

# Dino Huang

## Professional Summary

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### Professional Preparation

#### Academic Background

PhD, Department of Geological Sciences, State University of New York at Binghamton, May 2007

#### Professional Appointments

Research Associate, The University of Texas at Austin, Bureau of Economic Geology (June 2017-Present)

Visiting Research Associate, Rutgers University (March-June 2017)

Independent Geophysics Consultant, freelance (March 2015-February 2017)

Technical Professional: Microseismic, Halliburton Corp. (October 2013-March 2015)

Research and Development Geophysicist, MicroSeismic, Inc (June 2011-August 2013)

Postdoctoral Research Associate, Rutgers University (January 2009-May 2011)

Postdoctoral Research Associate, Rensselaer Polytechnic Institute (Troy, NY) (May 2007-November 2008)

#### Dissertations

3-D lithospheric structure and seismotectonics of the central Himalayan region, State University of New York at Binghamton, 2007.

### Areas of Expertise

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Earthquake seismology;  
Geophysical inversion;  
Numerical analysis;  
Seismic imaging--3D tomographic inversion;  
Earthquake detection and location;  
Earthquake source characterization (e.g., moment tensor inversion);  
Seismotectonics study for natural and induced seismicity;  
Seismic waveform modeling;  
Process and dynamics of inter- and intracontinental convergence;  
Seismic instrumentation--field deployment, site installation and maintenance, and troubleshooting.

### Service

#### Outreach Activities

TexNet: The Newly Born Statewide Seismological Network: presented at The University of Texas at Austin Earth Science Career Day, Austin, Tex., October 16, 2017.

## Presentations

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Structural characterization and rupture hazard assessment of faults in the Midland Basin, West Texas: presented at Society of Exploration Geophysicists, American Association of Petroleum Geologists and Society for Sedimentary Geology Second International Meeting for Applied Geoscience & Energy, Houston, TX, August 28-September 2, 2022.

Integrating velocity measurements from earthquake tomographic inversion with other technologies: presented to S21C: Recent Advances in Interpretations of Tomographic Images I, presented at AGU Fall Meeting 2019, Moscone Center, San Francisco, Calif., December 10, 2019.

Seismotectonic Analysis for the Snyder Area: presented to Science Advisory committee of the Center for Integrated Seismicity Research, presented at Annual meeting of the Center for Integrated Seismicity Research, Bureau of Economic Geology, University of Texas at Austin, December 5, 2019.

Lithospheric Structure of the SE Texas from Joint Inversion of Local and Teleseismic Earthquake Travel Times: presented to Science Advisory Committee of the Center for Integrated Seismicity Research, presented at Annual meeting of the Center for Integrated Seismicity Research, Bureau of Economic Geology, University of Texas at Austin, December 4, 2019.

Texas Basement Synthesis Project: Characterizing Geological Risk Factors of Basement-Involved Seismicity: presented at Geological Society of America (GSA) South-Central/North-Central/Rocky Mountain Section Meeting, Manhattan, Kans., March 2019.

Lithospheric structure of West Texas and southeastern New Mexico: presented to External peer-review committee of TexNet, presented at Peer-review meeting for TexNet, Bureau of Economic Geology, University of Texas at Austin, January 17, 2019.

## Activities of a Professional Nature

### Professional Societies

American Geophysical Union

### Major Field Campaigns

Conducted field deployment of broadband instrument installation in western Tibet and Xinjiang (Tarim), China, for NSF-funded projects (the western Tibet experiment, 2007-2011, and the MANAS project). Led the US team working with Chinese collaborators in field deployment in western Tibet.

Conducted field deployment to install a total of 14 broadband seismometers in southern Tibet and the central Himalayan region (NSF project: the Himalayan-Nepal-Tibet Broadband Seismic Experiment).

Conducted fieldwork in western Colorado, retrieving seismic data for induced seismicity monitoring (Halliburton Corp, Dec. 2014).

Fieldwork to deploy surface seismic monitoring arrays in Wyoming, performing data acquisition and real-time data quality assurance for Halliburton Corp (Apr. 2014).

## Funding

### Research Support

Geophysics Consultant: A comprehensive study of regional seismicity for western Alberta, Canadian Geological Survey (January-March 2017).

Postdoctoral Research Associate: Strength of continental lithosphere in western China from seismic body wave studies, National Science Foundation (NSF-EAR-Geophysics-0911350) (July 2009-May 2011).

## Publications

### Peer Reviewed Journal Articles

Chen, Y., Savvaidis, A., Saad, O. M., Huang, G.-C. D., Siervo, D., O'Sullivan, V., McCabe, C., Uku, B., Fleck, P., Burke, G., Alvarez, N. L., Domino, J., and Grigoratos, I., 2024, TXED: the Texas earthquake dataset for AI: *Seismological Research Letters*, v. 95, no. 3, p. 2013-2022, <http://doi.org/10.1785/0220230327>.

Chen, Y., Savvaidis, A., Siervo, D., Huang, D., and Saad, O. M., 2024, Near real-time earthquake monitoring in Texas using the highly precise deep learning phase picker: *Earth and Space Science*, v. 11, no. 10, article no. e2024EA003890, 14 p., <http://doi.org/10.1029/2024EA003890>.

Chen, Yangkang, Saad, O. M., Savvaidis, A., Zhang, F., Chen, Yunfeng, Huang, D., Li, H., and Zanjani, F. A., 2024, Deep learning for P-wave first-motion polarity determination and its application in focal mechanism inversion: *IEEE Transactions on Geoscience and Remote Sensing*, v. 62, no. 5917411, 11 p., <http://doi.org/10.1109/TGRS.2024.3407060>.

Chen, Yangkang, Savvaidis, A., Saad, O. M., Siervo, D., Huang, G.-C. D., Chen, Yunfeng, Grigoratos, I., Fomel, S., and Breton, C., 2024, Thousands of induced earthquakes per month in West Texas detected using EQCCT: *Geosciences*, v. 14, no. 5, article no. 114, 17 p., <http://doi.org/10.3390/geosciences14050114>.

Horne, E. A., Hennings, P., Smye, K. M., Calle, A. Z., Morris, A. P., and Huang, G.-C. D., 2024, Interpretation, characterization and slip hazard assessment of faults in the Midland Basin, west Texas, USA: *AAPG Bulletin*, v. 108, no. 12, p. 2313-2346, <http://doi.org/10.1306/01242423080>.

Huang, G.-C. D., Chen, Y., and Savvaidis, A., 2024, Complex seismotectonic characteristics in the Midland Basin of Texas: constrained by seismicity and earthquake source mechanisms: *Seismological Research Letters*, v. 95, no. 3, p. 1870-1884, <http://doi.org/10.1785/0220230269>.

Lee, J., Chen, Y., Dommissie, R., Huang, G.-c. D., and Savvaidis, A., 2024, Basin-scale prediction of S-wave sonic logs using machine learning techniques from conventional logs: *Geophysical Prospecting*, v. 72, no. 7, p. 2557-2579, <http://doi.org/10.1111/1365-2478.13527>.

Saad, O. M., Chen, Yunfeng, Savvaidis, A., Fomel, S., Jiang, X., Huang, D., Oboué, Y. A. S. I., Yong, S., Wang, X., Zhang, X., and Chen, Yangkang, 2023, Earthquake forecasting using big data and artificial intelligence: a 30-week real-time case study in China: *Bulletin of the Seismological Society of America*, v. 113, no. 6, p. 2461-2478, <http://doi.org/10.1785/0120230031>.

Saad, O. M., Chen, Yunfeng, Siervo, D., Zhang, F., Savvaidis, A., Huang, G.-C. D., Igonin, N., Fomel, S., and Chen, Yangkang, 2023, EQCCT: a production-ready earthquake detection and phase-picking method using the compact convolutional transformer: *IEEE Transactions on Geoscience and Remote Sensing*, v. 61, no. 4507015, 15 p., <http://doi.org/10.1109/TGRS.2023.3319440>.

Huang, D., Horne, E., Kavoura, F., and Savvaidis, A., 2022, Characteristics of seismogenic structures and 3D stress state of the Delaware Basin of West Texas as constrained by earthquake source mechanisms: *Seismological Research Letters*, v. 93, no. 6, p. 3363-3372, <http://doi.org/10.1785/0220220054>.

Huang, G. D., Savvaidis, A., and Walter, J. I., 2019, Mapping the 3-D lithospheric structure of the Greater Permian Basin in West Texas and southeast New Mexico for earthquake monitoring: *Journal of Geophysical Research: Solid Earth*, v. 124, no. 11, p. 11,466-11,488, <http://doi.org/10.1029/2019JB018351>.

Savvaidis, A., Young, B., Huang, G.-C. D., and Lomax, A., 2019, TexNet: a statewide seismological network in Texas: *Seismological Research Letters*, v. 90, no. 4, p. 1702-1715, <http://doi.org/10.1785/0220180350>.

Huang, D., 2017, Dynamics of intracontinental convergence between the western Tarim basin and central Tien Shan constrained by centroid moment tensors of regional earthquakes: *Geophysical Journal International*, v. 208, p. 561-576, <http://doi.org/https://doi.org/10.1093/gji/ggw415>.

Razi, A. S., Levin, V., Roecker, S. W., and Huang, D., 2014, Crustal and uppermost mantle structure beneath western Tibet using seismic traveltimes tomography: *Geochemistry, Geophysics, Geosystems*, v. 15, p. 434-452, <http://doi.org/10.1002/2013GC005143>.

Levin, V., Huang, D., and Roecker, S. W., 2013, Crustal-mantle coupling at the northern edge of the Tibetan plateau: evidence from focal mechanisms and observations of seismic anisotropy: *Tectonophysics*, v. 584, p. 221-229, <http://doi.org/10.1016/j.tecto.2012.05.013>.

Huang, D., Roecker, S. W., and Levin, V., 2011, Lower-crustal earthquakes in the West Kunlun range: *Geophysical Research Letters*, v. 38, no. 1, 5 p., <http://doi.org/10.1029/2010GL045893>.

Huang, D., Wu, F. T., Roecker, S. W., and Sheehan, A. F., 2009, Lithospheric structure of the central Himalaya from 3-D tomographic imaging: *Tectonophysics*, v. 475, p. 524-543, <http://doi.org/10.1016/j.tecto.2009.06.023>.

Kao, H., Huang, D., and Liu, C.-S., 2000, Transition from oblique subduction to collision in northern Luzon arc-Taiwan region: constraints from bathymetry and seismic observations: *Journal of Geophysical Research*, v. 105, no. B2, p. 3059-3079, <http://doi.org/10.1029/1999JB900357>.

## Conference Proceedings

Lee, J., Chen, Y., Dommissive, R., Savvaidis, A., and Huang, D., 2023, Predicting S-wave sonic logs using machine learning with conventional logs for the Delaware Basin, Texas, SEG International Exposition and Annual Meeting.

Horne, L., Hennings, P., Smye, K. G., Calle, A., Huang, D., and Savvaidis, A., 2022, Structural characterization and rupture hazard assessment of faults in the Midland Basin, west Texas, Society of Exploration Geophysicists (SEG) Annual Meeting technical program expanded abstracts, Houston, Tex., 3 p.

Callahan, O. A., Eichhubl, P., Hennings, P. H., Smye, K., Horne, E. A., Savvaidis, A., Huang, G.-C. D., Li, P., Lemons, C., Breton, C., and Dommissive, R., 2019, Texas Basement Synthesis Project: characterizing geological risk factors of basement-involved seismicity, 2019 Geological Society of America South-Central/North-Central/Rocky Mountain Section Meeting, Manhattan, Kans.

Huang, D., and Savvaidis, A., 2019, Seismogenic Structures in the Cogdell Oil Field, Texas, Annual meeting of American Geophysical Union.

## Published Abstracts

Horne, E., Hennings, P., Smye, K., Calle, A., Huang, D., and Savvaidis, A., 2022, Structural characterization and rupture hazard assessment of faults in the Midland Basin, West Texas (ext. abs.): Society of Exploration Geophysicists (SEG) and American Association of Petroleum Geologists (AAPG) Second International Meeting for Applied Geoscience & Energy technical program expanded abstracts, p. 3170-3173, <http://doi.org/10.1190/image2022-3745325.1>.

Huang, G.-C. D., Li, P., and Savvaidis, A., 2021, Characterizing seismogenic structures and stress state for the western Midland Basin, Texas, the United States (ext. abs.): First International Meeting for Applied Geoscience & Energy Expanded Abstracts, p. 1211-1215, <http://doi.org/10.1190/segam2021-3584093.1>.

Pelletier, I., Huang, D., and Savvaidis, A., 2019, Integrating velocity measurements from earthquake tomographic inversion with other technologies (abs.): American Geophysical Union 2019 Fall Meeting, Recent Advances in Interpretations of Tomographic Images I, San Francisco, Calif., December 10, no. S21C-08, 1 p.

Huang, D., Aiken, C., Savvaidis, A., Young, B., and Walter, J., 2017, Improving the velocity structure in the Delaware Basin of West Texas for seismicity monitoring, Eos Transactions, AGU, S23C-0836 (abs.).

Savvaidis, A., Lomax, A., Aiken, C., Young, B., Huang, D., and Hennings, P., 2017, TexNet seismic network performance and reported seismicity in West Texas (abs.): AGU Annual Meeting, New Orleans, La., December 12, no. S22B-07.

Huang, D., Zhou, R., and Bellino, N., 2013, Hydraulic fracturing triggers postglacial rebound related strain release (ext. abs.): SEG Technical Program Expanded Abstracts 2013, <http://doi.org/10.1190/segam2013-1106.1>.

Zhou, R., Huang, D., and Snelling, P., 2013, Magnitude calibration for microseismic events from hydraulic fracture monitoring (ext. abs.): SEG Technical Program Expanded Abstracts 2013.