

Jixin Yang

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EDUCATION

Visiting-Ph.D. Geophysics 2023-Present
Pennsylvania State University, Department of Geosciences

Ph.D. Earth Exploration & Information Technology 2020-Present
University of Chinese Academy of Sciences, Institute of Acoustics, Ultrasonics Lab

M.S. Earth Exploration & Information Technology 2016-2019
Chengdu University of Technology
"Broad-band high-resolution seismic impedance inversion"

B.S. Earth Exploration & Information Technology 2012-2016
Chengdu University of Technology

RESEARCH INTERESTS

CO₂ sequestration and storage, DAS time-lapse monitoring, Borehole acoustics and rock physics, Logging while drilling, Computational acoustical imaging and waveform inversion tomography, Wavefield simulation, Machine learning and compressed sensing, Time-frequency analysis

RESEARCH EXPERIENCE

State Key Laboratory of Oil & Gas Reservoir Geology and Exploitation Chengdu, China
Graduate student Sep. 2016 – Jun. 2019
Time-frequency analysis based on the squeezed generalized S-transform
Inverse problem for surface seismic signals
Pre-stack AVO constrained by borehole and rock physics

State Key Lab of Acoustics, University of Chinese Academy of Sciences Beijing, China
Ph.D. student Sep. 2020 – Present
Frequency-domain wavefield simulation in attenuative and anisotropic media
Waveform Inversion tomography in the frequency domain
Crosshole imaging, DAS CO₂ monitoring, borehole acoustics, surface seismic imaging, medical ultrasonic imaging for human brain and bone

OUTREACH

2023 - present Reviewer of *Geophysics*
2023 - present Graduate Student Member of IEEE, SEG
2020 - present Member of Acoustical Society of China

HONORS AND AWARDS

2024 SEG Bill Abriel Student Membership, Penn State University Student Chapter
2022 Scholarship by the University of Chinese Academy of Sciences to United State as a joint-Ph.D. student
2021 The Distinguished Paper Award, 2021 International Academic Forum for Graduate Students of "Oil and Gas • Intelligence @ Future Scientist"

PEER-REVIEWED JOURNAL PAPERS

- Yang, J.**, Zhu, T.*, & He, X. (2024). “Q bright-spot imaging with P wave velocity and Q impedance estimation using viscoacoustic full waveform inversion”, *Geophysics*. (In Preparation)
- Yang, J.**, Zhu, T.*, & He, X. (2024). “P wave velocity and Q impedance estimation using viscoacoustic full waveform inversion”, *SEG Conference*. (In Preparation)
- Yang, J.***, & Yu, P.*. (2024). “Time-lapse waveform inversion monitoring for CO₂ with automatic differentiation”, *Nanomaterials*, 14(2), 138.
- Yang, J.**, He, X.*, & Chen, H. (2023). “Crosswell imaging with wavefield decomposition for frequency-domain reverse time migration”, *Journal of Geophysics and Engineering*, 20(6), 1279–1290.
- Yang, J.** & Wen, X. (2023). “Simultaneous inversion method of phase and reflection coefficient based on compressed sensing”, *Patent, CN 113589381 B, Authorized*.
- Yang, J.**, He, X.*, & Chen, H. (2022). “Processing the artificial edge-effects for finite-difference frequency-domain in viscoelastic anisotropic formations”, *Applied Sciences*, 12(9), 4719.
- Yang, J.**, Wen, X.*, & Chen, X. (2017). “Computation method for reservoir fluid mobility based on sparsity -based adaptive S-transform”, *Science Technology and Engineering*, 17(36), 145-151.
- Wen, X., **Yang, J.***, & Li, L. (2019). “Low-frequency sparse double-constrained broadband seismic impedance inversion”, *Natural Gas Industry B*, 6(6), 556-563.
- Wen, X., **Yang, J.***, & Li, L. (2019). “Low-frequency sparse double-constrained broadband seismic impedance inversion”, *Natural Gas Industry*, 39(5), 45-52.
- Pan, Y., He, X.*, **Yang, J.**, & Wang, X. (2022). “Q-compensated viscoelastic reverse time migration in crosswell seismic imaging”, *Journal of Geophysics and Engineering*, 2022, 1-21.
- Zhang, R., Wen, X.*, **Yang, J.**, Li, L., & Liu, S. (2020). “Two-term reflection coefficient equation with Young's modulus and Poisson ratio and its pre-stack seismic inversion”, *Oil Geophysical Prospecting*, 54(01), 145-153.
- Nie, W., Wen, X.*, & **Yang, J.** (2020). “L1-2 minimization for P- and S-impedance inversion”, *Interpretation*, 8(1), 1-68.
- Chen, X., Wen, X.*, & **Yang, J.** (2019). “Wavefield simulation based on optimized finite-difference coefficient”, *Liaoning Chemical Industry*, 48(03), 266-271.
- Zhang, Y., Wen, X.*, Jiang, L., Liu, J., & **Yang, J.** (2020). “Prediction of high-quality reservoirs using the reservoir fluid mobility attribute computed from seismic data”, *Journal of Petroleum Science and Engineering*, 190(7), 107007.
- Ran, X., Zhou, H.*, Zhang, Y., Li, L. & **Yang, J.** (2019). “A frequency division - reconstruction wave impedance inversion method based on sparse window S transform”, *China Offshore Oil and Gas*, 31(04), 75-84.
- He, J., Wen, X.*, Nie, W., Li, L., & **Yang, J.** (2020). “Fracture zone prediction based on random forest algorithm”, *Oil Geophysical Prospecting*, 55(01), 161-166.
- Li, W., Wen, X.*, Li, T., Liu, S., Li, L., & **Yang, J.** (2020). “Fluid identification factors fusion based on proximal support vector machine”, *Progress in Geophysics*, 35(01), 139-144.

- Li, W., Wen, X.*, Li, T., Li, L., Liu, S., & **Yang, J.** (2018). “[AVO types of discrimination based on a proximal support vector machine](#)”, *Oil Geophysical Prospecting*, 53(05),969-974.

CONFERENCE ABSTRACTS

- Yang, J.**, He, X., & Chen, H. (2023, July). “[Frequency-domain finite-difference modeling of anisotropic elastic wavefield](#)”. In *2023 National Acoustics Conference*.
- Yang, J.**, He, X., & Chen, H. (2021, November). “[Frequency domain modeling of elastic wavefield in anisotropic media](#)”. In *2021 International Academic Forum for Graduate Students of “Oil and Gas • Intelligence Future Scientist”*.
- Yang, J.**, Wen, X., & Li, L. (2018, August). “[High-resolution processing method based on alternating direction algorithm and sparse inversion reflection coefficient characteristics](#)”. In *SEG 2018 Workshop: Reservoir Geophysics*.
- Yang, J.**, Wen, X., & Chen, X. (2018, March). “[Computation method of reservoir fluid mobility based on sparse-window S-transform](#)”. *International Geophysical Conference Beijing, China*.
- Li, L., Wen, X., **Yang, J.** & Ran, X. (2018, August). “[Frequency-divided inversion based on sparse window S transform](#)”. In *SEG 2018 Workshop: Reservoir Geophysics*.
- Huang, W., Wen, X., Zhang, Y., **Yang, J.** & Li, L. (2018, March). “[Application of generalized S-transform based on empirical mode decomposition in seismic data frequency division](#)”. *International Geophysical Conference Beijing, China*.
- Li, L., Wen, X., Liu, S., **Yang, J.** & He, J. (2018, March). “[Application of approximate equations of Young’s modulus and Poisson’s ratio of two reflection coefficients in pre-stack inversion](#)”. *International Geophysical Conference Beijing, China*.
- Liu, S., Wen, X., Li, L., **Yang, J.** & Chen, X. (2018, August). “[Fault analysis of azimuth curvature attribute based on curvelet transform](#)”. In *SEG 2018 Workshop: Reservoir Geophysics*.
- Zhang, Y., Wen, X., Cao, Q., **Yang, J.** & Wei, H. (2017). “[Seismic spectrum decomposition method based on deconvolution synchronous generalized S transform](#)”. *Proceedings of 2017 geophysical exploration technology seminar of China Petroleum Society*.