of Presentation Award for "All Fill--No Spill: Slope-Fan Sand Bodies in Growth-Faulted Subbasins: Oligocene Frio Formation, South Texas Gulf Coast", 2007

Gordon Atwater Best Poster Award for "Seismic Sedimentological Expression of Higher-Order Lowstand Slope Fans and Prograding Deltas in the Frio Formation, Corpus Christi Bay, Texas," which was presented at the GCAGS/GCSSEPM Convention in Corpus Christi, 2007

Wallace E. Pratt Award for Best Original Article published in the AAPG Bulletin: Seismic frequency control on carbonate seismic stratigraphy: a case study of the Kingdom Abo Sequence, West Texas, 2003

Second-Place, Best Student Poster Award, American Association of Petroleum Geologists, 2001

Boundary Buster Award, Texaco Technology Conference (awarded for championing technical accomplishment across established business unit boundaries for the benefit of all), 1996

Star Quality Ambassador (Employee of the Year), Texaco, 1996

Level III Award, Texaco Exploration & Production, Inc. (TEPI's highest recognition for employee performance), 1995

ARCO scholarship, 1993

GCAGS scholarship, 1993

National Science Award, China, 1988

Award of Scientific Achievement by Petroleum Department of China, 1987

Dean's list of best students, 1981

Dean's list of best students, 1980

Dean's list of best students, 1979

Service

External Committees Participation

Member, Editorial Committee, Petroleum Exploration and Development, Beijing, 2013-Present

Associate Editor, Editorial Board, INTERPRETATION (a peer-reviewed SEG/AAPG journal), , 2012 - present

Research Supervisor, Supervisory Committee for PhD students in UT Department of Geological Sciences, , 2011 - present

Member, AAPG Geophysical Integration Committee, American Association of Petroleum Geologists, 2004 - present

Member, Development and Production Committee, Society of Exploration Geophysicists, 2001 - present

Co-Chair, Technical Session, 2014 Society of Exploration Geologists Annual Meeting, Denver, Colorado

Assistant Editor-in-Chief, Interpretation, SEG and AAPG, January 1, 2016-December 31, 2018

Member, Technical Program Committee, Society of Exploration Geophysicists Annual Meeting, Houston, 2017

Member, Promotion Advisory Committee, Bureau of Economic Geology, September 1, 2013-August 31, 2016

Member, Academic Committee, 8th National Conference on Sequence Stratigraphy, Sedimentology and Reservoir Studies, China Petroleum Society, Tianjin, China, September 2-5, 2014

Member, Technical Program Committee, Society of Exploration Geophysicists Annual Meeting, 2012

Co-Chair, Technical Session, 2011 Society of Exploration Geologists Annual Meeting, 2011

Member, Technical Program Committee, Society of Exploration Geophysicists Annual Meeting, 2011

Co-Chair, Technical Session, 2010 Society of Exploration Geologists Annual Meeting, 2010

Member, Organizing Committee, GCSSEPM Perkins Conference on Seismic Imaging of Depositional and Geomorphic Systems, Houston, December 7--10, 2010

Associate Editor, Bulletin, AAPG, 2009 - 2010

Co-chair, Technical Session, 2009 CPS/SEG Beijing Meeting, 2009

Member, Centennial Committee, Bureau of Economic Geology, 2009

Member, Organizing Committee, Development and Production Forum, Society of Exploration Geophysicists July, 2008

Co-Chair, Technical Session, 2008 American Association of Petroleum Geologists Annual Convention, San Antonio, 2008

Co-Chair, Technical Session, 2008 Society of Exploration Geologists Annual Meeting, 2008

Co-Chair, Technical Session, 2008 Society of Exploration Geologists Annual Meeting, 2008
Co-Chair, Technical Session, 2007 Society of Exploration Geologists Annual Meeting, 2007
Member, Technical Program Committee, 2007 Society of Exploration Geologists Annual Meeting, 2007
Co-Chair, Technical Session, Annual Meeting Technical Program Committee, Society of Exploration Geophysicists, 2005
Member, Publication Board, Bureau of Economic Geology, 2004

Proposal Review Panels Participation

AAPG Bulletin (1 Articles), 2024
Basin Research (1 Article), 2024
Interpretation (2 Articles), 2024
Sedimentology (1 Article), 2024
The Leading Edge (1 Article), 2024
(Interpretation (Article (2))), 2023
(Marine and Petroleum Geology (Article (4))), 2023
(Petroleum Exploration and Development (1 Article)), 2023
Earth-Science Reviews (Article (1)), 2021
Geophysics (Article (1)), 2021
Interpretation (Articles (3)), 2021
Marine and Petroleum Geology (Article (1)), 2021
Exploration Geophysics (one article), 2020
Marine and Petroleum Geology (three articles), 2020
Petroleum Exploration and Development (three articles), 2020
Interpretation (2 articles), 2019
Marine and Petroleum Geology (2 articles), 2019
AAPG Bulletin (6 articles), 2018
Geology (1 article), 2018
Interpretation (2 articles), 2018
Petroleum Exploration and Development (3 articles), 2018
AAPG Bulletin (2 articles), 2017
Earth-Science Reviews (1 article), 2017
Interpretation (5 articles), 2017
Petroleum Exploration and Development (2 articles), 2017
AAPG Bulletin (Article), 2015
Geology (Article), 2015
Geophysics (Article), 2015
JMPG (2 articles), 2015

AAPG Bulletin (two articles), 2014
Geophysics (3 articles), 2014
Interpretation (3 articles), 2014
Interpretation (Article), 2014
Marine and Petroleum Geology (1 article), 2014
AAPG Bulletin (Article), 2013
AAPG Bulletin (Article), 2013
Acta Sedimentologica Sinica (Article), 2013
Acta Sedimentologica Sinica (Article), 2013
Interpretation (Article), 2013
Interpretation (Article), 2013
Interpretation (Article), 2013
Sedimentary Geology (Article), 2013
Acta Sedimentologica Sinica (in Chinese) (Article), 2012
Geophysics (Article), 2012
Society of Exploration Geophysicists (100 Extended Abstracts), 2012
AAPG Bulletin (Two articles), 2011
Journal of Petroleum Geology (Article), 2011
Society of Exploration Geophysicists (40 Extended Abstracts), 2011
AAPG Bulletin (Two Articles), 2010
Chemie der Erde-geochemistry, Germany (Article), 2010
Society of Exploration Geophysicists 2010 Meeting (10 Extended Abstracts), 2010
AAPG Bulletin (Article), 2009
AAPG Bulletin (Three Articles), 2009
Marine and Petroleum Geology (Article), 2009
Geophysics (Article), 2008
Society of Exploration Geophysicists Annual Meeting (10 Expanded Abstracts), 2008
National Science Foundation (Proposal), 2005
Society of Exploration Geophysicists Annual Meeting (Abstracts), 2005
American Association of Petroleum Geologists Bulletin (Article), 2004
Petroleum Research Fund, American Chemical Society (Research Proposal), 2003
Geophysics (Two Articles), 2002
Gulf Coast Section SEPM research conference (Two Articles), 2002
The University of Texas at Austin, Bureau of Economic Geology (Article), 2001
Geophysics (Article), 1999

Teaching and Advising

University Courses Taught

Seismic sedimentology: presented to China University of Geosciences, Wuhan, China, December 11-14, 2023.

Seismic sedimentology: presented to China University of Petroleum, Qingdao, Qingdao, China, March 13-17, 2023.

Seismic sedimentology: presented at China University of Petroleum, Beijing, June 15-19, 2015.

Seismic sedimentology: presented at China University of Petroleum, Beijing, April 14-18, 2014.

Deeply buried (18,000-20,000') paleokarst-related drainage system and collapsed paleocaves, Ordovician, Tarim Basin, western China: presented at Bureau of Economic Geology, The University of Texas at Austin, Austin, Texas, January 8, 2010.

Geology 391 Multidimensional Data Analysis: co-taught at The University of Texas at Austin, Department of Geological Sciences, Austin, Texas, 2010.

Mapping sandstone distribution in high-frequency sequences using seismic sedimentology in Corpus Christi Bay, Texas: presented at BEG seminar, Austin, Texas, September 30, 2005.

Seismic inversion for high-resolution reservoir modeling: a progressive approach: presented at BEG seminar, Austin, Texas, April 15, 2005.

Neural networks and seismic reservoir characterization: presented at BEG seminar, Austin, Texas, November 8, 2002.

Seismic sedimentology and 3-D seismic expression of high-frequency sequence stratigraphy in Miocene, Starfak and Tiger Shoal fields, offshore Louisiana: presented at BEG seminar, Austin, Texas, April 27, 2001.

Stratal slice and seismic sedimentology: presented at BEG seminar, November 12, 1999.

Stratal slicing: methodology and applications: presented at BEG seminar, May 27, 1998.

Continuing Education Courses Taught

Stratal slice: Meaning and scope of application: presented at PetroChina RIPED-Northwest (NWGI), China, Lanzhou, China, August 2013.

Seismic sedimentology: presented at RIPED Northwest, Lanzhou, China, July 11-15, 2011.

Seismic stratigraphy and seismic geomorphology: taught at JOGMEC, Chiba, Japan, February 14-18, 2011.

Seismic sedimentology and stratal slicing: presented at Research Institute, Daqing Oil Company, PetroChina, Daqing, China, July 8, 2010.

Seismic sedimentology: applications in marine and non-marine basins: presented at Seminar on Technology for Exploration of the Non-Structure Oil Pools and Unconventional Resource Plays, organized by CNPC-MLR-CGS-PETRAD-CCOP, Dalian, China, August 25, 2009.

Seismic sedimentology: a tool for thin-reservoir prediction and litho-stratigraphic play analysis: presented at Seminar on Technology for Exploration of the Non-Structure Oil Pools and Unconventional Resource Plays, organized by CNPC-MLR-CGS-PETRAD-CCOP, Dalian, China, August 24, 2009.

Introduction to seismic sedimentology: taught at Graduate School, China University of Petroleum, Dongying, China, July 7-8, 2008.

Seismic geomorphology: presented to CNPC BGP, Beijing, China, October 21-22, 2006.

Seismic sedimentology: taught at Petroleum University of China, Dongying, China, November 14-18, 2005.

Using seismic sedimentology and stratal slicing to explore for and map reservoirs in the Tertiary of the GOM: presented as GCSSEPM Short Course, Austin, Texas, September 25, 2005.

Seismic applied to lithology: facies imaging, attribute analysis, and inversion: presented to Pemex, Villahermosa, Mexico, September 1-5, 2003.

Co-lecturer of short course, Characterization of heterogeneous reservoirs: presented to the University of Petroleum, 1998.

Co-lecturer of workshop, Integrated strategies for carbonate reservoir reserve growth: an example from the Ellenburger Group, Permian Basin, West Texas, Seismic-continuity analysis of the Waha-Lockridge field area: 1998.

Seismic characterization of heterogeneous reservoirs: 3-D modeling, facies imaging and attribute analysis: short course presented to PETROBRAS, 1998.

Student Committee Supervision

Co-Supervisor, Ph.D. Dissertation Committee, Yawen He, Seismic chronostratigraphy: The University of Texas at Austin, 2011

Co-Supervisor, Ph.D. Dissertation Committee, Xianguo Zhang, Seismic sedimentology in Dongying Depression, east China: China University of Petroleum, Qingdao, China, 2010

Student Committee Participation

Ph.D. Dissertation Committee, Yitao Pu, SEISMIC DATA PROCESSING AND INTERPRETATION VIA DEEP LEARNING, The University of Alabama, 2023

Ph.D. Dissertation Committee, Yunzhi Shi, Seismic interpretation with automatic deep learning methods, The University of Texas at Austin, Austin, Tex., 2017

Member, Ph.D., Dissertation Committee, Yangkang Chen, Deblending and imaging of simultaneous-source seismic data, The University of Texas at Austin, 2015

Member, Ph.D., Dissertation Committee, Jinyu Zhang, Impacts of sediment supply, climate, and sea level on Wilcox Group development and shelf edge architecture, The University of Texas at Austin, 2014

Member, M.S. Thesis Committee, Enzo Aconcha, Integrating core, well logs and seismic interpretation to improve our understanding of Albian patch reefs, Maverick Basin, SW Texas: The University of Texas at Austin, 2007

Member, M.S. Thesis Committee, Brian Moore, Sequential architecture from depositional facies analysis of seismic attributes: shallow northwestern Gulf of Mexico shelf: The University of Texas at Austin, Austin, Texas, 2004

Member, M.A. Thesis Committee, Songul Yildiz, Depositional Systems in Matagorda Bay Area, South Texas: The University of Texas at Austin, Austin, Texas, 2002

Member, Ph.D. Dissertation Committee, Hongbo Lu, Global and local controls on depositional cyclicity: Canterbury Basin, New Zealand: The University of Texas at Austin, Austin, Texas, (ongoing), 2002

Member, Ph.D. Dissertation Committee, Yong-Joon Park, Lithology, depositional facies, and stratigraphic sequences in Jackson County, Texas Gulf Coast Basin: an integrated approach using offset-dependent seismic attributes: The University of Texas at Austin, Austin, Texas, (ongoing), 2002

Member, M.S. Thesis Committee, Shouan Tang, Foreign oil companies' participation in China's upstream petroleum industry and related legal and fiscal regimes: The University of Texas at Austin, Austin, Texas, 1998

Presentations

Invited Presentations

Seismic sedimentology and petroleum accumulation in Sichun and Tarim Basins: case studies

in Gao-Mo and Guchengdong areas: presented to China University of Geosciences, Wuhan, China, December 13, 2023.

Seismic Sedimentology and Machine Learning for prediction of (conventional) reservoirs and (unconventional) production potential: presented to Sinopec, Beijing, China, December 5, 2023.

Seismic sedimentology: principles and applications: presented to Southwest University of Petroleum, Chengdu, China, November 31, 2023.

Seismic sedimentary applied to fluvial architectural-element analysis: Neogene, Bohai Basin: presented to PetroChina Southwest Oil & Gasfield Company, November 30, 2023.

Seismic sedimentology and machine learning: applied to study of fine-grain reservoirs in Qaidam Basin, China: presented to Qinghai Oilfield Company, CNPC, China, Dunhuang City, China, March 25, 2023.

Machine Learning-Guided CO₂ Reservoir Prediction in A Large 3D Survey with Sparse Wells: A GOM Example: presented at SEG/AAPG International Meetings; IMAGE 2022 - Research Workshop, 1 September 2022., Houston, Tex., September 1, 2022.

Seismic sedimentology: principles, applications, and challenges: presented at 5th International Conference of Palaeogeography, Yangtze University, Wuhan, China (virtual), May 24, 2022.

Machine learning of acoustic impedance with large synthetic training data: rationale, benefits and workflow: presented at SEG Research Workshop: Data Analytics & Machine Learning for Exploration & Production, Houston, Tex., May 16-19, 2022.

Keynote speech: Machine learning of acoustic impedance: presented to Petrobras, presented at Fourth Seismic Interpretation Workshop: Focus on Post-Salt Reservoirs, Rio de Janeiro, Brazil, November 16, 2021.

Keynote speech: Seismic sedimentology applied to field development: presented to Petrobras, presented at Fourth Seismic Interpretation Workshop: Focus on Post-Salt Reservoirs, Rio de Janeiro, Brazil, November 16, 2021.

Seismic-Sedimentological Prediction of Depositional Systems in Non-Marine Basins: presented to Research Institute for Petroleum Exploration and Development (RIPED), PetroChina, Beijing, China, January 17, 2020.

Seismic-informed high-resolution sedimentology: filling the gap between exploration and production: presented to Surge Oil Company, Houston, Tex., October 24, 2019.

Challenges to use morphology (shape) as a seismic attribute: can machine learning help?: presented at Society of Exploration Geophysicists (SEG) Annual Meeting Workshop, San Antonio, Tex., September 27, 2019.

Seismic sedimentology and its applications in mapping sedimentary sand bodies: presented to Liaohe Oilfield Company, Panjin, China, November 19, 2018.

Keynote speech: Seismic sedimentology applied to deep-water depositional systems: presented at International Symposium on Deep-Marine Exploration and Development in the 21st Century, Sanya City, China, November 14, 2018.

Linear combination and RGB blending of frequency panels for 3D facies and reservoir characterization: presented at SEG 2018 Annual Meeting Workshop: Frequency Dependent Seismic Analysis Including Processing and Modeling and Interpretation, Anaheim, Calif., October 19, 2018.

Seismic sedimentology applied to very old carbonate reservoirs: Longwangmiao Formation, Moxi-Gaoshiti area, Sichuan Basin: presented at 10th Conference on Sequence Stratigraphy and Reservoir Characterization, Hangzhou, China, September 29, 2018.

Digital and seismic modeling applied to interpretations of stratigraphy, sedimentology, and

reservoirs: presented to RIPED, PetroChina, Beijing, China, September 26, 2018.

Principles of seismic sedimentology and its applications in mapping of sedimentary sand bodies: presented to Jiangnan Oilfield Company, Wuhan, China, September 20, 2018.

Principles of seismic sedimentology and its application in fluvial depositional systems: presented to Yangzi University, Wuhan, China, September 18, 2018.

Applying seismic sedimentology to high-resolution depositional-facies and sweet-spot mapping in Triassic Yanchang Formation, Ordos Basin, China: presented to China University of Petroleum, Qingdao, China, July 16, 2018.

Some thoughts on seismic sedimentology: presented at Research Symposium on Seismic Sedimentology, Qingdao, China, April 28, 2018.

Seismic sedimentological investigation of a Miocene fluvial system: SLT Uplift, Bohai Bay Basin, China: presented to Research Institute, Jiangsu Oilfield Company, Yangzhou, China, November 1, 2017.

Keynote speech: Seismic sedimentology: potential and challenges: presented at 6th China National Sedimentology Conference, Nanjing, China, October 30, 2017.

Seismic sedimentological investigation of a Miocene fluvial system: SLT Uplift, Bohai Bay Basin, China: presented to Tongji University, Shanghai, China, October 26, 2017.

Art of integrated geological and geophysical interpretation: presented to RIPED, Beijing, China, October 5, 2017.

Shale oil exploration in Permian Basin, West Texas, USA: presented to China University of Geosciences, Wuhan, China, September 7, 2017.

Shale oil exploration in Permian Basin, West Texas, USA: presented to China University of Petroleum Qingdao, presented at Academician Forum on Unconventional Resources, Qingdao, China, June 12, 2017.

Seismic sedimentology 2.0: from slice to 3D: presented to China University of Petroleum, Changping, Beijing, China, September 20, 2016.

Seismic paleogeomorphology of a platform carbonate system and its influence on quality of deeply-buried dolomitized reservoir in Cambrian Longwangmiao Formation, Moxi-Gaoshiti area, Sichuan Basin, China: presented at 9th Conference on Petroleum Sequence Stratigraphy and Sedimentary Reservoir, China Petroleum Society, Chengdu, China, September 18, 2016.

Seismic sedimentology 2.0: from slice to 3D: presented to China University of Geosciences, Wuhan, China, September 11, 2016.

Seismic sedimentology: presented to Research Institute, Dagang Oilfield Company, Tianjin, China, March 7, 2016.

Seismic sedimentology: presented to Research Institute, Zhongyuan Oilfield Company, Sinopec, Zhengzhou, China, January 28, 2016.

An Introduction to Seismic Sedimentology: presented to College of Geophysics, Changjinag University, Wuhan, China, September 6, 2015.

Theory, methodology, and application of seismic sedimentology: presented to Tongji University, Shanghai, China, April 9, 2015.

Theory, methodology, and application of seismic sedimentology: presented to China University of Geosciences, Wuhan, April 7, 2015.

Writing to your success: presented to China University of Geosciences, Wuhan, April 6, 2015.

Seismic sedimentology of incised valley, lowstand delta, and slope fan systems in the Eocene Wilcox Group, central South Texas coast: presented at AAPG Geosciences Technology

Workshop: Sixth Annual Deepwater and Shelf Reservoirs, Houston, Texas, January 27-28, 2015.

An introduction to seismic sedimentology: presented to China University of Geosciences, Beijing, September 19, 2014.

Seismic sedimentology: principles, methodology, and applications: presented to PetroChina Research Institute of Petroleum Exploration & Development (RIPED), Beijing, China, September 19, 2014.

Thin-bed prediction by seismic geomorphology--constrained waveform analysis in Wheeler (stratal slice) domain: presented at 8th National Conference on Sequence Stratigraphy, Sedimentology and Reservoir Studies, China Petroleum Society, Tianjin, China, September 4, 2014.

Seismic sedimentology: principles, methodology, and applications: presented at 8th National Conference on Sequence Stratigraphy, Sedimentology and Reservoir studies, China Petroleum Society, Tianjin, China, September 3, 2014.

Seismic-sedimentologic interpretation of thin sandstones: presented to China University of Petroleum, Beijing, July 10, 2014.

Seismic visualization of thin-beds guided by seismic geomorphology and waveform analysis in Wheeler (stratal-slice) domain: presented at AAPG 2014 Hedberg Conference, Houston, June 3, 2014.

Seismic sedimentology of incised valley, lowstand delta, and slope fan systems in the Eocene Wilcox Group, Central South Texas coast: presented at AAPG 6th Annual Conference on Deepwater and Shelf Reservoir, Houston, January 27, 2014.

Stratal slice: the next generation: presented to Corpus Christi Geologic Society, Corpus Christi, Texas, November 20, 2013.

Stratal slice: meaning and scope of application: presented at Tongji University, Shanghai, China, July 17, 2013.

Frequency-dependent seismic-stratigraphic and facies interpretation: presented to China University of Geosciences, Wuhan, China, June 7, 2013.

Seismic sedimentology: presented at Graduate school, China University of Petroleum, Beijing, Beijing, China, June 2013.

Digital seismic modeling and its applications in stratigraphic, sedimentologic, and reservoir interpretation: presented at PetroChina Hangzhou Research Institute of Geology, Hangzhou, China, February 2013.

Outcrop and seismic characterization of deeply-buried (5,500-6,000 m) paleokarst drainage system and collapsed paleocaves, Ordovician, Tarim Basin, Western China: presented at Missouri University of Science and Technology, Rolla, Missouri, October 2012.

Seismic Sedimentology for High-Resolution Hydrocarbon Reservoir Prediction: a Case Study in Songliao Basin, China: presented at Missouri University of Science and Technology, Rolla, Missouri, October 2012.

Benefits of displaying and interpreting in flattened, relative geologic-time domain: cases in Tertiary GOM: presented to Society of Economic Geologists, San Antonio, Texas, September 2011.

Seismic sedimentology: an overview: presented at International Symposium on Petroleum Seismogeology (SPS), Lanzhou, China, July 16, 2011.

An introduction to seismic sedimentology: presented to faculty and students at China University of Geosciences, Wuhan, China, June 17, 2011.

An introduction to seismic sedimentology: presented at Shaanxi Yanchang Petroleum (Group) Co., Ltd., Xi'an, China, February 28, 2011.

An introduction to seismic sedimentology: presented at Chengdu University of Technology, Chengdu, China, February 26, 2011.

An introduction to seismic sedimentology: presented at NW-RIPED, PetroChina, Beijing, Lanzhou, China, December 13, 2010.

Seismic sedimentology: principles and applications: presented at Hongzhou Geologic Institute, RIPED, PetroChina, Hangzhou, China, July 16, 2010.

Seismic sedimentology: principles and applications: presented at Hongzhou Geologic Institute, RIPED, PetroChina, Hangzhou, China, July 15, 2010.

Seismic sedimentology: principles and applications: presented at College of Marine Geology, Tongji University, Shanghai, China, July 12, 2010.

Stratal slicing: benefits and challenges: workshop presented at SEG 2009 Annual Meeting: What's New In Seismic Interpretation? Sponsored by SEG research Committee, Houston, Texas, October 29, 2009.

Origins of reservoir heterogeneity in paleokarst reservoirs; key to understanding production: presented at BGP of PetroChina, Beijing, China, May 5, 2009.

Seismic sedimentology: concepts and applications: BEG Centennial Lecture presented to RIPED, PetroChina, Beijing, China, May 5, 2009.

Frequency-dependent seismic stratigraphy and thin-bed resolution: BEG Centennial Lecture presented at China University of Petroleum, Beijing, China, April 29, 2009.

Comparing carbon sequestration in an oil reservoir to sequestration in a brine formation- field study: presented at the GHGT-9 (Green House Gas Technology) Conference, Washington, D.C., November 16-20, 2008.

How thin is a thin bed? An alternative perspective: presented Shell, Houston, Texas, May 19, 2008.

Understanding seismic detection and resolution of high-frequency sequences and systems tracts: presented at the AAPG Annual Convention, San Antonio, Texas, April 2008.

Seismic imaging? Try stratal slicing: presented to South Texas Geological Society, San Antonio, Texas, February 14, 2007.

Clinoforms in the Barnett Shale, Wise County, Ft. Worth Basin, Texas: presented at Barnett Shale-Gas Play of the Fort Worth Basin Seminar, sponsored by STARR (BEG) and PTTC Texas Region, Houston, Texas, November 14, 2006.

Clinoforms in the Barnett Shale, Wise County, Ft. Worth Basin, Texas: presented at Barnett Shale-Gas Play of the Fort Worth Basin Seminar, sponsored by STARR (BEG) and PTTC Texas Region, Midland, Texas, November 8, 2006.

Seismic sedimentology for high-resolution reservoir imaging: presented to Schlumberger/WesternGeco, Houston, Texas, November 9, 2005.

Mapping sandstone distribution in fourth- and fifth-order sequences using seismic sedimentology in Corpus Christi Bay, Texas-an exploration tool: presented at DOGS soft rock seminar, Austin, Texas, October 3, 2005.

Recent developments in high-resolution reservoir description using 3-D seismic data: presented at the Research Center, China Petroleum & Chemical Corporation (SINOPEC), Beijing, China, July 8, 2005.

Seismic frequency control on seismic stratigraphy: applications: presented at Petroleum

University of China, Beijing, China, June 28, 2005.

Incised valleys from seismic geomorphology and stratal slicing, a Gulf Coast example: presented to the Austin chapter of SIPES (Society of Independent Professional Earth Scientists, Austin, Texas, January 9, 2005.

Full spectrum, neural network seismic inversion for reservoir prediction: presented at Exploration & Production Research Institute, China Petroleum & Chemical Corporation, Beijing, China, July 28, 2004.

Stratal slice and seismic sedimentology: presented at Research Center, China National Offshore Oil Corporation (CNOOC), Beijing, China, July 28, 2004.

Using outcrop analog to avoid seismic pitfalls in 3-D interpretation, a Kingdom Abo field study: presented at luncheon meeting of Permian Basin Geophysical Society, Midland, Texas, February 11, 2004.

Seismic frequency control on seismic stratigraphy: presented at the Petroleum University of China, Beijing, China, September 30, 2003.

Log Properties from Seismic Attributes--A Frequency Decomposing Approach: presented at Forum for Exploration and Development Geophysics Education and Research, The University of Texas at Austin, Austin, Texas, January 28, 2003.

From seismic stratigraphy to seismic sedimentology: a sensible transition: presented to the Department of Geological Sciences, The University of Texas at Austin, technical session, Austin, Texas, February 2002.

From seismic stratigraphy to seismic sedimentology: a sensible transition: presented at Corpus Christi Geological Society/Coastal Bend Geophysical Society Luncheon Meeting, Corpus Christi, Texas, November 21, 2001.

Reducing uncertainty of attribute analysis by AVF-based detuning: presented at Society of Exploration Geophysics Development & Production Forum, Taos, New Mexico, June 24-29, 2001.

Seismic sedimentology--applied to facies and lithology prediction: presented at Society of Exploration Geophysics Development & Production Forum, Snowmass, Colorado, May 14-19, 2000.

Seismic sedimentology--applied to hydrocarbon exploration and reservoir characterization: presented to the University of Petroleum, Dongying, China, 1999.

Presentations

Massive (up to 500 m) sands in Lower Wilcox intraslope Basins, South-central Texas, USA: Another major sand accumulation mechanism in Wilcox time: presented to AAPG IMAGE, Houston, Tx, August 2024.

Depositional processes at the Lower Wilcox shelf-slope transition zone: presented to GCAGS, presented at GeoGulf annual meeting, Houston, Tex., April 24-25, 2023.

Identification of sandstone-rich zones in upper bathyal deep-water slope environment, South Texas Gulf Coast: presented to Joint AAPG and SEG IMAGE 2021 Meeting, presented at SEG International Exposition and 91st Annual Meeting 26 September-1 October 2021, Denver, Colorado, September 26-October 1, 2021.

Impact of sedimentary facies on machine learning of acoustic impedance from seismic data: challenges and solutions: presented to Bureau of Economic Geology, presented at Friday Seminar, Austin, Tex., September 10, 2021.

Muddy shorelines of the Paleogene Wilcox Deltas, South Texas Gulf Coast: presented to BEG 3E Research Symposium, Austin, Tx, October 18, 2019.

Seismic-Informed High-Resolution Sedimentology: Filling the Gap Between Exploration and Production: presented to Bureau of Economic Geology, presented at Friday Seminar, Austin, Tex., October 4, 2019.

Depositional History and Shoreline Evolution of the Upper Wilcox Group and Lower Reklaw Formation, Northern Bee County, Texas: presented to AAPG Annual Meeting, Salt Lake City, Utah, May 20-23, 2018.

Muddy Shorelines of the Paleogene Wilcox Deltas, South Texas Gulf Coast: presented to AAPG Annual Meeting, Salt Lake City, Utah, May 20-23, 2018.

Activities of a Professional Nature

Professional Societies

American Association of Petroleum Geologists

European association of geoscientists and engineers

Gulf Coast Section-Society of Economic Paleontologists and Mineralogists

Houston Geological Society

International association of sedimentologists

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Activities of a Professional Nature

Judge, Science Fair, Spicewood Elementary , February 1, 2005

Judge, Science Fair, Spicewood Elementary, February 3, 2009

Funding

Research Support

Principal Investigator: Seismic Sedimentologic Investigation of Cambrian Carbonate Reservoirs in Tarim Basin, Research Institute of Petroleum Exploration and Development (RIPED), PetroChina (May 30, 2019-December 29, 2021; \$760,000).

PI: Seismic sedimentology of GM field in Sichuan, China, PetroChina Hangzhou Research Institute of Geology (January 30, 2017-January 29, 2019; \$100,000).

Co-Principal Investigator: Evaporite-associated carbonate reservoirs in Sichuan Basin: Lower Cambrian Longwangmiao Formation and Middle Triassic Leikoupo Formation, RIPED, PetroChina (March 26, 2015-March 25, 2018; \$800,610).

Co-Principal Investigator: Lacustrine Shale Gas Reservoir Characterization in the Yanchang Formation by Integrated Geological Facies, Hydrocarbon Geochemistry, Chemostratigraphy, SEM Pore Imaging and Petrography, Yanchang Petroleum Group, China (August 1, 2013-July 31, 2015; \$1,000,000.38).

Principal Investigator: Digital outcrop modeling and seismic characterization of heterogeneous carbonate reservoirs, PetroChina Hangzhou Research Institute of Geology, China (2012 - 2014, \$599,407).

Principal Investigator: Soliciting and securing Reservoir Characterization Research Laboratory for Carbonate Studies (RCRL) IA membership, PetroChina Hangzhou Institute of Geology (2012 - 2013, \$100,000).

Principal Investigator: Seismic sedimentology of nonmarine Songliao Basin, China: model and application, PetroChina, subcontract through PetroChina Research Institute for Petroleum Exploration and Development (2010 - 2013, \$364,329).

Principal Investigator: Methodology for predicting seismically thin sandstone reservoirs by integrating geologic and 3D seismic data, BGP Inc., CNPC, China (2011 - 2012, \$100,000).

Principal Investigator: Soliciting and securing Reservoir Characterization Research Laboratory for Carbonate Studies (RCRL) IA membership, BGP Inc., CNPC, China (2011 - 2012, \$100,000).

Principal Investigator: Digital outcrop modeling and seismic characterization of a paleokarst carbonate system, phase II, BGP Inc., CNPC, China (2010 - 2011, \$101,732).

Principal Investigator: Digital outcrop modeling and seismic characterization of a paleokarst carbonate system, BGP Inc., CNPC, China (2008 - 2009, \$233,206).

Principal Investigator: Soliciting and securing Reservoir Characterization Research Laboratory for Carbonate Studies (RCRL) IA membership, BGP Inc., CNPC, China (2008 - 2009, \$233,206).

Co-Principal Investigator: Claytonville field 3D seismic interpretation and reservoir prediction, Kinder Morgan (2006 - 2007, \$50,000).

Publications

Peer Reviewed Authored Books

Ambrose, W. A., Zeng, H., Zhang, J., Olariu, M. I., Smith, D. C., and Clift, S. J., 2018, Depositional history and stratigraphic evolution of the Upper Wilcox Group and Reklaw Formation, northern Bee County, Texas: Austin, Texas, The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations, no. 284, 87 p., <http://doi.org/10.23867/RI0284D>.

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Zeng, H., and Olariu, M. I., 2024, Machine-learning-assisted seismic prediction of massive (up to 500 m) sands and their geologic meaning: Lower Wilcox intraslope basins, south-central Texas, USA: *Marine and Petroleum Geology*, v. 167, no. 106935, 14 p., <http://doi.org/10.1016/j.marpetgeo.2024.106935>.

Zhao, W., Zeng, H., Xu, Z., Hu, S., and Fu, Q., 2024, Seismic sedimentology of a broad, low-relief carbonate platform: the Cambrian Longwangmiao Formation, Moxi-Gaoshiti area, Sichuan Basin, China: *AAPG Bulletin*, v. 108, no. 3, p. 547-575, <http://doi.org/10.1306/02242318016>.

Hattori, K. E., Loucks, R. G., and Zeng, H., 2023, Back-reef depositional environments in a Lower Cretaceous (Sligo) shelf-margin complex: insights into ultradeep reservoir preservation and controls on stacking patterns in an outer platform setting: *GCAGS Journal*, v. 12, p. 17-32, <http://doi.org/10.62371/HGLG8668>.

Loucks, R. G., Reed, R. M., Zeng, H., and Periwal, P., 2023, Carbonate sedimentation and reservoirs associated with a volcanic mound in an open-marine, deep-water, drowned platform setting, Elaine field area, Upper Cretaceous Anacacho Formation, South Texas U.S.A.: *Marine and Petroleum Geology*, v. 154, no. 106314, 17 p., <http://doi.org/10.1016/j.marpetgeo.2023.106314>.

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- Zeng, H., Xu, Z., Liu, W., Janson, X., and Fu, Q., 2022, Seismic-informed carbonate shelf-to-basin transition in deeply buried Cambrian strata, Tarim Basin, China: *Marine and Petroleum Geology*, v. 136, no. 105448, 18 p., <http://doi.org/10.1016/j.marpetgeo.2021.105448>.
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- Fu, Q., Hu, S., Xu, Z., Zhao, W., Shi, S., and Zeng, H., 2020, Depositional and diagenetic controls on deeply buried Cambrian carbonate reservoirs: Longwangmiao Formation in the Moxi-Gaoshiti area, Sichuan Basin, southwestern China: *Marine and Petroleum Geology*, v. 117, no. 104318, 24 p., <http://doi.org/10.1016/j.marpetgeo.2020.104318>.
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- Zeng, H., He, Y., Kerans, C., and Janson, X., 2020, Seismic chronostratigraphy at reservoir scale: lessons from a realistic seismic modeling of mixed clastic-carbonate strata in the Permian Basin, West Texas and New Mexico, USA: *Interpretation*, v. 8, no. 1, p. T13-T25., <http://doi.org/10.1190/INT-2019-0053.1>.
- Zeng, H., Zhu, X., Liu, Q., Zhu, H., and Xu, C., 2020, An alternative, seismic-assisted method of fluvial architectural-element analysis in the subsurface: Neogene, Shaleitian area, Bohai Bay Basin, China: *Marine and Petroleum Geology*, v. 118, no. 104435, 29 p., <http://doi.org/10.1016/j.marpetgeo.2020.104435>.
- Zeng, Z., Zhu, H., Yang, X., Zeng, H., and Zhang, G., 2020, Multistage progradational clinoform-set characterisation and evolution analysis of the Early Oligocene in the Baiyun Sag, Pearl River Mouth Basin, South China Sea: *Marine and Petroleum Geology*, v. 112, no. 104048, 13 p., <http://doi.org/10.1016/j.marpetgeo.2019.104048>.

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Li, S., Zhu, H., Xu, C., Zeng, H., Liu, Q., and Yang, X., 2019, Seismic-based identification and stage analysis of overlapped compound sedimentary units in rifted lacustrine basins: an example from the Bozhong sag, Bohai Bay Basin, China: *AAPG Bulletin*, v. 103, no. 10, p. 2521-2543, <http://doi.org/10.1306/02151916513>.

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