

# Daniel T. Trugman

## Curriculum Vitae

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Department of Geological Science  
Jackson School of Geosciences  
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### **RESEARCH INTERESTS**

My research focuses on developing and applying new techniques to analyze large seismic datasets in order to better understand earthquake rupture processes and their links to earthquake hazards. I am broadly interested in leveraging concepts from big data and scientific machine learning to advance earthquake science.

### **EDUCATION**

- 2017 Ph.D., Earth Sciences – Geophysics Program, University of California, San Diego.  
Thesis title: “Deviant earthquakes: Data-driven Constraints on the Variability in Earthquake Source Properties and Seismic Hazard.” Thesis advisor: Peter Shearer.
- 2015 M.S., Earth Sciences – Geophysics Program, University of California, San Diego.
- 2013 B.S. (Honors and Distinction), Department of Geophysics, Stanford University.  
Honors thesis title: “A Pseudodynamic Rupture Model Generator for Earthquakes on Geometrically Complex Faults.” Honors advisor: Eric Dunham.

### **PROFESSIONAL APPOINTMENTS**

- 2020 – Present Assistant Professor, Department of Geological Sciences, Jackson School of Geosciences, The University of Texas at Austin
- 2018 – 2020 Richard P. Feynman Distinguished Postdoctoral Research Fellow, Earth & Environmental Science Division, Los Alamos National Laboratory
- 2014 – 2017 NSF Graduate Research Fellow, University of California, San Diego
- 2013 – 2014 Post-baccalaureate researcher, Geophysics Group, Earth and Environmental Sciences Division, Los Alamos National Laboratory

### **AWARDS AND RECOGNITION**

- 2021 Department of Geological Sciences Knebel Teaching Award, Graduate Course: *GEO 391 Earthquakes*
- 2021 Top Five Downloaded Paper in 2020, *Bulletin of Seismological Society of America* (for *Trugman, 2020*)
- 2020 Editors’ Citation for Excellence in Refereeing for *Geophysical Research Letters*

- 2020 Top Downloaded Paper Award, *Geophysical Research Letters*: awarded for writing a paper downloaded at the top 10% rate during 2018 – 2019 (*Trugman and Ross, 2019*)
- 2019 Hyperion Research HPC Innovation Excellence Award for the Quake Template Matching Project (*Ross, Trugman et al., Science 2019*)
- 2019 *Discover Magazine* Top 50 Science Stories of 2019: recognition for work on earthquake detection and foreshock sequences
- 2019 *Geophysical Research Letters* Editor's Highlight for *Trugman and Ross, 2019*
- 2018 Richard P. Feynman Postdoctoral Fellowship
- 2017 Seismological Society of America 2017 Outstanding Student Presentation Award
- 2016 Achievement Reward for College Scientists (ARCS) Scholarship
- 2016 Paul G. Silver Young Scholar Research Enhancement Award
- 2014 National Science Foundation (NSF) Graduate Research Fellowship
- 2013 David M. Kennedy Prize for Outstanding Undergraduate Honors Thesis
- 2013 Hoefler Prize for Excellence in Undergraduate Writing
- 2013 Firestone Medal for Excellence in Undergraduate Research
- 2013 Stanford Earth Science Dean's Award for Undergraduate Academic Achievement
- 2013 California Federation of Mineralogical Society's Diedrick Scholarship
- 2012 Los Alamos National Laboratory Student Symposium Award for Outstanding Student Research: Earth and Space Science
- 2012 Department of Energy Science Undergraduate Laboratory Internship Award
- 2009 Los Alamos National Laboratory Employee's Scholarship Platinum Award
- 2009 J. Robert Oppenheimer Scholar
- 2009 National Merit Scholar

## **PEER-REVIEWED PUBLICATIONS**

**Published = 31, In review = 4, h-index = 14, i10-index = 18 (as of June 2021)**

\* = Mentored graduate student author, # = Mentored postdoc author

- 35. Saad, O. M., Y. Chen, **D. T. Trugman**, M. S. Soliman, L. Samy, A. Savvaidis, M. A. Khamis, A. G. Hafez, S. Fomel, Y. Chen. Machine learning contributes to the fast and reliable source-location prediction in earthquake early warning. *Science Advances* (in review).
- 34. Abercrombie, R. E., **D. T. Trugman**, P. M. Shearer, X. Chen, J. Zhang, C. N. Pennington, J. L. Hardebeck, T. H. W. Goebel, and C. J. Ruhl. Does earthquake stress drop increase with depth in the crust? *Journal of Geophysical Research: Solid Earth* (in review).

33. Tsai, V. C., G. Hirth, **D. T. Trugman**, and S. Chu<sup>#</sup>. Impact versus frictional earthquake models for high-frequency radiation in complex fault zones. *Journal of Geophysical Research: Solid Earth* (in review).
32. Wang, W., P. M. Shearer, J. Vidale, X. Xu, **D. T. Trugman**, and Y. Fialko. Spatial decorrelation of tidal triggering and remote triggering at the Coso geothermal field. *Science Advances* (in review).
31. Skoumal, R. J., and **D. T. Trugman** (2021). The proliferation of induced seismicity in the Permian Basin. *Journal of Geophysical Research: Solid Earth*, 126, doi: 10.1029/2021JB021921.
30. **Trugman, D. T.**, and A. Savvaidis (2021). Source spectral properties of earthquakes in the Delaware Basin of West Texas. *Seismological Research Letters*, doi: 10.1785/0220200461.
29. Wang<sup>\*</sup>, T., **D. T. Trugman**, and Y. Lin (2021). SeismoGen: Seismic waveform synthesis using generative adversarial networks. *Journal of Geophysical Research: Solid Earth*, 126, e2020JB020077, doi: 10.1029/2020JB020077.
- 28. Trugman, D. T.**, I. W. McBrearty<sup>\*</sup>, D. C. Bolton<sup>\*</sup>, R. A. Guyer, C. Marone, and P. A. Johnson (2020). The spatiotemporal evolution of granular microslip precursors to laboratory earthquakes. *Geophysical Research Letters*, 47 (16), e2020GL088404, doi: 10.1029/2020GL088404.
27. Ross, Z. E., E. S. Cochran, **D. T. Trugman**, and J. D. Smith (2020). 3D fault architecture controls the dynamism of earthquake swarms. *Science*, 368 (6497), 1357–1361, doi: 10.1126/science.abb0779.
- 26. Trugman, D. T.** (2020). Stress drop and source scaling of the 2019 Ridgecrest, California, earthquake sequence. *Bulletin of the Seismological Society of America*, 110 (4), 1859-1871, doi: 10.1785/0120200009.
- 25. Trugman, D. T.**, Z. E. Ross, and P. A. Johnson (2020). Imaging stress and faulting complexity through earthquake waveform similarity. *Geophysical Research Letters*, 47 (1), e2019GL085888, doi: 10.1029/2019GL085888.
24. Ross, Z. E., **D. T. Trugman**, K. Azzadenesheli<sup>\*</sup>, and A. Anandkumar (2020). Directivity modes of earthquake populations with unsupervised learning. *Journal of Geophysical Research: Solid Earth*, 125 (2), e2019JB018299, doi: 10.1029/2019JB018299.
23. Qin, Y., X. Chen, J. I. Walter, J. Haffener, **D. T. Trugman**, B. M. Carpenter, M. Weingarten, and F. Kolawole (2019). Deciphering the stress state of seismogenic faults in Oklahoma and Southern Kansas based on an improved stress map. *Journal of Geophysical Research: Solid Earth*, 124, 12920– 12934, doi: 10.1029/2019JB018377.
- 22. Trugman, D. T.**, and Z. E. Ross (2019). Pervasive foreshock activity across Southern California. *Geophysical Research Letters*, 46 (15), 8772-8781, doi: 10.1029/2019GL083725.

21. Ross, Z. E., **D. T. Trugman**, Hauksson, E., and Shearer, P. M. (2019). Searching for hidden earthquakes in Southern California. *Science*, 364(6442), 767–771, doi: 10.1126/science.aaw6888.
20. **Trugman, D. T.**, M. T. Page, S. E. Minson, and E. S. Cochran (2019). Peak ground displacement saturates exactly when expected: Implications for earthquake early warning. *Journal of Geophysical Research: Solid Earth*, 124 (5), 4642– 4653, doi: 10.1029/2018JB017093.
19. Shearer, P. M., R. A. Abercrombie, **D. T. Trugman**, and W. Wang (2019). Comparing EGF methods for estimating corner frequency and stress drop from P-wave spectra. *Journal of Geophysical Research: Solid Earth*, 124 (4), 3966–3986, doi: 10.1029/2018JB016957.
18. Kong, Q., **D. T. Trugman**, Z. E. Ross, M. J. Bianco, B. J. Meade, and P. Gerstoft (2019). Machine learning in seismology – Turning data into insights. *Seismological Research Letters*, 90(1), 3–14, doi: 10.1785/0220180259.
17. Koper, K. D., K. L. Pankow, J. C. Pechmann, J. M. Hale, R. Burlacau, W. L. Yeck, H. M. Benz, R. B. Hermann, **D. T. Trugman**, and P. M. Shearer (2018). Afterslip enhanced aftershock activity during the 2017 earthquake sequence near Sulphur Peak, Idaho. *Geophysical Research Letters*, 45, 5352–5361, doi: 10.1029/2018GL078196.
16. **Trugman, D. T.**, and P. M. Shearer (2018). Strong correlation between stress drop and peak ground acceleration for recent M1–M4 seismicity in the San Francisco Bay Area. *Bulletin of the Seismological Society of America*, 108 (2), 929–945, doi: 10.1785/0120170245.
15. **Trugman, D. T.**, S. L. Dougherty, E. S. Cochran, and P. M. Shearer (2017). Source spectral properties of small to moderate earthquakes in Southern Kansas. *Journal of Geophysical Research: Solid Earth*, 122 (10), 8021–8034, doi: 10.1002/2017JB014649.
14. **Trugman, D. T.**, and P. M. Shearer (2017). Application of an improved spectral decomposition method to examine earthquake source scaling in Southern California. *Journal of Geophysical Research: Solid Earth*, 122 (4), 2890–2910, doi: 10.1002/2017JB013971.
13. **Trugman, D. T.**, and P. M. Shearer (2017). GrowClust: A hierarchical clustering algorithm for relative earthquake relocation, with application to the Spanish Springs and Sheldon, Nevada, earthquake sequences. *Seismological Research Letters*, 88 (2A), 379–391, doi: 10.1785/0220160188.
12. **Trugman, D. T.**, P. M. Shearer, A. A. Borsa and Y. Fialko (2016). A comparison of long-term changes in seismicity at The Geysers, Salton Sea, and Coso geothermal fields. *Journal of Geophysical Research: Solid Earth*, 121 (1), 225–247, doi: 10.1002/2015JB012510.
11. Daub, E. G., **D. T. Trugman**, and P. A. Johnson (2015). Statistical tests on clustered global earthquake synthetic data sets. *Journal of Geophysical Research: Solid Earth*, 120 (8), 5693–5716, doi: 10.1002/2014JB011777.

10. **Trugman, D. T.**, C. Wu, R. A. Guyer, and P. A. Johnson (2015). Synchronous low frequency earthquakes and implications for deep San Andreas fault slip. *Earth and Planetary Science Letters*, 424, 132–139, doi: 10.1016/j.epsl.2015.05.029.
9. Wu, C., R. A. Guyer, D. Shelly, **D. T. Trugman**, W. Frank, J. Gomberg, and P. A. Johnson (2015). Spatial-Temporal variation of low-frequency earthquake bursts near Parkfield, California. *Geophysical Journal International*, 202 (2), 914–919, doi: 10.1093/gji/ggv194.
8. **Trugman, D. T.**, A. A. Borsa, and D. T. Sandwell (2014). Did stresses from The Cerro Prieto Geothermal Field influence the El Mayor-Cucapah rupture sequence? *Geophysical Research Letters*, 41 (24), 8767–8774, doi: 10.1002/2014GL061959.
7. **Trugman, D. T.**, and E. M. Dunham (2014), A 2D pseudodynamic rupture model generator for earthquakes on geometrically complex faults. *Bulletin of the Seismological Society of America*, 104 (1), 95–112, doi: 10.1785/0120130138.
6. **Trugman, D. T.**, E. G. Daub, R. A. Guyer, and P. A. Johnson (2013). Modeling dynamic triggering of tectonic tremor using a brittle-ductile friction model. *Geophysical Research Letters*, 40 (19), 5075–5079, doi: 10.1002/grl.50981.
5. Johnson, P. A., B. Ferdowsi, B. M. Kaproth, M. Scuderi, M. Griffa, J. Carmeliet, R. A. Guyer, P.-Y. Le Bas, **D. T. Trugman**, and C. Marone (2013). Acoustic emission and microslip precursors to stick-slip failure in sheared granular material. *Geophysical Research Letters*, 40 (21), 5627–5631, doi: 10.1002/2013GL057848.
4. Perkins, B. G., H. Y. Hwang, N. K. Grady, L. Yan, **D. T. Trugman**, Q. Jia, H. T. Chen, A. J. Taylor, and K. A. Nelson (2013). Nonlinear ultrafast dynamics of high temperature YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>-Delta superconductors probed with THz pump / THz probe spectroscopy. *EPJ Web of Conferences*, 41, 03010, doi: 10.1051/epjconf/20134103010.
3. Grady, N. K., B. G. Perkins, H. Y. Hwang, N. C. Brandt, D. Torchinsky, R. Singh, L. Yan, **D. T. Trugman**, S. A. Trugman, Q. X. Jia, A. J. Taylor, K. A. Nelson, and H. T. Chen (2013). Nonlinear high-temperature superconducting terahertz metamaterials. *New Journal of Physics*, 15 (10), 105016, doi: 10.1088/1367-2630/15/10/105016.
2. Budiman, A. S., N. Li, Q. Wei, J. K. Baldwin, J. Xiong, H. Luo, **D. T. Trugman**, Q. X. Jia, N. Tamura, M. Kunz, K. Chen, and A Misra (2011). Growth and structural characterization of epitaxial Cu/Nb multilayers. *Thin Solid Films*, 519(13), 4137–4143, doi: 10.1016/j.tsf.2010.12.077.
1. Xiong, J., V. Matias, H. Wang, J. Y. Zhai, B. Maiorov, **D. T. Trugman**, B. W. Tao, Y. R. Li, and Q. X. Jia (2010). Much simplified ion-beam assisted deposition-tin template for high-performance coated conductors. *Journal of Applied Physics*, 108(8), 083903-083903-4, doi: 10.1063/1.3499270.

## **OTHER PUBLICATIONS (Comments and White Papers)**

3. Ford, H.A., M. Floyd, D.S. Stamps, M. Mendoza, E. Bozdog, D. Bowden, J. Byrnes, W. Fan, H. Kehoe, E. Chaussard, N. J. Lindsey, S. Wei, G. Barcheck, T. S. de Smet, H. Janiszewski, E. Lindsey, J. K. MacCarthy, K. Materna, S. Naif, D. Portner, **D. T. Trugman**, I. Wang (2020). An early career investigator community vision for the future NSF geophysical facility: Data services needs. White Paper, 3 p., doi: 10.6084/m9.figshare.12398321.
2. Evans, E.L., A. Nikulin, H.A. Ford, D.S. Stamps, N. Creasy, J.L. Swiatlowski, E. Chaussard, **D. T. Trugman**, N.J. Lindsey, S. Naif, C. Rollins, K. Materna (2020). An early career investigator community vision for the future NSF geophysical facility: Education, workforce, and outreach needs. White Paper, 3 p., doi: 10.6084/m9.figshare.12398372.
1. **Trugman, D. T.**, G. C. Beroza, and P. A. Johnson (2019). Machine learning in geoscience: Riding a wave of progress. *Eos*, 100, doi: 10.1029/2019EO122671.

## **CREATIVE PRODUCTS AND SOFTWARE**

### Open-source Software:

GrowClust: A Computer Program for the Relative Relocation for Earthquake Hypocenters, GNU General Public License v3.0: <https://github.com/dttrugman/GrowClust>.

## **INVITED TALKS**

- Trugman, D. T.** (2021). Space-time variations in earthquake waveform similarity: Implications for stress heterogeneity and faulting complexity. *Seismological Society of America Annual Meeting* [Virtual Meeting].
- Trugman, D. T.**, Q. Kong and K. Bergen (2021). Machine learning in seismology: A fireside chat. *Seismological Society of America Annual Meeting* [Virtual Meeting]. Plenary Panel Discussion.
- Trugman, D. T.** (2021). Source spectral properties of earthquakes in the Delaware Basin of west Texas. *TexNet Seismology Research Seminar*, Austin TX.
- Trugman, D. T.** (2021). Rupture determinism and magnitude saturation: Practical implications for the ShakeAlert system. *ShakeAlert Research Workshop* [Virtual].
- Trugman, D. T.** (2020). Waveform similarity and earthquake stress drop: What can we learn from the source properties of small earthquakes in the Ridgecrest sequence? *Physics-based Earthquake Forecasting Community Seminar*, UK Research Institution.
- Trugman, D. T.** (2020). Imaging stress and faulting complexity through earthquake waveform similarity. *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA.
- Trugman, D. T.** (2020). What can small earthquakes tell us about large earthquake ruptures? Insights from the July 2019 Ridgecrest, CA sequence. *University of Texas Department of Geological Sciences Lithosphere and Deep Earth Seminar*, Austin, TX.
- Trugman, D. T.** (2020). New insights into earthquake rupture processes from high-resolution California datasets. *University of Utah Geophysics Seminar*, Salt Lake City, UT.

- Trugman, D. T.** (2020). Earthquake waveform similarity as a tool to image stress and fault complexity: Application to the 2019 Ridgecrest earthquake sequence. *Seismological Society of America Annual Meeting*, Albuquerque, NM. [Canceled due to COVID-19].
- Trugman, D. T.** (2019). New perspectives on earthquake nucleation from megaquakes in Japan and microforeshocks in California. *University of Texas – Austin Jackson School of Geosciences: DeFord Lecture*, Austin, TX.
- Trugman, D. T.** (2019). New perspectives on earthquake nucleation from megaquakes in Japan and microforeshocks in California. *Harvard Department of Earth and Planetary Sciences Seminar*, Cambridge, MA.
- Trugman, D. T.** (2019). Earthquake nucleation: Observation and applications from megaquakes in Japan to microforeshocks in California. *California Institute of Technology Seismolab Seminar*, Pasadena, CA.
- Trugman, D. T.** (2019). Big data, small earthquakes. *Texas A&M Geology Summer School*, Los Alamos, NM.
- Trugman, D. T.** (2019). Big data, small earthquakes: Insights into earthquake nucleation. *Scripps Institution of Oceanography Seminar*, San Diego, CA.
- Trugman, D. T.** (2019). Big data, small earthquakes. *Department of Energy Triad Science, Technology, and Energy Review*. Santa Fe, NM.
- Trugman, D. T.** (2019). Unsupervised learning, a gentle introduction: Clustering the ComCat earthquake catalog using python's scikit-learn package. *Seismological Society of America Annual Meeting: Machine Learning Workshop*, Seattle WA.
- Trugman, D. T.** (2019). Do large and small earthquakes start alike? Rupture determinism and earthquake early warning. *Los Alamos National Laboratory Earth and Environmental Sciences Division Science Café*, Los Alamos, NM.
- Trugman, D. T.** and P. M. Shearer (2018). Earthquake stress drop and peak ground motion: A machine learning perspective. *American Geophysical Union Fall Meeting*, Washington DC.
- Trugman, D. T.** (2018). Machine learning applications to earthquake source characterization and hazard analysis. *US Geological Survey Earthquake Science Center Seminar*, Menlo Park, CA.
- Trugman, D. T.** (2018). Machine learning applications to earthquake source characterization and hazard analysis. *California Institute of Technology Seismolab Seminar*, Pasadena, CA.
- Trugman, D. T.** (2018). Characterizing earthquake hazards and source dynamics using machine learning. *Massachusetts Institute of Technology Earth Research Laboratory Seminar*, Cambridge, MA.
- Trugman, D. T.,** S. L. Dougherty, E. H. Cochran, and P. M. Shearer (2017). Earthquake stress drop and source parameter scaling in Southern Kansas. *Induced Seismicity Ground Motion Workshop*, United States Geological Survey Earthquake Science Center, Menlo Park, CA.

**Trugman, D. T., R. A. Guyer, P. A. Johnson (2013).** Brittle-ductile friction model: tremor, triggering and LFE broadcasts. *Workshop on Triggered Seismicity and Fault Friction*, Pennsylvania State University, State College, PA.

## **RESEARCH GRANTS AND PROJECT INVOLVEMENT**

**[Total Amount Awarded to Date = \$1.290M; Investigator Contribution \$897K]**

### Awarded

- 2021 – 2022      **Principal Investigator: *Southern California Earthquake Center (SCEC) Research Grant (Award #21017)*, “A Bayesian Framework for the Joint Estimation of Corner Frequency and Rupture Directivity for Southern California Earthquakes.”** Funding total: \$32K / Investigator contribution: \$32K (100%).
- 2021 – 2022      **Principal Investigator: *USGS Earthquake Hazards Program (Award # G21AP10284)*, “Real-time and Data-Driven Ground Motion Prediction Equations for Earthquake Early Warning.”** Funding total: \$91K / Investigator contribution: \$91K (100%).
- 2021 – 2022      **Co-Principal Investigator: *UTIG Blue Sky Student Fellowship*, “Machine Learning of Glacier Change.”** Funding total: \$50K / Investigator contribution \$25K (50%).
- 2020 – 2021      **Co-Investigator: *Southern California Earthquake Center (SCEC) Research Grant*, “Aftershock patterns and co-seismic off-fault damage elucidate dynamic rupture processes on the 2019 Ridgecrest earthquake sequence.”** Funding total: \$32K / Investigator contribution \$0K (unfunded federal collaborator).
- 2019 – 2020      **Co-Investigator: *Los Alamos National Laboratory LDRD Early Career Grant*, “Illuminating the Subsurface with Nonlinear Behavior.”** Funding total: \$416K / Investigator contribution \$81.2K (20%).
- 2018 – 2020      **Principal Investigator: *Richard P. Feynman Distinguished Postdoctoral Fellowship Grant*, “Machine Learning the Physics of an Active Gold Mine.”** Funding total: \$490K / Investigator contribution \$490k (100%).
- 2016 – 2017      **Student Investigator: *Achievement Rewards for College Scientists Research Grant*.** Funding and student investigator total: \$23K.
- 2016 – 2017      **Student Investigator: *Paul G. Silver Young Scholar Research Enhancement Grant*.** Funding and student investigator total: \$1.3K.
- 2014 – 2017      **Student Investigator: *National Science Foundation Graduate Research Fellowship*.** Funding and student investigator total: \$148K.
- 2012 – 2012      **Student Investigator: *Department of Energy Student Undergraduate Leadership Initiative Grant*.** Funding and student investigator total: \$5K.



Submitted

- 2022 – 2025 **Co-Principal Investigator: Department of Energy / ARPA-E Program, “Monitoring Permeability in Geothermal Fields using Nonlinear Behavior and Microseismicity.”** Funding total: \$3.135M.
- 2021 – 2023 **Principal Investigator: Texas Seismological Network Biennium Research Grant, “Advancing TexNet Capabilities for High-Precision Relative Relocation and Fault Plane Solutions.”** Funding total: \$132K.
- 2021 – 2025 **Co-Principal Investigator: NSF EAR – FRES (Frontier Research in Earth Science), “Collaborative Research: Toward an integrated modeling framework for physics-based estimates of megathrust rupture potential.”** Funding total: \$2.000M.
- 2021 – 2025 **Co-Principal Investigator: NSF HDR Program, “HDR Institute: Institute for Modeling and Monitoring of Processes in the Subsurface (IMMPRS).** Funding total: \$11.367M.

Declined

- 2021 – 2023 **Co-Principal Investigator: NSF EAR - Geophysics, “Collaborative Proposal: Testing Collision versus Frictional Stress-Drop Models of High-Frequency Earthquake Ground Motions.”** Funding total: \$540K.

**TEACHING EXPERIENCE**

Department of Geological Sciences, UT Austin:

- Spring 2021: *Earthquakes\** (GEO 371T & 391, upper-level undergraduate and graduate course). \*Carries quantitative reasoning flag.

Other Teaching Experience:

- Spring 2019: Instructor, *Machine Learning in Seismology Workshop*, Seismological Society of America Annual Meeting, Seattle WA
- Spring 2017: Teaching Assistant: *Introduction to Geophysics* undergraduate course, UC San Diego
- Spring 2017: Guest Lecturer, *Machine Learning* graduate course, UC San Diego
- Summer 2016: Instructor, Sally Ride Summer Science Camp: *Music of Earthquakes* class
- Fall 2015: Seminar leader and co-instructor, *Earthquake and Volcano Deformation* graduate seminar, UC San Diego
- Spring 2015: Guest Lecturer, *Data Assimilation* graduate course, UC San Diego

**STUDENT AND POSTDOC ADVISING**

Postdoctoral Researchers:

- Nadine Igonin (September 2021 start date)

Enze Zhang (September 2021 start date)

Srisharan Shreedharan (Co-mentor; UTIG Institutional Postdoc)

Graduate Students (Primary Advisor):

Avigyan Chatterjee (PhD. September 2021 start date)

Vivian Rosas (PhD. September 2021 start date)

Kevin Shionalyn (PhD; co-advisor with Ginny Catania. September 2021 start date)

Ruide Ao (MS; co-advisor with Steve Grand. Degree expected 2021).

Graduate Students (Committee Member):

Michelle Tebolt (Ph.D.; advisor: Tim Goudge). Qualifying exam committee: 2021 – Present.

Dimitri Voytan (Ph.D.; advisor: Mrinal Sen). PhD committee: 2020 – Present.

Nam Pham (Ph.D.; advisor: Sergey Fomel). PhD committee: 2020 – Present.

**PROFESSIONAL SERVICE**

Department of Geological Sciences, UT Austin:

2021 Annual Performance Review Committee

2021 Search Committee for Assistant Professor in Structural Geology

2021 Search Committee for TexNet (BEG) Seismologist Position

2020 Jackson School Geology Foundation Advisory Council invited speaker

2020 – Present AGU Bridge Program Proposal writing group and committee

2020 – Present Machine Learning / Data Analysis in Geoscience curriculum committee

Other Service:

2021 Ad-hoc reviewer for Department of Energy: Office of Science proposals

2019 – Present Participant in monthly ShakeAlert Earthquake Early Warning Scientific Forum

2018 – 2020 Organizing Committee for the Machine Learning in Solid Earth Science Conference, Santa Fe, NM

2020 American Geophysical Union Outstanding Student Presentation Award Judge

2019 Panel reviewer for US Geological Survey's National Earthquake Hazard Reduction Program

2019 Lead organizer of Los Alamos National Laboratory Earth and Environmental Sciences Division Seminar Series on Machine Learning

2019 Ad-hoc reviewer for Department of Energy: Office of Science proposals

2019 Co-organizer of Los Alamos National Laboratory Earth and Environmental Sciences Division Postdoctoral Seminar Series

2015 – 2019      Invited participant in US Geological Survey Uniform California Earthquake Rupture Forecast (UCERF) Planning Committee and Workshops

Peer reviewer:

2015 – Present      *Nature, Nature Communications, AGU Advances, Reviews of Geophysics, Geophysical Research Letters, Journal of Geophysical Research – Solid Earth, Bulletin of the Seismological Society of America, Seismological Research Letters, Earth and Planetary Science Letters, Geophysical Journal International*

## **VOLUNTEER ACTIVITIES AND OUTREACH**

2021              Jackson School GeoVision Summer Research Experience Lecturer  
2021              Department of Geological Sciences “Postdoc Party” Application Advisor  
2021              Jackson School Student Research Symposium judge  
2021              Unlearning Racism in Geoscience (URGE) participant  
2021              NAGT Being an Inclusive Geoscientist Workshop participant  
2021              Best Practices for Faculty Mentors Workshop participant  
2021              Geoscience Empowerment Network (GEN) Bystander Training Workshop participant  
2020              Enhancing Diversity in Geosciences Education (EDGE) volunteer speaker  
2020              Jackson School of Geosciences Undergraduate Geological Society faculty research and outreach speaker  
2020              Jackson School of Geosciences Undergraduate Honors Program faculty research and outreach speaker  
2020              University of Texas Institute for Geophysics (UTIG) Postdoc Mentoring Program, invited speaker on applying for jobs in academia  
2020              Geoscience Empowerment Network (GEN) “Down to Earth” program host  
2018 – 2020      Los Alamos National Laboratory Employee’s Scholarship Fund Advisory Committee member  
2020              Los Alamos National Laboratory Peer Coaching program facilitator  
2019              Bradbury Science Museum “Science on Tap” Series, invited speaker  
2019              Los Alamos National Laboratory Student Symposium judge  
2018 – 2019      Los Alamos County Science Fair judge  
2018 – 2020      Los Alamos Family YMCA volunteer climbing wall route setter  
2016 – 2017      UC San Diego Scripps Peers Program graduate student mentor  
2016 – 2017      Institution of Geophysics and Planetary Physics Graduate Student Practice Oral Examinations, co-organizer  
2016              Scripps Institution of Oceanography Teaching Award committee member  
2015 – 2016      San Diego Hands-On Organization trail maintenance volunteer

## **CONFERENCE PRESENTATIONS (1<sup>st</sup> Author)**

- Trugman, D. T.** (2021). Space-time variations in earthquake waveform similarity: Implications for stress heterogeneity and faulting complexity. *Seismological Society of America Annual Meeting* [Virtual Meeting]. Invited oral.
- Trugman, D. T.** (2020). What can the Brune-type stress drops of the Ridgecrest aftershocks tell us about the mainshock rupture? *American Geophysical Union Fall Meeting*, San Francisco, CA [Virtual]. Poster.
- Trugman, D. T.** (2020). Imaging stress and faulting complexity through earthquake waveform similarity. *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA. Plenary Oral.
- Trugman, D. T.** (2020). Earthquake waveform similarity as a tool to image stress and fault complexity: application to the 2019 Ridgecrest earthquake sequence. *Seismological Society of America Annual Meeting*, Albuquerque, NM. [Canceled due to COVID-19].
- Trugman, D. T.** and Z. E. Ross (2019). Pervasive foreshock activity across Southern California: insights from the QTM earthquake catalog. *American Geophysical Union Fall Meeting*, San Francisco, CA. Oral.
- Trugman, D. T.,** Z. E. Ross and P. A. Johnson (2019). Anti-similar aftershocks in the Ridgecrest, California earthquake sequence. *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA. Poster.
- Trugman, D. T.** (2019). Unsupervised learning, a gentle introduction: Clustering the ComCat earthquake catalog using python's scikit-learn package. *Seismological Society of America Annual Meeting: Machine Learning Workshop*, Seattle WA. Workshop presentation.
- Trugman, D. T.** and P. M. Shearer (2018). Earthquake stress drop and peak ground motion: A machine learning perspective. *American Geophysical Union Fall Meeting*, Washington DC. Invited oral.
- Trugman, D. T.** and P. M. Shearer (2017). Examining the relationship between stress drop and peak ground acceleration for small-to-moderate earthquakes in the San Francisco Bay Area. *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA. Poster.
- Trugman, D. T.,** S. L. Dougherty, E. H. Cochran, and P. M. Shearer (2017). Examining earthquake source properties and scaling of recent seismicity in Southern Kansas. *Seismological Society of America Annual Meeting*, Denver, CO. Oral.
- Trugman, D. T.,** P. M. Shearer, and K. D. Smith (2017). GrowClust: A hierarchical clustering algorithm for relative earthquake relocation, with application to the Spanish Springs and Sheldon, Nevada, earthquake sequences. *American Geophysical Union Fall Meeting*, San Francisco, CA. Poster.
- Trugman, D. T.,** P. M. Shearer, and K. D. Smith (2017). GrowClust: A hierarchical clustering algorithm for relative earthquake relocation, with application to the Spanish Springs and

Sheldon, Nevada, earthquake sequences. *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA. Poster.

**Trugman, D. T.**, P. M. Shearer, A. A. Borsa and Y. Fialko (2015). Long-term evolution of seismicity rates in California geothermal fields. *American Geophysical Union Fall Meeting*, San Francisco, CA. Oral.

**Trugman, D. T.**, P. M. Shearer, A. A. Borsa and Y. Fialko (2015). A comparison of long-term changes in seismicity at The Geysers, Salton Sea, and Coso geothermal fields. *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA. Poster.

**Trugman, D. T.**, P. M. Shearer, and D. T. Sandwell (2014). Did stresses from the Cerro Prieto Geothermal Field influence the El Mayor-Cucapah rupture sequence? *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA. Poster.

**Trugman, D. T.**, and E. M. Dunham (2013). A 2D pseudo-dynamic rupture model generator for earthquakes on geometrically complex faults. *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA. Poster.

## **PROFESSIONAL AFFILIATIONS**

2016 – Present: Seismological Society of America (SSA)

2015 – Present: American Geophysical Union (AGU)

2013 – Present: Southern California Earthquake Center (SCEC)