Yihe Huang

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EDUCATION

2014	Ph.D. in Geophysics, California Institute of Technology
2009	M.S. in Structural Engineering, Tianjin University
2007	B.S. in Civil Engineering, Tianjin University

EMPLOYMENT

2016-Present	Assistant Professor, Department of Earth and Environmental Sciences, University of Michigan
2014 -2016	Postdoctoral Research Fellow, Stanford Center for Induced and Triggered Seismicity, Stanford University

HONORS AND AWARDS

2020	NSF CAREER Award
2020	Elizabeth Caroline Crosby Research Award
2017	Editor's Citation for Excellence in Refereeing – JGR-Solid Earth
2009	Caltech Graduate Fellowship
2009	Distinguished Master's Thesis Award
2008	Honeywell Innovators Scholarship

RESEARCH GRANTS (*past 5 years*)

2022-2023	Reducing the uncertainty in ground motion estimation for Mississippi Embayment region through quantification of stress drop and wave attenuation, NEHRP (PI) (*pending*)
2020-2025	CAREER: Investigating the relationship between fault damage zones and earthquakes through seismic observations and earthquake cycle simulations, NSF Geophysics (PI)
2020-2023	Constraining earthquake stress drop and mantle attenuation from teleseismic body-wave spectra, NSF Geophysics (co-PI)
2020-2022	Simulating fully dynamic earthquake cycles on faults with heterogeneous stresses and fault damage zones, Southern California Earthquake Center (PI)
2020-2022	Elizabeth Caroline Crosby Research Grant, University of Michigan (PI)
2017-2020	Cascadia scenario earthquakes: Source, path, and implications for earthquake early warning, NSF PREEVENTS (PI)
2017-2018	Earthquake ruptures in damaged fault zones with along-strike segmentation, Southern California Earthquake Center (PI)

PEER-REVIEWED PUBLICATIONS (student author[1]; postdoc author[2])

[30] Ramos, M.[1], **Huang, Y.**, Ulrich, T., Li, D., Gabriel, A.-A., & Thomas, A. M (2021). Assessing margin-wide rupture behaviors along the Cascadia megathrust using 3-D dynamic rupture simulations, *accepted*, *Journal of Geophysical Research: Solid Earth.*

[29] **Huang, Y** (2021). Smooth velocity models cause a depletion of high-frequency ground motions on soil in 2-D dynamic rupture simulations, *Bulletin of the Seismological Society of America*, doi: 10.1785/0120200311.

[28] Yao, D.[2], **Huang, Y.**, & Fox, J (2021). New insights into the Lake Erie fault system from the 2019 M_L 4.0 Ohio earthquake sequence, *Seismological Research Letters*, *92*(4), 2531–2539, doi: 10.1785/0220200335.

[27] Lui, S. K. Y., **Huang, Y.**, & Young, R. P (2021). The role of fluid pressure-induced aseismic slip in earthquake cycle modulation, *Journal of Geophysical Research: Solid Earth, 126*(4), e2020JB021196, doi: 10.1029/2020JB021196.

[26] Neo, J. C. [1], **Huang, Y.**, Yao, D.[2], & Wei, S. (2021). Is the aftershock area a good proxy for the mainshock rupture area?, *Bulletin of the Seismological Society of America, 111*(1), 424–438, doi: 10.1785/0120190200.

[25] Jin, L., Zhou, W., Liang, J., & **Huang, Y.** (2020). Dynamic soil-structure-equipment interaction (II): Closed-form analytical solution for incident plane SH-wave based on flexible foundation model, *Journal of Earthquake Engineering,* doi: 10.1080/13632469.2020.1840458.

[24] Thakur, P. [1], **Huang, Y.**, & Kaneko, Y. (2020). Effects of low-velocity fault damage zones on long-term earthquake behaviors on mature strike-slip faults, *Journal of Geophysical Research: Solid Earth, 125*(8), e2020JB019587, doi: 10.1029/2020JB019587.

[23] Yao, D. [2], **Huang, Y.**, Peng, Z., & Castro, R. R. (2020). Detailed investigation of the foreshock sequence of the 2010 Mw 7.2 El Mayor-Cucapah Earthquake, *Journal of Geophysical Research: Solid Earth, 125*(6), e2019JB019076, doi: 10.1029/2019JB019076.

[22] Ramos, M. D. [1], Neo, J. C.[1], Thakur, P.[1], **Huang, Y.**, & Wei, S. (2020). Stress changes on the Garlock fault during and after the 2019 Ridgecrest earthquake sequence, *Bulletin of the Seismological Society of America, 110*(4), 1752–1764, doi: 10.1785/0120200027.

[21] Liu, M. [1], **Huang, Y.**, & Ritsema, J. (2020). Stress drop variation of deep-focus earthquakes based on empirical Green's functions, *Geophysical Research Letters, 47*(9), e2019GL086055, doi: 10.1029/2019GL086055.

[20] Neely, J. S.[1], **Huang, Y.**, & Fan, W. (2019). Earthquake rupture characteristics along a developing transform boundary, *Geophysical Journal International, 219(2),* 1237–1252, doi: 10.1093/gji/ggz357.

[19] **Huang, Y.**, De Barros, L., & Cappa, F. (2019). Illuminating the rupturing of microseismic sources in an injection-induced earthquake experiment, *Geophysical Research Letters, 46(16),* 9563–9572, doi: 10.1029/2018GL083856.

[18] Ramos, M. D.[1], & **Huang, Y.** (2019). How the transition region along the Cascadia megathrust influences coseismic behavior: Insights from 2-D dynamic rupture simulations, *Geophysical Research Letters, 46(4),* 1973–1983, doi: 10.1029/2018GL080812.

[17] Lui, S. K. Y.[2], & **Huang, Y.** (2019). Do injection-induced earthquakes rupture away from injection wells due to fluid pressure change?, *Bulletin of the Seismological Society of America, 109(1),* 358–371, doi: 10.1785/0120180233.

[16] **Huang, Y.** (2018). Earthquake rupture in fault zones with along-strike material heterogeneity, *Journal of Geophysical Research: Solid Earth, 123*(11), 9884–9898, doi: 10.1029/2018JB016354.
[15] Yoon, C. E.[1], **Huang, Y.**, Ellsworth, W. L., & Beroza, G. C. (2017). Seismicity during the initial Stages of the Guy-Greenbrier, Arkansas, earthquake sequence, *Journal of Geophysical Research: Solid Earth, 122(11), 9253–9274,* doi: 10.1002/2017JB014946.
[14] **Huang, Y.**, Ellsworth, W. L., & Beroza, G. C. (2017). Stress drops of induced and tectonic earthquakes in the central U.S. are indistinguishable, *Science Advances, 3*(8), e1700772, *doi: 10.1126/sciadv.1700772.*
[13] **Huang, Y.**, Beroza, G. C., & Ellsworth, W. L. (2016). Stress drop estimates of potentially induced earthquakes in the Guy-Greenbrier sequence, *Journal of Geophysical Research: Solid Earth, 121*(9), 6597–6607, doi: 10.1002/2016JB013067.
[12] Dempsey, D., Suckale, J., & **Huang, Y.** (2016). Collective properties of injection-induced earthquake sequence: 2. Spatiotemporal evolution and magnitude frequency distributions, *Journal of Geophysical Research: Solid Earth, 121*(5), 3638–3665, doi:10.1002/2015JB012551.
[11] Gao, Y., Harris, J. M., Wen, J., **Huang, Y.**, Twardrik, C., Chen, C., & Hu, H. (2016). Modeling of the coseismic electromagnetic fields observed during the 2004 Mw 6.0 Parkfield earthquake, *Geophysical Research Letters*, *43*(2), 620–627, doi: 10.1002/2015GL067183.
[10] **Huang, Y.**, Ampuero, J.-P., & Helmberger, D. V. (2016). The potential for supershear earthquakes in damaged fault zones - Theory and observations, *Earth and Planetary Science Letters, 433*, 109–115, doi: 10.1016/j.epsl.2015.10.046.
[9] Liu, Z., Liang, J., **Huang, Y.**, & Liu, L. (2016). The IBIEM modeling of the amplification of seismic waves by a three-dimensional layered alluvial basin, *Geophysical Journal International, 204*(2), 999–1023, doi: 10.1093/gji/ggv473.
[8] **Huang, Y.**, & Beroza, G. C. (2015). Temporal variation in the magnitude-frequency distribution during the Guy-Greenbrier earthquake sequence, *Geophysical Research Letters*, *42*(16), 6639–6646, doi: 10.1002/2015GL065170.
[7] Liu, Z., Liang, J., & **Huang, Y.** (2015), The IBIEM solution to the scattering of plane SV waves around a canyon in saturated poroelastic half-space, *Journal of Earthquake Engineering, 19*(6), 956–977, doi: 10.1080/13632469.2015.1023473.
[6] Lui, S., Helmberger, D. V., Wei, S., **Huang, Y.**, & Graves, R. W. (2015). Interrogation of the megathrust zone in the Tohoku-Oki seismic region by waveform complexity: Intraslab earthquake rupture and reactivation of subducted normal faults, *Pure and Applied Geophysics*, doi: 10.1007/s00024-015-1042-9.
[5] Pelties, C., **Huang, Y.**, & Ampuero, J.-P. (2015). Pulse-like ruptures induced by three-dimensional fault zone flower structures, *Pure and Applied Geophysics, 172*(5), 1229–1241, doi: 10.1007/s00024-014-0881-0.
[4] **Huang, Y.**, Ampuero, J.-P., & Helmberger, D. V. (2014). Earthquake ruptures modulated by waves in damaged fault zones, *Journal of Geophysical Research: Solid Earth, 119*(4), 3133–3154, doi:10.1002/2013JB010724.
[3] **Huang, Y.**, Ampuero, J.-P., & Kanamori, H. (2013). Slip-weakening models of the 2011 Tohoku-Oki earthquake and constraints on stress drop and fracture energy, *Pure and Applied Geophysics, 171*(10), 2555-2568, doi: 10.1007/s00024-013-0718-2.

[2] **Huang, Y.**, Meng, L., & Ampuero, J.-P. (2012). A dynamic model of the frequency-dependent rupture process of the 2011 Tohoku-Oki earthquake, *Earth Planets Space, 64*, 1061–1066, doi:10.5047/eps.2012.05.011.
[1] **Huang, Y.**, & Ampuero, J.-P. (2011). Pulse-like ruptures induced by low-velocity fault zones, *Journal of Geophysical Research, 116*, B12307, doi:10.1029/2011JB008684.

NON PEER-REVIEWED PUBLICATIONS
[2] **Huang, Y.** (2014), Dynamic rupture simulations integrated with earthquake observations, PhD dissertation, California Institute of Technology.
[1] **Huang, Y.** (2009), A closed-form analytical solution to the site effects of hills and valleys of parabolic shape, Master thesis, Tianjin University.

MANUSCRIPTS IN REVIEW/TO BE SUBMITTED (student author[1]; postdoc author[2])

[R6] Salaree, A.[2], **Huang, Y.**, Ramos, M. D.[1], & Stein, S. Relative tsunami hazard from segments of Cascadia subduction zone for M_w 7.5-9.2 earthquakes, *in review*, *Geophysical Research Letters*. (Preprint available at https://www.essoar.org/doi/abs/10.1002/essoar.10506719.1)
[R5] Li, X.[1], & **Huang, Y.** The relative effects of the accretionary wedge and sedimentary layer on the rupture process of subduction zone earthquakes, *in review*, *Journal of Geophysical Research: Solid Earth.* (Preprint available at https://www.essoar.org/doi/abs/10.1002/essoar.10506336.2)
[R4] Salaree, A.[2], Howe, B. M., **Huang, Y.**, Weinstein, S. A., & Sakya, A. E. A numerical study of SMART cables potential in marine hazard early warning for the Sumatra and Java regions, *in review, Natural Hazards*. (Preprint available at https://eartharxiv.org/repository/view/2317/)
[R3] Thakur, P.[1], & **Huang, Y.** Influence of fault zone maturity on fully dynamic earthquake cycles, *in review, Geophysical Research Letters*. (Preprint available at https://eartharxiv.org/repository/view/2421/)
[R2] Salaree, A.[2], & **Huang, Y.** Excitation of back-arc tsunamis from megathrust ruptures: The underdog hazard in the Sea of Japan, *to be submitted (draft complete)*.
[R1] Liu, M.[1], **Huang, Y.**, & Ritsema, J. Characterizing multi-subevent earthquakes using the Brune source model, *to be submitted (draft complete)*.

INVITED TALKS

2021	*How tiny fault zone structure affects big earthquakes* DeTect Talk Series, Virtual SCEC-IRIS-UNAVCO Community Workshop: Rupture and Fault Zone Observatory
2021	*Do soil sites really amplify ground motions?* GYPSUM seminar, Virtual
2020	*Investigating the relationship between fault damage zones and earthquakes through earthquake cycle simulations* AGU Fall Meeting, Virtual
2020	*Beauty and the Beast: Simple Brune source model applied to complex earthquakes* AGU Fall Meeting, Virtual
2020	*How do near-fault low-velocity structure affect dynamic rupture and ground motion?* SCEC Dynamic Rupture Workshop, Virtual
2019	*Physics of injection-induced earthquakes unveiled by seismic wave analysis and*

numerical simulations
Geophysics Seminar, University of Toronto
EES Distinguished Speaker Series, Michigan State University
Department Seminar, Miami University
ICTP workshop on Earthquake Mechanics, ICTP Italy

2018 *Kinematic rupture processes constrained by observation-driven simulations*
AGU Fall Meeting, Washington D.C.

2018 *Understanding the interaction of earthquake characteristics and fault mechanics by integrating observations and simulations*
BiSEPPS Seminar, Harvard University

2018 *The interaction of earthquake characteristics and fault mechanics at various scales from observation-driven simulations*
Albuquerque, New Mexico, IRIS Workshop 2018

2018 *Do complex earthquakes leave signatures in their ground motions?*
Geotech Engineering Seminar, University of Michigan

2016 *Characterizing interactions between earthquake rupture and fault zone structure*
Denver, Colorado, GSA 2016 Meeting

2015 *Characterizing earthquakes and fault mechanics at various scales*
Smith Lecture, University of Michigan

2015 *Detecting potentially injection-induced earthquakes and their source properties*
Earthquake Science Center Seminar, USGS Menlo Park
Geology Club Speaker Series, San Jose State University

2015 *Magnitude-frequency distribution of potentially injection-induced earthquakes*
Berkeley Seismological Laboratory Seminar, UC Berkeley
GP Seminar, IGPP, UC San Diego
Department Seminar, San Diego State University
Department Seminar, University of Science and Technology of China

2014 *Dynamic interactions between damaged fault zones and earthquakes*
Institute of Geology, China Earthquake Administration

2013 *Earthquake ruptures modulated by waves in damaged fault zones*
SCITS Seminar, Stanford University

2013 *What can a simple slip-weakening model of the Tohoku earthquake tell us*?
SCEC Dynamic Rupture Code Workshop, USGS Menlo Park

2012 *Constraints on fault properties from integration of observations and dynamic rupture models of the Tohoku-Oki earthquake*
Geophysics Seminar, Lugwig Maximilian University of Munich, Germany

COURSES TAUGHT

2020 EARTH 483, Seismology, Lecture and lab
(4 credit, 8 enrolled, Q1: 4.70, Q2: 4.80)

2019 EARTH 146, *Plate Tectonics*, First-year seminar
(3 credit, 18 enrolled, Q1: 4.60, Q2: 4.80)

2019 EARTH 105, *Tectonic Earth*, Mini-course
(1 credit, 146 enrolled, Q1: 4.60, Q2: 4.70)

2019	EARTH 526, Earthquake Hazard and Fault Mechanics, Lecture (4 credit, 6 enrolled, Q1:4.50, Q2: 4.80)
2018	EARTH 146, *Plate Tectonics*, First-year seminar (3 credit, 18 enrolled, Q1: 4.70, Q2: 4.80)
2018	EARTH 105, *Tectonic Earth*, Mini-course (1 credit, 171 enrolled, Q1: 4.40, Q2: 4.60)
2018	EARTH 483, *Seismology*, Lecture and lab (4 credit, 8 enrolled, Q1: 4.25, Q2: 4.25)
2016	EARTH 146, *Plate Tectonics*, First-year seminar (3 credit, 13 enrolled, Q1: 4.40, Q2: 4.71)

TEACHING WORKSHOPS AND DEI ACTIVITIES

2021	Anti-Racism Pedagogy Workshop with Dr. Whitney Peoples
2020	CRLT (Center for Research on Learning and Teaching) Workshop "Students in Blended Synchronous Courses Will Be Less Attentive: What Can We Do?"
2020	GRIN (Graduate Rackham International) Faculty Mentor
2020	Department International Graduate Student Liaison (Meeting with international graduate students to discuss issues related to the pandemic)
2020	LSA Student Engagement Seminar Series
2019-2020	GRIN Panel (Providing career advice to international students and postdocs at the University of Michigan)
2019	ADVANCE Workshop "Great Expectations: Mentoring Graduate Students"
2019	LSA Interactive Lecture Seminar
2019	CRLT Workshop "Moving the Needle"
2018	CRLT Workshop "Consulting with Students about Your Course Materials (Inclusive Teaching @ Michigan Series)"
2018	CRLT Workshop "Getting Started with Teaching Gamefully"
2018	Faculty of Color Dinner with students Marlon Ramos and Prithvi Thakur
2017	NAGT's Early Career Workshop for Geoscience Faculty

STUDENTS AND POSTDOCS SUPERVISED AND ADVISED

PhD students

Marlon Ramos (Fall 2017-Winter 2021, now National Resource Council Postdoctoral Fellow at the Air Force Research Laboratory)
Prithvi Thakur (Fall 2017-Present)
Meichen Liu (Fall 2018-Present, co-advised with Jeroen Ritsema)
Jing Ci Neo (Fall 2019-Present)
Sydney Gable (Fall 2020-Present)

Postdoctoral scholars

Semechah Lui (Winter 2017-Summer 2018, now Assistant Professor at the University of Toronto Mississauga)
Dongdong Yao (Fall 2018-Present)

Amir Salaree (Fall 2019-Present)

Undergraduate students
Alex London, UROP student (Fall 2016-Spring 2017)
Tania Lopez (Fall 2016-Spring 2017)
Emily Boswell (Fall 2018)
Jamie Lackner (Fall 2018)
Sophie Lin (Fall 2018)
Savannah Devine, IRIS intern (Summer 2021)

Visiting students
James Neely (Fall 2016-Summer 2017)
Meichen Liu (Summer 2017)
Quansheng Xia (Summer 2018)
Jing Ci Neo (Summer 2018-Fall 2018)
Xian Li (Fall 2019-Summer 2021)

PhD dissertation committee member
Samuel Haugland (graduated in Winter 2019)
Olivia Helprin (in progress)
Eric Szymanski (in progress)

Qualifying exam committee member
William Medwedeff (exam on Mar 14, 2018)
Olivia Helprin (exam on Mar 12, 2020)
Yaolin Miao (exam to be scheduled in Winter 2022)

PROFESSIONAL SERVICE

2019-Present	Associate Editor, JGR-Solid Earth
2019	Review Panelist for the NSF Geophysics Program
2019	Convener, How Do Earthquakes Start?, AGU Fall Meeting
2018	Primary Convener, The Multi-Scale Interactions among Foreshocks, Mainshocks and Aftershocks: Observations and Physical Mechanisms, AGU Fall Meeting
2017-Present	IRIS Institutional Representative
2014-2019	Judge, Outstanding Student Paper Awards, AGU Fall Meeting
2014-Present	Reviewer for National Science Foundation, Natural Environment Research Council in UK, Chilean National Science and Technology Commission, Solid Earth, Journal of Geophysical Research Solid Earth, Geophysical Research Letter, Geophysical Journal International, Earth and Planetary Science Letters, Earth Planets and Space, American Rock Mechanics Association, Journal of Applied Geophysics, Bulletin of Earthquake Engineering, Seismological Research Letters, Journal of Seismology, Tectonophysics, Bulletin of the Seismological Society of America, Physics of the Earth and Planetary Interiors, Extreme Mechanics Letters, Proceedings of the Royal Society A, AGU Books
2014	Co-chair, Physics of Subduction Earthquakes: From the Trench to the Transition Zone, AGU Fall Meeting

UNIVERSITY AND DEPARTMENT SERVICE (U-M)

2020	LSA Nominating Committee
2019-Present	Department Computing Advisory Committee
2018-2020	Smith Lecture Coordinator
2017-2019	Department Graduate Student Admission Committee
2016-2017	Faculty Advisory Committee for U-M Natural History Museum

SEISMOMETER DEPLOYMENT AND SERVICE

2018-Present	Operator, L48A TA Station
2018-Present	Team Leader, Lake Erie Earthquake Experiment