

Feiyue Xia

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EDUCATION BACKGROUND

The University of Texas at Austin, Texas, USA	2022.09-Present
Degree: Doctor of Petroleum Engineering (expected in 2026)	GPA: 3.91/4.0
<ul style="list-style-type: none"> • Research Interest: Borehole Imaging and Rock Physics Inversion • Advisor: Professor Carlos Torres-Verdin 	
China University of Petroleum, Qingdao City, Shandong Province, China	2019.09-2022.07
Degree: Master of Borehole Geophysics	GPA: 3.91/4.0
<ul style="list-style-type: none"> • Master Thesis: Study on Acoustic Logging Wave Response in the Fractured Formation • Advisor: Professor Xiao-Ming Tang (Former Chief Scientist at Baker Hughes) 	
China University of Petroleum, Qingdao City, Shandong Province, China	2015.09-2019.06
Degree: Bachelor of Exploration Technology and Engineering	GPA: 3.8/4.0
<ul style="list-style-type: none"> • Advisor: Professor Xiao-Ming Tang 	

WORK EXPERIENCE

HALLIBURTON	<i>R&D Intern</i>	2024.05-2024.08
<ul style="list-style-type: none"> • Project: Pore structure characterization of carbonate rocks via NMR and acoustic measurements • Developed a joint inversion method to enhance the estimation of pore shapes in carbonate rocks by combining T2 distribution and rock physics models. 		

RESEARCH EXPERIENCES

3D Eikonal Numerical Simulation and Interpretation for Azimuthal First-arrival Times in HA/HZ Wells

2022.12-Present

- Developed and utilized a fast 3D eikonal solver to investigate effects of bedding boundaries and anisotropy on azimuthal acoustic measurements in high-angle and horizontal wells. Modelling results improve the understanding of unusual behaviors of slowness logs in HA/HZ wells.

Adjoint-state Borehole Acoustic First-arrival Traveltime Tomography

2023.06-Present

- Developed a new, efficient 2D borehole tomography method to image near-borehole formation structures.
- Developed a workflow for first-arrival time picking and successfully applied the borehole tomography method to field data processing.

3D Numerical Simulation of Reflected Ultrasonic Bounded Beam

2022.09-2023.01

- Utilized a 3D finite-difference (FD) method to investigate the planar transducer radiation wavefield and reflection coefficients of different rock samples at the ultrasonic frequency range.
- Contributed to the development of dynamic elastic properties estimation of complex rocks using angle-dependent ultrasonic reflection coefficient measurements.

Finite-Difference Modelling in the Multiphysics Structures Including Poro-Crack Media

2021.01-2022.08

- Developed a novel FD method to simulate elastic wave propagation in multi-physical structures containing elastic, poro-elastic, and poro-crack media, with the aim of honoring wave attenuation due to squirt-flow mechanism prevalent in the subsurface.
- Validated the method against established analytical solutions, demonstrating its accuracy and effectiveness in solving the poro-crack elastic wave equations in the time-domain.
- Contributed to the development of improved methods for simulating borehole wave propagation in the porous medium..

Reflection and Transmission of the Borehole Stoneley Wave across Permeable Structures

2019.12-2020.11

- Utilized poroelastic finite-difference and effective wave number analytical methods to study the reflection and transmission coefficients of Stoneley wave across permeable and fractured formations
- Gained insights into the behavior of Stoneley waves in porous and fractured formations, which can help improve interpretations of borehole measurements and increase the accuracy of subsurface characterizations.

PUBLICATIONS

Journal Papers:

- Daria Olszowska, Gabriel Gallardo-Giozza, **Feiyue Xia**, Carlos Torres-Verdín. Influence of Sample Anisotropy on Angle-Dependent Ultrasonic Reflection Coefficients: A Study Using Synthetic 3D Printed Layered Samples. (2024). **Geophysics** (submitted).
- **Feiyue Xia**, Xiaoming Tang, Carlos Torres-Verdín. Finite-difference modeling of elastic waves in coupled multiphysics structures including poro-crack media. (2024). **Journal of the Acoustical Society of America (To be submitted)**.
- **Feiyue Xia**, Yuanda Su, Xiaoming Tang. Stoneley wave reflection and transmission across permeable formations and fractured zones: Comparison of analytical and numerical modeling results. (2021). **Chinese Journal of Geophysics** (SCI, [In press](#)).
- Xuelian Chen, Yan Zhuang, **Feiyue Xia**, Xiaokang Yin, Xiaoming Tang. Finite element simulation and experiment study on exciting quasi-SH wave circumferentially in the casing. (2021). **Chinese Journal of Geophysics** (SCI, [In press](#)).

Conference Papers:

- **Feiyue Xia**, Carlos Torres-Verdín. Interpretation of first-arrival times of borehole acoustic measurements acquired in high-angle wells using 3D eikonal numerical simulations. (2024). **International Meeting for Applied Geoscience & Energy (IMAGE'24)**, Houston, Texas, August 26-29.
- **Feiyue Xia**, Yuanda Su, Xiaoming Tang. A study of Stoneley wave reflection and transmission across a permeable porous formation and fractures zone: Comparison of analytical and numerical modeling results. (2021). **Annual Meeting of Chinese Geoscience Union** in 2020. P631. 81, 2020.

HONORS & AWARDS

Year	Honors & Awards	Institution	Level
2022	UT Engineering Fellowship from 2022 to 2026	The University of Texas at Austin	University Level (1%)
2021	CNPC Scholarship	China National Petroleum Corporation	National Level (1%)
2019	SPWLA Scholarship	Society of Petrophysicists and Well Log Analysts (SPWLA), USA	International level
2019	Special Award of National Well Logging Skills Competition	China Petroleum Association	National level (Rank 1/36)
2017	Honorable Mentions in American Mathematical Contest in Modeling	the Consortium for Mathematics and Its Application (COAMP), USA	International level (15%)

ACADEMIC ACTIVITIES

Chair for the Session "Advances in Sonic and DAS VSP Imaging", SEG, IMAGE 24

Volunteer

2024.08

- Hosted a session with 40 participants. Played a key role in organizing the conference schedule, ensuring all events were appropriately timed, and managing the order of live presentations.

International Petroleum Technology Conference (IPTC) Educational Week in Beijing

Student Representatives

2019.03

- Represented the university in the Educational Week Program. Led a team of eight students to research microseismic monitoring in oil fields.

PROFESSIONAL SKILLS

- Skilled in C/C++, Fortran & Python and softwares: Matlab, Mathematica, Origin and Techlog.
- Developed in-house 2.5-D and 3-D finite difference time domain acoustic wave simulation codes.
- Skilled in modelling wave propagation in complex media including elastic anisotropy and (cracked) poroelasticity.