

## Ashly Cabas, Ph.D.

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### EDUCATION

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Ph.D.       **Virginia Tech**, Civil Engineering, 2016  
M.S.       **Virginia Tech**, Civil Engineering, 2011  
B.S.       **Universidad Católica Andrés Bello**, Venezuela, Civil Engineering, 2009

### ACADEMIC APPOINTMENTS

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08/2016 – Present       **Assistant Professor**  
Department of Civil, Construction, and Environmental Engineering  
North Carolina State University  
05/2011 – 08/2016       **Graduate Research Assistant**  
Department of Civil, and Environmental Engineering, Virginia Tech  
03/2013               **Visiting Researcher**  
Institut Français des Sciences et Technologies des Transports, de l'Aménagement  
et des Réseaux (now, Université Gustave Eiffel), Paris, France.

### SCHOLARLY AND PROFESSIONAL HONORS

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- **Civil and Environmental Engineering Outstanding Young Alumni at Virginia Tech, 2023.**
- **Faculty Early Career Development (CAREER) Award**, National Science Foundation, 2022.
- NCSU Center for Geospatial Analytics (CGA) Fellow, 2022 [*the Faculty Fellows program at the CGA is a touchstone of excellence for NC State faculty pushing the frontiers of geospatial data science*].
- Invited Contributor to the NSF-sponsored US-Japan Workshop on Needs, Priorities and Partnerships to Advance Human-Centered Data for Resilience, 2022
- **Shah Family Innovation Prize Award**, 2021 [*awarded by the Earthquake Engineering Research Institute (EERI) to honor an individual under the age of 35 for creativity, innovation and an entrepreneurial spirit in earthquake risk mitigation and management. Citation: Dr. Cabas has distinguished herself as a leader in the areas of site response analysis and ground motion characterization at the interface between engineering seismology and geotechnical engineering. She has displayed exceptional leadership in the fostering of a diverse, community-driven earthquake engineering profession through her mentorship of under-represented groups and the creation of a network of Latinx geotechnical earthquake engineers. This effort will enable a diverse group of earthquake engineers to support their own communities, building capacity and supporting seismic risk reduction*].
- Elected Member to the Board of Directors of the Seismological Society of America (SSA), 2022-2025 [*governing body for SSA*].
- New Faces in the ASCE Geo-Institute, 2021.
- NCSU Impact Scholar, 2021 [*researchers who have potential to make significant impacts on society and the world through their research and developing a broader impacts identity*].
- NSF-Enabling the Next Generation of Hazards and Disaster Researchers Fellowship, 2019-2020.
- **NCSU Women and Minorities in Engineering Program Award**, 2019.
- Outstanding Reviewer, ASCE Journal of Geotech. and Geoenvironmental Engineering, 2018.
- Thank a Teacher Letter, 2018 [*NCSU Office of Faculty Development recognition program*].
- **Fellow, American Society of Civil Engineers (ASCE) Excellence in Civil Engineering Education (ExCEED)**, 2017.
- **Winner, Annual EERI Graduate Student Paper Competition**, 2014.
- Student Presentation Award, Seismological Society of America (SSA) Annual Meeting, 2014.
- 3<sup>rd</sup> Place, National Poster Competition, International Foundations Congress and Equipment Expo (IFCEE) / Geo-Congress, ASCE Geo-Institute, 2015.

- Top 6 Finalist, National Poster Competition, Geo-Congress, ASCE Geo-Institute, 2012.
- 2<sup>nd</sup> Place, Graduate Student Poster Competition, Research Day, Virginia Tech, 2012.
- Juris Vitols Academic Excellence Award, Universidad Católica Andrés Bello (UCAB), 2009 [awarded to the top three undergraduate students university-wide].
- Dean of Engineering Honor List, Department of Civil Engineering, UCAB, 2003-2008 [awarded to undergraduate students with highest GPA in their respective engineering departments].

## TEACHING EXPERIENCE

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*I strive to be an excellent teacher. My teaching ratings have averaged 4.4 out of 5.0 at NC State University. The score reported is from students' teaching evaluations based on question #8: "Overall, the instructor was an effective teacher (on a scale of 1-poor to 5-truly outstanding)".*

### Assistant Professor, North Carolina State University

- CE 342 Engineering Behavior of Soils and Foundations, *Junior-level soil mechanics lecture & lab*
- CE 435 Engineering Geology, *Senior-level course on engineering geology*
- CE 746 Geotechnical Earthquake Engineering, *Graduate-level course, geotechnical and engineering seismology aspects relevant to earthquake engineering*
- CE 593 Dynamics of Soils and Foundations, *Graduate-level course, fundamental aspects of soil behavior subjected to cyclic loading*

### Graduate Teaching Assistant, Virginia Tech

- CEE 3514: Introduction to Geotechnical Engineering, *Junior-level soil mechanics lab [2010-2011].*

### Undergraduate Teaching Assistant, Universidad Católica Andrés Bello

- Physics II, *Junior-level course on circuits [2006-2008].*

## PUBLICATIONS

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*Peer-reviewed journal publications (§ indicates advised student or postdoc co-author):*

1. §Ji, C., Cabas, A., Kottke, A., Pilz, M., Macedo, J., & Liu, C. (2023). [A DesignSafe Earthquake Ground Motion Database for California and Surrounding Regions](https://doi.org/10.1177/875529302211411). *Earthquake Spectra* 39(1) <https://doi.org/10.1177/875529302211411>
2. Cabas, A., §Lorenzo-Velazquez, C., §Ingabire Abayo, N., §Ji, C., Ramirez, J., Garcia, F.E., Pérodin, J., Hwang, Y., Dashti, Y., Ganapati, N.E., Nicolas, S., Whitworth, M., Guerrier, K., Saint Fleur, N., Contreras, S., Lagesse, R., Marcelin, L., Remington, C.L., (2023). [Intersectional Impacts of the 2021 MwMw 7.2 Nippes, Haiti, Earthquake from Geotechnical and Social Perspectives](https://doi.org/10.1785/0120220118), *Bull. Seism. Soc. Am. Special Section on Caribbean Tectonics, Seismicity and Earthquake Hazards*. <https://doi.org/10.1785/0120220118>.
3. §Na, T., Cabas, A., & Montoya, B.M. (2023). [Resonant Column Testing procedure for Microbial Induced Carbonate Precipitated Sands](https://doi.org/10.1520/GTJ20220056). *Geotechnical Testing Journal* 46(2) DOI: 10.1520/GTJ20220056
4. Cabas, A., Rodriguez-Marek, A., Green, R. A., & §Ji, C. (2022). [Quantifying the Error Associated with the Elastic Halfspace Assumption in Site Response Analysis](https://doi.org/10.1061/(ASCE)GT.1943-5606.0002893). *Journal of Geotechnical and Geoenvironmental Engineering*, 148(10), 04022081, [https://doi.org/10.1061/\(ASCE\)GT.1943-5606.0002893](https://doi.org/10.1061/(ASCE)GT.1943-5606.0002893).
5. Kaklamanos, J., Cabas, A., Parolai, S., & Gueguen, P. (2021). [Introduction to the Special Issue on Advances in Site Response Estimation](https://doi.org/10.1785/0120210152). *Bulletin of the Seismological Society of America*, 111(4): 1665-1676, <https://doi.org/10.1785/0120210152>.

6. **Cabas, A.**, Beyzaei, C., Stuedlein, A., Franke, K., Koehler, R., Zimmaro, P., Wood, C., Christie, S., Yang, J., & §Lorenzo-Velazquez, C. (2021). [Geotechnical Lessons from the Mw 7.1 2018 Anchorage Alaska Earthquake](#). *Earthquake Spectra*, 37(4): 2372-2399, <https://doi.org/10.1177/87552930211012013>. [*Earthquake Spectra Highlight, Editor's Choice*]
7. §Ji, C., **Cabas, A.**, Bonilla, L.F., & Gelis, C. (2021). [Effects of Nonlinear Soil Behavior on Kappa \( \$\kappa\$ \): Observations from the KiK-Net Database](#). *Bulletin of the Seismological Society of America*, 111(4): 2138–2157, <https://doi.org/10.1785/0120200286>.
8. §Ramos-Sepulveda, M., & **Cabas, A.** (2021). [Site Effects on Ground Motion Directionality: Lessons Learned from Case Studies in Japan](#). *Soil Dynamics and Earthquake Engineering*, 147, 10675, <https://doi.org/10.1016/j.soildyn.2021.106755>.
9. §Ji, C., **Cabas, A.**, Cotton, F., Pilz, M., & Bindi, D. (2020). [Within station variability in kappa: evidence of directionality effects](#). *Bulletin of the Seismological Society of America*, 110(3): 1247-1259, <https://doi.org/10.1785/0120190253>.
10. **Cabas, A.**, & Rodriguez-Marek, A. (2017).  [\$V\_S\$ - \$\kappa\_0\$  Correction Factors for Input Ground Motions used in Seismic Site Response Analysis](#), *Earthquake Spectra*, 33(3): 917-941, <https://doi.org/10.1193/22315eqs188m>.
11. **Cabas, A.**, Rodriguez-Marek, A., & Bonilla, L.F. (2017). [Estimation of Site-specific Kappa \( \$\kappa\_0\$ \)-consistent Damping Values at KiK-net sites to Assess the Discrepancy between Laboratory-based Damping Models and Observed Attenuation \(of seismic waves\) in the Field](#). *Bulletin of the Seismological Society of America*, 107(5): 2258-2271, <https://doi.org/10.1785/0120160370>.
12. \*Ingabire Abayo, N., **Cabas, A.**, Chamberlin, E., & Montoya, B. (2023). [Fluvial geomorphic factors affecting liquefaction-induced lateral spreading](#). *Earthquake Spectra*, 2023;0(0). doi:10.1177/87552930231190655
13. §Chowdhury, I.N., **Cabas, A.**, Kaklamanos, J., Kottke, A., & Gregor, N. (2024). Implications of Input Ground Motion Selection Techniques on Site Response Analyses in Different Tectonic Settings. *Earthquake Spectra (accepted)*.
14. §Gann-Phillips, C., **Cabas, A.**, Cramer, C., Kaklamanos, J., Boyd, O., (2024) Regional Seismic Velocity Model for the U.S. Atlantic and Gulf Coastal Plains Based on Measured Shear Wave Velocity, Sediment Thickness, and Surface Geology, *Earthquake Spectra*, (in press).
15. §Ji, C., **Cabas, A.**, Kottke, A., and Pilz, M., Negative kappa ( $\kappa$ ): non-physical or model artifact, *Geophysical Journal International* (under review).
16. §Chowdhury, I., **Cabas, A.**, Kaklamanos, J., C., Kottke, A., The Effects of Ground Motion Duration on Seismic Slope Displacement Analysis, *J. Geotech. Geoenviron. Eng.* (under review).
17. §Singh, S., **Cabas, A.**, and Gupta, A. Closed Form Equation for Evaluation of Site-Specific Kappa, *Bulletin of Earthquake Engineering* (anticipated submission by March 2024).
18. §Ji, C., **Cabas, A.**, Pilz, M. and Kottke, A., Site-specific Near-surface Attenuation Estimated with Coda Waves, *Seismological Research Letters* (anticipated submission by April 2024).
19. §Lorenzo-Velazquez, C., and **Cabas, A.**, Capturing Spatial Variability of Site Effects: from Geology to Proxy Considerations to inform Spatial Ground Motion Correlation Models, *Earthquake Spectra*, (anticipated submission by April 2024).
20. §Na, T., **Cabas, A.**, and Montoya, B.M. Modulus reduction and damping behavior for Microbial Induced Carbonate Precipitated Sands, *ASCE J. Geotech. Geoenviron. Engineering* (anticipated submission by March 2024).

*Peer-reviewed Geotechnical Special Publications (GSP):*

1. §Na T., **Cabas, A.**, & Montoya, B. (2023). Effect of MICP treatment in modulus reduction and damping curves and nonlinear site response analysis. *Proceedings from ASCE GeoCongress 2023, Los Angeles.*
2. §Strong, M., **Cabas, A.**, & Montoya, B. (2023). The Effect of the Coefficient of Uniformity on the Shear Modulus Degradation Behavior of MICP-Treated Sands. *Proceedings from ASCE GeoCongress 2023, Los Angeles.*
3. §Gann, C., **Cabas A.**, Cramer, C., §Militello, Z., & Kaklamanos, J., (2023). Development of a Site Response and Hazard Model for the U.S. Atlantic and Gulf Coastal Plain Amplification. *Proceedings from ASCE GeoRisk 2023, Virginia.*
4. §Gann, C., §Ji, C., & **Cabas A.** (2022). Kappa-compatible Damping for Nonlinear Site Response Analysis. *Proceedings from ASCE GeoCongress 2022, Charlotte, North Carolina.*
5. §Na, K., **Cabas, A.**, & Montoya, B (2022). Design of MICP treatment accounting for changes in seismic site response and liquefaction potential. *Proceedings from ASCE GeoCongress 2022, Charlotte, North Carolina.*
6. §Ingabire-Abayo, N., **Cabas, A.**, Montoya, B., & Chamberlin, E. (2022). The Effect of Variability in Grain Size Distribution and Age of Soil Deposits on Liquefaction-Induced Lateral Spreading. *Proceedings from ASCE GeoCongress 2022, Charlotte, North Carolina.*
7. §Ji, C., **Cabas, A.**, Bonilla, L.F., & Gelis, C. (2022). The variabilities of kappa ( $\kappa$ ): observations from computation procedure with two KiK-net stations. *Proceedings from ASCE GeoCongress 2022, Charlotte, North Carolina.*
8. Kaklamanos, J., §Chowdhury, I., **Cabas, A.**, Kottke, A., & Gregor, N. (2021). Sensitivity of Site Response Analyses to Input Motion Selection Protocols. *Proceedings from ASCE GeoExtreme 2021 Conference, Savannah Georgia.*
9. **Cabas, A.**, Franke, K., Koehler, R., Stuedlein, A., Yang, J., Beyzaei, C., & Pierce, I. (2020), Turning Disaster into Knowledge: Geotechnical aspects of the 2018 Mw 7.1 Anchorage Alaska Earthquake. *Proceedings from ASCE GeoCongress 2020, Minneapolis, MN, February 25-28, 2020, ASCE Geotechnical Special Publication.*
10. §Doostmohammadibueini M., **Cabas, A.**, & Montoya, B. (2019). Assessment of Lateral Spreading Estimations through the Lens of Centrifuge Modeling. *Proceedings from ASCE GeoCongress 2019, Philadelphia, PA, March 24-27, 2019, ASCE Geotechnical Special Publication.*
11. **Cabas, A.**, & Rodriguez-Marek, A. (2018). Toward improving damping characterization for site response analysis, *Proceedings from the ASCE 5<sup>th</sup> Geotechnical Earthquake Engineering and Soil Dynamics Conference, Austin, TX, June 10-13, 2018. ASCE Geotechnical Special Publication.*
12. **Cabas, A.**, & Rodriguez-Marek, A. (2017). What Can We Learn from Kappa to Achieve a Better Characterization of Damping in Geotechnical Site Response Models? *Proceedings from ASCE Geotechnical Frontiers 2017 Conference, Orlando, Florida, March 12-15, 2017, ASCE Geotechnical Special Publication.*

*Peer-reviewed Conference Proceedings:*

13. §Gann-Phillips, C., **Cabas, A.**, Cramer, C., Kaklamanos, J., Boyd, O., (2024) Developing a Geology-based Site Response and Hazard Model for the US Atlantic and Gulf Coastal Plains, *Proceedings of the 8th International Conference on Earthquake Geotechnical Engineering (8ICEGE), Osaka, Japan, 7-10 May 2024.*

14. §Ji, C., **Cabas, A.**, Bonilla, L.F., Schibuola, A. (2024) Four decades of kappa: What we have learned and the challenges that remain, *Proceedings of the 8th International Conference on Earthquake Geotechnical Engineering (8ICEGE)*, Osaka, Japan, 7-10 May 2024.
15. §Lee, J., **Cabas, A.**, Kowalsky, M., Bona, A., Incorporating Site Effects in Rapid Post-earthquake Assessments (2024), *Proceedings of the 18<sup>th</sup> World Conference on Earthquake Engineering (WCEE2024)*, Milan, Italy, June 30-July 5 2024.
16. §Ingabire-Abayo, N., **Cabas, A.**, Chamberlin, E., and Montoya, B., Geomorphic proxy-to-factor relationships in lateral spreading predictive models. *Proceedings of the 18<sup>th</sup> World Conference on Earthquake Engineering (WCEE2024)*, Milan, Italy, June 30-July 5 2024.
17. **Cabas, A.**, §Ji, C., §Ingabire Abayo, N., §Lorenzo-Velazquez, C., Lagesse, R., Guerrier, K., Saint Fleur, N., Dashti, S., Garcia, F.E., Ramirez, J., Hwang, Y., & Nicolas, S. (2022). Seismological Aspects and Ground Motion Characteristics from the 2021 M 7.2 Nippes Haiti Earthquake, *12<sup>th</sup> National Conference of Earthquake Engineering*, Salt Lake City, Utah, 27 June-1 July 2022.
18. Garcia, F.E., Ramirez, J., **Cabas, A.**, §Ji, C., §Ingabire Abayo, N., §Lorenzo-Velazquez, C., Lagesse, R., Guerrier, K., Saint Fleur, N., Dashti, S., Hwang, Y., & Nicolas, S (2022) Geotechnical Aspects of the 2021 Mw 7.2 Nippes, Haiti Earthquake, *12<sup>th</sup> National Conference of Earthquake Engineering*, Salt Lake City, Utah, 27 June-1 July 2022.
19. §Lorenzo-Velazquez, C. & **Cabas, A.** (2022) Assessment of Spatial Variability of Site Response in Japan Proceedings from 4th International Conference on Performance-based Design in Earthquake Geotechnical Engineering (PBD-IV).
20. §Ji, C., **Cabas, A.**, Pilz, M., & Kottke, A (2022) Variability in kappa ( $\kappa_r$ ) estimated with coda waves for California. Proceedings from 4th International Conference on Performance-based Design in Earthquake Geotechnical Engineering (PBD-IV).
21. **Cabas, A.**, & §Lorenzo, C. (2021). Accounting for Site Effects to Improve Seismic Hazard Resilience for Lifeline Systems”, *San Fernando Earthquake Conference – 50 years of Lifeline Engineering (Lifelines 2021-2022)*, Los Angeles, February 7-10, 2021.
22. **Cabas, A.**, §Ji, C., Bonilla, L.F., & Gelis, C., (2021). Kappa and Material Damping: Insights from the Linear and Nonlinear Soil Behavior Regimes, *6th IASPEI / IAEE International Symposium: Effects of Surface Geology on Seismic Motion*, Kyoto, Japan, August 30-Sept 1, 2021.
23. §C. Gann, §I. Chowdhury, **A. Cabas**, & J. Kaklamanos. (2020). Effects of Input Motions from Different Tectonic Settings on Seismic Slope Stability Analyses. Proceedings of the 17<sup>th</sup> World Conference on Earthquake Engineering, 17WCEE, Sendai, Japan.
24. §Chowdhury, I., **Cabas, A.**, Kaklamanos, J., Kottke, A., & Greggor, N. (2019). Hazard-consistent ground motions: Insights on selection and scaling for different tectonic, geological, and geotechnical environments. *Proceedings from the 7th International Conference on Earthquake Geotechnical Engineering*, 17-20 June 2019, Rome, Italy.
25. §Ingabire-Abayo, N., **Cabas, A.**, & Montoya, B. (2019). Assessment of Lateral Spreading Case Histories from Recent Seismic Events: Port-Au-Prince, Haiti 2010, and Christchurch, New Zealand 2011. *Proceedings from the 7<sup>th</sup> International Symposium on Geotechnical Safety and Risk*, December 11-13 2019, Taipei, Taiwan.
26. Montalva, G., Espinoza, D., **Cabas, A.**, Ruz, F., Escribano, D., & Roncagliolo, J. (2019). A model for liquefaction triggering assessment in the Chilean subduction zone. *Proceedings from the XVI*

*Congreso Panamericano de Mecánica de Suelos e Ingeniería Geotécnica*, Cancun, Mexico, November 17-20, 2019.

27. §Chowdhury, I.N., & **Cabas, A.** (2018). Assessment of the Influence of the Elastic Halfspace on Site Response Estimations, 11<sup>th</sup> National Conference on Earthquake Engineering, Los Angeles, CA, June 25-29, 2018.
28. **Cabas, A.**, Rodriguez-Marek, A. & Montalva, G. (2015).  $V_S$ - $\kappa$  Consistent Input Ground Motions for Site Response Analyses, Case Studies in Concepción and San Pedro, Chile, Proc. of the XV Pan-American Conference on Soil Mechanics and Geotechnical Engineering, Buenos Aires, Argentina, November 15-18, 2015.
29. **Cabas, A.** (2015).  $V_S$ - $\kappa$  Correction Factors for Input Ground Motions used in Seismic Site Response Analysis, Proc. of the Earthquake Engineering Research Institute (EERI) 67th Annual Meeting 2015, Boston, MA, USA, March 31 - April 3, 2015.
30. **Cabas, A.**, Cárcamo, P., Rodriguez-Marek, A., Godfrey, B. & Olgun, G. (2014). Where to Locate the Elastic Half-Space in Site Response Analysis, A Case Study Using Site Profiles from Charleston, SC, USA, Proc. 2nd European Conference on Earthquake Engineering and Seismology, Istanbul, Turkey, August 25-29, 2014.

*Conference Proceedings (Not Peer Reviewed):*

31. **Cabas, A.**, (2019). On the Use of Site-specific Probabilistic Seismic Hazard Analysis and the Attenuation Parameter  $\kappa$  in Hazard Assessments of Critical Facilities. *Proceedings from the Structural Mechanics in Reactor Technology (SMiRT) Conference*, August 4-9, 2019, Charlotte, NC.

*Technical Reports (Peer-reviewed):*

1. Dashti, S., Ganapati, N.E., Ingabire Abayo, N., **Cabas, A.**, Ramirez, J., Contreras, S., Dessable, J.E., Garcia, F.E., Guerrier, K., Hwang, Y., Jeannot, T., Ji, C., Lagesse, R., Logiste, M., Lorenzo-Velazquez, C., Noclas, S., Remington, C., Perodin, J., Saint Fleur, N., Shriro, M., Vissière, S., & Whitworth, M. (2022). *Reconnaissance following the August 14, 2021 Haiti earthquake: Perspectives from geotechnical engineering and social/political sciences*. GEER report, Version 1, <https://doi.org/10.18118/G60090>.
2. Koehler, R.D., Franke, K.W., Beyzaei, C.Z., **Cabas, A.**, Pierce, I., Stuedlein, A., & Yang, Z., (2018). *Geotechnical Engineering Reconnaissance of the 30 November 2018 M7.1 Anchorage, Alaska Earthquake*. GEER report, Version 1, <https://doi.org/10.18118/G6P07F>.
3. Koehler, R.D., Franke, K.W., Beyzaei, C.Z., **Cabas, A.**, Pierce, I., Stuedlein, A., & Yang, Z., (2019). *Geotechnical Engineering Reconnaissance of the 30 November 2018 M7.1 Anchorage, Alaska Earthquake*. GEER report, Version 2, <https://doi.org/10.18118/G6P07F>.

*Technical Reports (Non-refereed):*

4. **Cabas, A.**, §Gann-Phillips, C., Cramer, C., Kaklamanos, J., §Chunyang, J, (2023). Coastal Plain Amplification and Hazard Model for the National Seismic Hazard Model. USGS Final Report AWARD NUMBER: G22AP00039, G22AP00020 & G22AP00018.
5. **Cabas, A.**, & §Ji, Chunyang (2020). *Improving the Assessment of Site-specific Seismic Hazards Through the Lens of Novel Attenuation Models*. USGS Final Report, AWARD NUMBER: G19AP00058.

6. **Cabas, A.**, Kaklamanos, J., Kottke, A., & §Chowdhury I., (2019). *Assessment of the Contribution of Input Motion Selection Procedures to Uncertainty in Ground Motion Intensity Measures*. USGS Final Report, AWARD NUMBER: G18AP00015.
7. Rodriguez-Marek, A., Dawood, H.M., Upadhyaya, S., & **Cabas, A.**, (2017). *An empirical study of the parameterization of site response using the KiKnet array*. USGS Report, AWARD NUMBER: G14AP00017.

#### **SELECTED CONFERENCE PRESENTATIONS/ABSTRACTS**

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1. §Ji, C., and Cabas, A. (2024) Challenges and Opportunities in High-frequency Ground Motion Modeling Incorporating Site Effects; Physics-Based Ground Motion Modeling 10-13 October 2023, Vancouver, BC. (oral presentation)
2. Kaklamanos, J., §Chowdhury, I., Cabas, A., Kottke, A., and Gregor, N. (2024). Effects of Input Ground Motion Selection Techniques on Site Response Analyses: Insights from Different Tectonic Settings; Physics-Based Ground Motion Modeling 10-13 October 2023, Vancouver, BC. (poster presentation).
3. §Gann, C., **Cabas, A.**, Cramer, C., and Kaklamanos, J. (2023) Developing a Geology-Based Shear Wave Velocity Model for the U.S. Atlantic and Gulf Coastal Plains, *ASCE GeoCongress 2023*, Los Angeles, CA [poster presentation; **Winner at 2023 Geo-Institute National Geoposter competition**].
4. §Ingabire Abayo, N., Montoya, B.M., **Cabas, A.**, Chamberlin, E., (2023) Exploring the Effect of Soil Deposition and Fabric on Undrained Sand Behavior, 2023 ASCE GeoCongress [poster presentation; **Second Place at 2023 Geo-Institute National Geoposter competition**].
5. §Gann, C., **Cabas, A.**, Cramer, C., and Kaklamanos, J. (2023) Development of a Site Response and Hazard Model for the U.S. Atlantic and Gulf Coastal Plains With a Geology-Based Shear Wave Velocity Model, *2023 SSA Annual Meeting* (oral presentation).
6. §Lorenzo-Velazquez, C. and **Cabas, A.** (2023) Capturing Spatial Variability of Site Effects: from Geology to Proxy Considerations to Inform Spatial Ground Motion Correlation Models, *2023 SSA Annual Meeting*, San Juan, Puerto Rico, April 2023 (oral presentation).
7. **Cabas, A.**, and Garcia, F.E. (2022) The 2021 Mw 7.2 Nippes, Haiti Earthquake: Observations at the Intersection of Earthquake and Geotechnical Engineering, Reconnaissance Missions, Response and Recovery, and Social Sciences, *12<sup>th</sup> National Conference of Earthquake Engineering*, Salt Lake City, Utah, 27 June-1 July 2022.
8. §Ji, C., **Cabas, A.**, Kottke, A and Pilz, M. (2022) A DesignSafe Ground Motion Database for California, *2022 SSA Annual Meeting, Bellevue, WA, April 2022* (poster presentation)
9. §Ji, C, **Cabas, A.**, Bonilla, L.F., Gelis, C and Gann, C. (2022) What does kappa mean in nonlinear site response analyses?, *2022 SSA Annual Meeting, Bellevue, WA, April 2022* (oral presentation)
10. §Lorenzo-Velazquez, C., and **Cabas, A.** (2022) Assessment of Spatial Variability of Site Response in Japan, *ASCE GeoCongress 2022*, Charlotte, NC. (poster presentation)
11. §Ingabire Abayo, N., Chamberlin, E., **Cabas, A.**, Montoya, B (2021). Assessing the Influence of Fluvial Geomorphological Variables on Empirical Models of Liquefaction-Induced Lateral

- Spreading. 2021 International Foundations Conference and Equipment Expo (IFCEE) (poster presentation; **First place at 2022 Geo-Institute National Geoposter competition**)
12. § Ingabire-Abayo, N., Chamberlin E., **Cabas, A.**, and Montoya, B. (2021). Assessing the Influence of Fluvial Geomorphological Variables on Empirical Models of Liquefaction-Induced Lateral Spreading. American Geophysical Union Annual Meeting (poster presentation; **Honorable Mention at the AGU Outstanding Student Presentation Awards**)
  13. § Ji, C., **Cabas, A.**, Pilz, M., and Kottke, A. (2021) Regional Attenuation Estimates for California using Coda Waves. 2021 SSA Annual Meeting (poster presentation, **SSA Travel Grant Winner**)
  14. § Ji, C., **Cabas, A.**, Bonilla, L.F., and Gelis, C. (2020) Investigation of the correlation between kappa and soil nonlinearity. Eastern Section of the SSA Annual Meeting (oral presentation)
  15. § Singh, S., **Cabas, A.**, and Gupta, A., (2020). Quantifying Near–Surface Attenuation via Site-Specific Kappa ( $\kappa_0$ ) to Improve High–Frequency Ground Motion Characterization in Central and Eastern United States, Oral presentation at the DOE-NRC Natural Phenomena Hazards Meeting, October 20-21 2020 [virtual meeting]
  16. § Ji, C., **Cabas, A.**, Bonilla, L.F., Gelis, C., (2020) Does Nonlinear Soil Behavior Affect Kappa Estimates? *Poster presentation at the 2020 SSA Annual Meeting*, Albuquerque, NM, April 27-30, 2020. [cancelled due to COVID-19]
  17. Kaklamanos, J., § Chowdhury, I., **Cabas, A.**, Kottke, A., Gregor, N., (2020) Sensitivity of Site Response Analyses to Input Motion Selection: Lessons Learned from Seattle and Boston, *Oral presentation at the 2020 SSA Annual Meeting*, Albuquerque, NM, April 27-30, 2020. [ cancelled due to COVID-19]
  18. § Darr, E., Castro-Bolinaga, C., **Cabas, A.**, and Peszlen, I., (2020) The answer is in the roots: Development of probabilistic bank erosion analysis curve by integrating root dendrogeomorphology and flow duration curves. *Poster presentation at the NC Water Resources Research Institute (WWRI) Annual Conference*, Raleigh, NC, March 18-19 [ cancelled due to COVID-19]
  19. § Ramos-Sepulveda, M., and **Cabas, A.**, (2020), Understanding Site Effects on Ground Motion Directionality, *Poster presentation at GeoCongress 2020*, Minneapolis, MN, February 25-28 2020.
  20. Franke, K. W., R. D. Koehler, C. Z. Beyzaei, **A. Cabas**, I. Pierce, A. W. Stuedlein, and Z. Yang (2019) Geotechnical Engineering Reconnaissance of the 2018  $M_w$  7.0 Anchorage, Alaska Earthquake, *Oral presentation at the EERI Annual Meeting – Vancouver*, BC, Canada
  21. Franke, K. W., R. D. Koehler, C. Z. Beyzaei, **Cabas, A.**, I. Pierce, A. W. Stuedlein, and Z. Yang (2019) Geotechnical Engineering Reconnaissance of the 2018  $M_w$  7.0 Anchorage, Alaska Earthquake, *Oral presentation at the Symposium on the 2018 M 7.1 Anchorage Earthquake*, Anchorage, AK, September 24-26 2019
  22. **Cabas, A.**, Chowdhury, I., Kaklamanos, J., Kottke, A., and Gregor, N. (2019), Bridging the gap between input motion selection protocols and geotechnical engineering analyses, *Oral presentation at the 2019 SSA Annual Meeting*, Seattle, WA, April 23-26, 2019.
  23. § Chowdhury, I., **Cabas, A.**, Kaklamanos, J., Kottke, A., and Gregor, N. (2019), Challenges and Consequences of Input Motion Selection for Subduction Zone Environments: Seattle, Washington, *Poster presentation at the 2019 SSA Annual Meeting*, Seattle, WA, April 23-26, 2019.
  24. § Ji, C., and **Cabas, A.**, Cotton, F., Pilz, M., and Bindi, D., (2019). Within station variability and uncertainty in kappa estimations: insights from various KiK-net downhole arrays, *Poster presentation at the 2019 SSA Annual Meeting*, Seattle, WA, April 23-26, 2019.



25. Koehler, R.D., Franke, K.W., Beyzaei, C.Z., **Cabas, A.**, Pierce, I., Stuedlein, A., and Yang, Z., (2019), Initial observations from the GEER reconnaissance evaluation of the 2018 M7.0 Anchorage Alaska earthquake. *Oral presentation at the 2019 SSA Annual Meeting*, Seattle, WA, April 23-26, 2019.
26. § Chowdhury, I., and **Cabas, A.** (2019). Ground Motion Selection for Regions Exposed to Diverse Seismic Sources. *2019 Geotechnical, Geophysical, Geoenvironmental Engineering, Technology Transfer Conference*, Cary, NC, April 9-10, 2019.
27. § Ji, C., and **Cabas, A.**, Cotton, F., Pilz, M., and Bindi, D., (2019). Variability and uncertainty in near-surface attenuation estimations: effects of azimuth and earthquake type. *2019 Geotechnical, Geophysical, Geoenvironmental Engineering, Technology Transfer Conference*, Cary, NC, April 9-10, 2019.
28. § Sepulveda-Ramos, M., and **Cabas, A.** (2019). Understanding Key Ground Motion Intensity Measures for Seismic Hazard Assessment of Lifelines: Lessons Learned from Loma Prieta Earthquake. *2019 Geotechnical, Geophysical, Geoenvironmental Engineering, Technology Transfer Conference*, Cary, NC, April 9-10, 2019.
29. § Sepulveda-Ramos, M., and **Cabas, A.** (2019). Understanding Key Ground Motion Intensity Measures for Seismic Hazard Assessment of Lifelines: Lessons Learned from Loma Prieta Earthquake. *Geo-Carolinas 2019*, Charlotte, NC, March 4-5, 2019.
30. § Ingabire-Abayo, N., **Cabas, A.**, Montoya, B. (2019) Assessment of lateral spreading case histories from recent seismic events. Poster presentation at the NCSU Summer Undergraduate Research Symposium, Raleigh, NC, July 31<sup>st</sup>, 2018.
31. § Ji, C., and **Cabas, A.**, (2018) Investigation of the Dependence of Kappa Values on the Onset of Soil Nonlinearity as Captured by Shear Strain Index ( $PGV/V_{s30}$ ). Poster presentation at the Seismology of the Americas (joint conference of the Latin American and Caribbean Seismological Commission (LACSC) and the Seismological Society of America (SSA)), Miami, FL, May 14-17, 2018.
32. **Cabas, A.**, and Rodriguez-Marek, A., (2017), Estimation of Site-Specific Kappa ( $\kappa_0$ )-Consistent Damping Values at Selected Stations from the KiK-net Database. Poster presentation at the 2017 SSA Annual Meeting, Denver, CO, April 18-20, 2017.
33. § Chowdhury, I., and **Cabas, A.**, (2017), Ground Motions from the August 24, 2016 Rieti Earthquake in Italy. Poster presentation at the Geotechnical Frontiers 2017 Conference, Orlando, Florida, March 12-15, 2017. **[top 6 poster at the National Poster Competition]**
34. **Cabas, A.**, (2017), Improvements on the Assessment of Site-Specific Seismic Hazards. Oral presentation at the Third Annual Symposium on Geotechnical Engineering, NCSU, Raleigh, NC, February 3<sup>rd</sup>, 2017.
35. **Cabas, A.**, (2017), Influence of Input Motion Selection Protocols on Site Response Estimates. Oral presentation at the Annual Meeting of the Transportation Research Board, Washington, DC, USA, January 8-12, 2017.
36. **Cabas, A.**, and Rodriguez-Marek, A. (2015). Accounting for Impedance and Attenuation Effects on Input Ground Motions used in Site Response Analyses. Oral presentation at the *2015 Annual Meeting of the Seismological Society of America*, Pasadena, CA, USA, April 21-24, 2015.
37. **Cabas, A.** (2015). Improvements to the Assessment of Site-Specific Seismic Hazards. Oral presentation at the *Young Researcher's Symposium at the EERI 67<sup>th</sup> Annual Meeting 2015*, Boston, MA, USA, March 31 - April 3, 2015.
38. **Cabas, A.**, and Rodriguez-Marek, A. (2015). Appropriate Ground Motions for Dynamic Analysis of Foundations. Poster presentation at the *IFCEE/Geo-Congress 2015 Geo-Institute National*

*Poster Competition*, San Antonio, TX, USA, March 17-21, 2015. (poster presentation, **3rd Place Poster Competition**)

39. **Cabas, A.**, and Rodriguez-Marek, A. (2014). Influence of the Selection of Input Motions on the Systematic Errors Introduced in Site Response Analyses Conducted in Charleston, SC. Oral Presentation at the *86<sup>th</sup> Annual Meeting of the Eastern Section of the Seismological Society of America*, Charleston, SC, USA, November 2-4, 2014.
40. **Cabas, A.**, and Rodriguez-Marek, A. (2014). The Importance of the Elastic Half-Space Assumption in Site Response Analysis. Oral presentation at the *2014 Annual Meeting of the Seismological Society of America*, Anchorage, AK, USA, April 30 - May 2, 2014. **[Best Student Presentation Award]**
41. Dawood, H., **Cabas, A.**, and Green, R. (2013). Comparative Site Response Analysis and Soil-Structure Interaction Assessment for the Washington Monument during the 2011 Mineral VA Earthquake. Poster presentation at the *Geo-Congress 2013*, San Diego, CA, USA, March 3-6, 2013.
42. Dawood, H., **Cabas, A.**, and Green, R. (2012). Comparative Site Response Analysis and Soil-Structure Interaction Assessment for the Washington Monument during the 2011 Mineral VA Earthquake. Oral presentation at the *84<sup>th</sup> Annual Meeting of the Eastern Section of the Seismological Society of America*, Blacksburg, VA, USA, October 28-30, 2012
43. **Cabas, A.**, and Rodriguez-Marek, A. (2012). Ground Motions observed during the August 23<sup>rd</sup>, 2011 Mineral Virginia Earthquake. Poster presentation at the *2<sup>nd</sup> Civil and Environmental Engineering Department Research Day*, Blacksburg, VA, USA, April 13, 2012. **[2<sup>nd</sup> Place Poster Competition]**
44. **Cabas, A.**, and Rodriguez-Marek, A. (2012). Ground Motions observed during the August 23<sup>rd</sup>, 2011 Mineral Virginia Earthquake. Poster presentation at the *Geo-Congress 2012*, Oakland, CA, USA, March 25-29, 2012 **[top 6 poster at the National Poster Competition]**
45. **Cabas, A.**, Castro-Bolinaga C (2009). Risk-Based Dam and Reservoir Safety Management with Emphasis on Hydraulic, Hydrologic, and Operational Aspects. Application to El Bajo Caroní Dams. Oral presentation at the *Civil Engineering Conference UCAB 2009*, Caracas, Venezuela, June 18-20, 2009.

## DATABASES

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1. Ji, C., **Cabas, A.**, Kottke, A., Pilz, M., Macedo, J. & Liu, C. (2022). *A DesignSafe Ground Motion Database: time series, engineering metrics, and site metadata*. DesignSafe-CI, <https://doi.org/10.17603/ds2-syc5-nk92>, versions 1 and 2.

## INVITED PRESENTATIONS AND SEMINARS

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1. E<sup>2</sup>SCALA – Building Community and Capacity in Latin America and the Caribbean, Center for collective impact in earthquake science (C-CIES) Workshop, January 8, San Antonio, Texas.
2. “Regional Site Amplification Models for the Atlantic and Gulf Coastal Plains”, 2024 Seismological Society of America Annual Meeting, Anchorage, Alaska, April 2024
3. “Multiscale Probabilistic Characterization of Seismic Site Response in Highly Uncertain Environments” Natural Hazards Center Researchers’ Meeting (New Frontiers of Disaster Research: Action-Oriented Approaches to Solve Complex Challenges - Recent CAREER Awards Panel), Broomfield, CO, July 13, 2023
4. “A DesignSafe Earthquake Ground Motion Database for California and Surrounding Regions”, USGS Invited Seminar, Golden, CO, June 22 2023.
5. “E<sup>2</sup>SCALA: Fostering Diversity and Community in the Earthquake Engineering Profession”, **GeOPIT** (similar format to a TED talk) talk at the **ASCE 2023 GeoCongress** in Los Angeles, CA.
6. “Bridging Scales: The role of attenuation of seismic waves on advancing seismic hazard assessments”, **University of California, Los Angeles (UCLA)**, February 28, 2023

7. “In the wrong place at the wrong time: Effects of local soil conditions on seismic hazards” **Center for Earthquake Research and Information (CERI)** Colloquium, University of Memphis, November 11, 2022.
8. “Reconnaissance efforts after the 2018 Alaska and 2021 Haiti earthquakes”, Seminar series of the **Virginia Tech EERI Student Chapter**, October 19, 2022.
9. “Spatial variability of recorded ground motions, site effects, and post-earthquake reconnaissance” Seminar Series for the Materials and Structural Systems Division at **NIST**, May 2022.
10. “In the wrong place at the wrong time: Effects of local soil conditions on seismic hazards” Science for Protection of Engineered Environments (SPREE) Seminar Series in the department of Civil and Environmental Engineering at **Northwestern University**, March 2, 2022.
11. “In the wrong place at the wrong time: Effects of local soil conditions on seismic hazards” **GeoEngineering Centre**, Queens, Canada, February 16, 2022.
12. “New Frontiers in Site Response Modeling: Near-surface Attenuation and Hazard-consistent Ground Motions”, October 22, 2021 [Invited talk as part of the Geotechnical Engineering and Geomechanics seminar at **University of Colorado at Boulder**].
13. “New Frontiers in Site Response Modeling: Reference Condition, Attenuation, and Hazard-consistent Ground Motions”, April 15, 2021 [Invited seminar at **Oregon State University**].
14. “Effects of Seismic Impedance Contrast and Fundamental Period on the Elastic Half-space Assumption for Site Response Analysis”, August 20, 2020 [Invited seminar at **Risk Management Solutions, Inc. RMS**, California] (the seminar was delivered virtually due to COVID-19).
15. “Rethinking Near-Surface Attenuation”, March 25, 2019 [Presentation on behalf of the NCSU CNEFS in partnership with visiting professionals from Korea Hydro & Nuclear Power Company at NCSU].
16. “Seismic Risk in Central and Eastern US”. [Invited presentation at the **2018 ASCE NC Section Fall Conference**], Cary, NC, September 21, 2018.
17. “Geotechnical Earthquake Engineering”, June 28, 2018 [Invited webinar at Universidad Católica Andrés Bello in Ciudad Guayana, Venezuela].
18. “Rethinking How We Parameterize Near-surface Attenuation”, March 23<sup>rd</sup>, 2018 [Invited talk at the **University of Washington** in Seattle, WA].
19. “Research Workshop”, Guest Speaker at the 2018 We are Women in Engineering event, NC State, NC, USA, March 1, 2018.
20. “Estimation of Site-specific Kappa ( $\kappa_0$ )-Consistent Damping Values: Insights on laboratory-based damping models and observed attenuation in the field”, October 24, 2017 [Invited talk at the **University of Texas at Austin**].
21. “Research Workshop”, Guest Speaker at the 2017 We are Women in Engineering event, NC State, NC, USA, March 2, 2017.
22. “ $V_S$ - $\kappa_0$  Correction Factors for Input Ground Motions used in Seismic Site Response Analysis” Guest Speaker at the technical seminar sponsored by the EERI Student Chapter at NC State, Raleigh, NC, USA, October 19, 2016.

#### SPONSORED RESEARCH (>\$1.5 M)

<i>PIs</i>	<i>Project Title</i>	<i>Source</i>	<i>Role and Share</i>	<i>Total Amount</i>	<i>Dates</i>
Cabas, A. Chamberlin, E. and Montoya, B.	Toward Multiscale Evaluations of Lateral Spreading.	US Geological Survey (USGS)	PI 90%	\$84,728	5/23 – 5/24

<b>Cabas, A.</b>	CAREER: Multiscale Probabilistic Characterization of Seismic Site Response in Highly Uncertain Environments (Award # 2145466).	National Science Foundation (NSF)	PI 100%	\$566,155	8/22 – 7/27
<b>Cabas, A.</b> Cramer, C., and Kaklamanos, J.	Coastal Plain Amplification and Hazard Model for the National Seismic Hazard Maps.	USGS	PI 54%	\$133,681	1/22 – 12/22
<b>Cabas, A.</b> Pilz, M.	Site-specific Near-surface Attenuation Estimates for California using Coda Waves	Pacific Gas & Electric	PI 95%	\$60,000	5/20 – 08/21
<b>Cabas, A.</b> Pilz, M.	Regional and Local Attenuation Estimates in California for the Development of Nonergodic Ground Motion Models.	Pacific Gas & Electric	PI 95%	\$80,000	8/21 – 8/22
<b>Cabas, A.</b> Kowalsky, M.	Rapid Post-Earthquake Displacement-Based Assessment Methodology for Bridges.	Alaska DOT	Co-PI 50%	\$261,229	1/22 – 12/24
<b>Cabas, A.</b>	Next Generation Ground Motion Models: An USA-France-Germany Partnership Toward Innovation in Geotechnical Earthquake Engineering.	NCSU Internationalization Seed Grant	PI 100%	\$6,000	7/20 – 6/21
<b>Cabas, A.</b>	Improving the Assessment of Site-specific Seismic Hazards through the Lens of Novel Attenuation Models.	USGS	PI 100%	\$79,927	5/19 – 4/20
<b>Cabas, A.</b>	Toward Bridging Efforts in Seismic Hazard Assessments: A Multidisciplinary Collaborative Approach between NC State and the GFZ German Research Center for Geosciences.	NCSU Internationalization Seed Grant	PI 100%	\$10,000	6/18 – 4/19
<b>Cabas, A.</b>	Improving lifelines' resiliency to seismic hazards incorporating site-specific ground motion directionality in seismic hazard assessment.	NCSU Faculty Research and Professional Development program	PI 100%	\$10,000	7/18 – 6/19
<b>Cabas, A.</b> Kaklamanos, J.	Assessment of the Contribution of Input Motion Selection Procedures to Uncertainty in Ground Motion Intensity Measures.	USGS	PI 70%	\$ 93,887	1/18 – 12/18
<b>Cabas, A.</b>	Building a stronger and diverse professional network to support the growth of the geotechnical earthquake engineering research group at North Carolina State University.	NSF	PI 100%	\$2,210	10/17 – 4/18
Castro-Bolinaga, C; <b>Cabas, A.</b> Hopkins, K.	Probabilistic Streambank Erosion Curves for Advancing Assessment and Prediction in the Context of Climate Change.	NC Water Resources Research Institute-USGS	Co-PI 20%	\$120,000	9/23- 9/25
Kowalsky, M, <b>Cabas, A.</b>	NCHRP 12-125: <i>Earthquake-Induced Bridge Displacements.</i>	NCHRP	Co-PI 20%	\$400,000 (\$116,874 NCSU portion)	7/23- 4/26
<b>Cabas, A.</b>	Incorporating site effects into nonergodic ground motion models.	Pacific Gas & Electric	PI 100%	\$150,000	8/23 – 8/24

## **PROFESSIONAL CONTRIBUTIONS/SYNERGISTIC ACTIVITIES**

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### ***Professional Registration:***

- Licensed Engineer, Venezuelan Association of Engineers, Registration Number: 198970.

### ***Professional Affiliations:***

- American Society of Civil Engineers (ASCE).
- Geo-Institute (GI).
- Earthquake Engineering Research Institute (EERI).
- Seismological Society of America (SSA).
- US Universities Council on Geotechnical Education and Research (USUCGER), 2017 - present.
- Geotechnical Extreme Events Reconnaissance (GEER) Association, 2018 – present.
- Tau Beta Pi, The Engineering Honor Society.
- Chi Epsilon, The Civil Engineering Honor Society.
- Venezuelan Association of Engineers (CIV).

### ***Technical Committees in Professional Organizations***

- Soil Dynamics and Earthquake Engineering committee, ASCE Geo-Institute, member 2016 - present (board member, 2021-present).
- Seismic Design and Performance of Bridges, Transportation Research Board AFF50 Committee, member 2018-2023.
- USGS Coastal Plain Amplification Working Group (2020-present).

### ***Other committees in professional organizations***

- EERI Student Awards Committee (2022-present).
- SSA Publications Committee (2023-present)
- Women in Deep Foundations Committee (2014 - present).

### ***Earthquake Reconnaissance Activities:***

- 2023, *Lead organizer of GEER Workshop: Post-earthquake Reconnaissance: Turning Disasters into Knowledge Workshop* (2023 SSA Annual Conference, San Juan, Puerto Rico)
- 2021, *Member of the NSF-GEER team: M7.2 2021 Nippes, Haiti earthquake.*
- 2018, *Member of the NSF-GEER team: M7.1 2018 Anchorage, Alaska earthquake.*
- 2015, Curator, EERI 2015 Nepal Earthquake Clearinghouse, Geotechnical Impacts (May – Dec. 2015).

### ***Associate Editor:***

- Earthquake Spectra (2022-present).

### ***Guest Editor:***

- Special BSSA Issue on Advances in Site Response Estimation (March 2020-June 2021).

***Elected Member to the Board of Directors of the Seismological Society of America*** (three-year term; 2022-2025); governing body for SSA.

### ***Conference-Session Chair [C] and Co-Chair [CC]. Total of 17 sessions organized at five different National conferences since 2017, including ASCE GeoCongress, EERI, SMiRT, and SSA:***

- 2024 SSA Annual Meeting – “Regional Seismic Hazard, Risk and Loss Assessments” [CC]
- 2023 SSA Annual Meeting – Special Interest Group “ State of the Art, Current Challenges, and Future Directions for Kappa” [CC].
- 2023 SSA Annual Meeting – High-frequency Ground Motion Measurements, Assessments and Predictions [CC].
- 2023 ASCE GeoRisk - Probabilistic Analyses for Seismic Hazards [CC].

- 2022 ASCE-GI Web Conference - Earthquake Engineering and Soil Dynamics Committee - Seismic hazard evaluation for the Western, Central, and Eastern US [Moderator]
- 2022 SSA Annual Meeting– Advancing Multiscale Evaluations of Seismic Attenuation [CC].
- 2022 12<sup>th</sup> National Conference on Earthquake Engineering (2022)– The 2021 Mw 7.2 Nippes, Haiti Earthquake: Observations at the Intersection of Earthquake and Geotechnical Engineering, Reconnaissance Missions, Response and Recovery, and Social Sciences [CC].
- 2021 ASCE-GI Web Conference - Earthquake Engineering and Soil Dynamics Committee - Practical Implications of Recent Advances in Earthquake Engineering and Soil Dynamics [Moderator].
- 2020 GeoCongress 2020 - Earthquake Engineering and Soil Dynamics [CC].
- 2020 SSA meeting Near-Surface Effects - Advances in Site Response Estimation and Its Applications [cancelled due to COVID-19; CC].
- 2019 SMiRT - Ground Motion Characterization [CC].
- 2019 SMiRT - PSHA Applications [CC].
- 2019 SSA Annual Meeting - From source to site: Modelling and understanding of high-frequency ground motion [CC].
- 2019 GeoCongress - Soil Dynamics and earthquake engineering: Numerical Modeling [CC].
- 2018 GEESD (ASCE Geotechnical Earthquake Eng. and Soil Dynamics V Conference ) - Ground Motions and Site Response, [C].
- 2018 Seismology of the Americas Annual Meeting - Advances on the Parameterization of Seismic Attenuation: Current Challenges and Opportunities [CC].
- 2017 Geotechnical Frontiers - Seismic Parameters 1, 2 and 3 [CC].
- 2017 SSA Annual Meeting - Closing the Gap between Laboratory-based Damping Models and Observed Attenuation of Seismic Waves in the Field [CC].

**National Panels:**

- *Proposal review panelist*, US Geological Survey External Grants Panel Member, (FY 2019, FY2021), **NSF-CMMI ECI** (2021, 2023).
- National Cooperative Highway Research Program (**NCHRP**) Panel Member [proposal review and project oversight]  
*Project Title: Benchmarking Study of Software for One-Dimensional, Nonlinear Seismic Site Response Analysis with Pore Water Pressure Generation, Sept. 2017 – January 2023.*

**Reviewer for scientific journals:** Journal of Geotechnical and Geoenvironmental Engineering (ASCE), Bulletin of the Seismological Society of America (BSSA), Soil Dynamics and Earthquake Engineering, Pure and Applied Geophysics, Seismological Research Letters (SRL), Bulletin of Earthquake Engineering (BEE), Earthquake Spectra, Geophysical Journal International (GJI), Journal of Seismology.

**Book Chapter Reviewer:**

- Geotechnical Earthquake Engineering, Second Edition, Chapter 3 on Strong Ground Motion Characterization and Prediction by Steve Kramer and Jonathan Stewart.

**Reviewer for conference proceedings:**

- 2022 12<sup>th</sup> National Conference on Earthquake Engineering, Salt Lake City, Utah, June 2022.
- 2022 Geocongress, Charlotte, NC, March 2022.
- 2022 Annual Meeting of the Seismological Society of America.
- 2020 GeoCongress, Minneapolis, MN, February 25-28, 2020.
- 2019 Transportation Research Record.
- 2019 GeoCongress, Philadelphia, PA, March 24-27, 2019.
- 2018 ASCE Geotechnical Eqk. Eng. and Soil Dynamics V Conference, Austin, TX, June 10-13.
- 2018 ASCE IFCEE Student Poster Competition, Orlando, FL, March 5-9.
- 2017 16<sup>th</sup> World Conference on Eqk. Eng. (16WCEE), Santiago de Chile, Chile, January 9-13.

- 2017b Geotechnical Frontiers Conference, Orlando, Florida, March 12-15.
- 2017 Geo-Risk, Denver, CO, USA, June 4-27, 2017.
- 2017 3<sup>rd</sup> International Conference on Performance-Based Design in Earthquake Geotechnical Engineering, Vancouver, Canada, July 16-19.
- 2015 XV Pan-American Conference on Soil Mechanics and Geotechnical Engineering, Buenos Aires, Argentina, Nov.15-18.
- 2012 15<sup>th</sup> World Conference on Eqk. Eng., Lisbon, Portugal, September 24-28, 2012.
- 2011 Geo-Risk 2011, Atlanta, GA, USA, June 26-28.

***Professional Service On-Campus:***

- Juntos Summer Academy – Future Ingenieros (July 2018).
- North Carolina School of Science and Math (NCSSM) summer experience (July 2017).
- We are Women in Engineering Event: Co-Organizer and Speaker (2017, 2018, 2019).
- Facilities and Equipment Committee, CCEE, (2016 – 2022).
- Diversity and Recruiting Committee, CCEE, (2016 – present).
- Undergraduate Programs Committee, CCEE, (2017 – 2022).

***Professional Development:***

- NSF RAPID Intensive Workshop, Seattle, WA July 2019.
- Soil Structure Interaction short course, GEESD V, Austin, TX, June 10, 2018.
- 2018 NSF CMMI CAREER Proposal Writing Workshop, March 25-27, 2018.
- 2018 Faculty Success Program, National Center for Faculty Development and Diversity
- *ASCE Excellence in Civil Eng. Education (ExCEED) Teaching Workshop*, June 18-23, 2017.
- *NSF-sponsored Geotechnical Women Faculty – Networked and Thriving Workshop*, Washington, DC, April 10-11, 2017.
- *NSF CAREER Program Workshop*, Research Develop. Office, NCSU, Raleigh, NC, Mar. 2017.
- *Teaching Crisis Clinic*, Dr. Richard Felder and Dr. Rebecca Brent, College of Engineering, North Carolina State University, Raleigh, NC, USA, 20 Jan. 2017.
- *New Faculty Orientation Workshop*, College of Engineering and College of Science, North Carolina State University, Raleigh, NC, USA, 4-9 Aug. 2016.
- *Via Academic Preparation Program*, Dr. Jennifer L. Irish, Associate Professor, Department of Civil and Environmental Engineering, Virginia Tech, Blacksburg, VA, USA, Aug. 2014 - May 2016.
- *Summer School on Simulation and Supercomputing in the Geosciences*, Society for Industrial and Applied Mathematics (SIAM), Monterey, CA, USA, July – Aug. 2012
- *OpenSees Workshop and Seminar*. Virginia Tech. Dr. Frank McKenna, Andrew Hardyniec, John Judd, and Scott Williams. Blacksburg, VA, USA, September 27-28, 2013.
- *Short Course: Seismic Site Response Analysis with GeoMotions Suite*. GeoMotions, LLC Modeling, Software, and Training for Geotechnical Earthquake Engineering. Dr. Neven Matasovic and Gustavo A. Ordoñez. Raleigh, NC, USA, May 18-19, 2012.
- *Virginia Tech Graduate School: Graduate Teaching Assistant (GTA) Workshop*, Dr. Janet Walberg Rankin, Associate Dean, Graduate School, Virginia Tech, Blacksburg, VA, USA, Aug. 2010.

**DIVERSITY, EQUITY, AND INCLUSION INITIATIVES**

- Juntos Academy – Hands-on experience camps for Hispanic middle/high-schoolers in NC [Speaker; 2018- present].
- NCSU CCEE We are Women in Engineering – Seminar series and networking events to increase recruitment and retention of women in civil engineering graduate programs [co-organizer and speaker; 2017-2019]
- NCSU Future Ingenieros – Research experience for Hispanic high school students in NC [Mentor; 2018 – present].

- **E<sup>2</sup>SCALA: Earthquake Engineering and Seismology Community Alliance in Latin America** - virtual learning and collaboration environment with global, open access to educational resources, and mentorship. Collaborations with more than 20 Latin American countries & professional organizations including University of Puerto Rico in Mayaguez, National Autonomous University of Mexico (UNAM), and University of Concepcion in Chile [**Founder, PI**, NSF-sponsored; 2022-present]
- Summer Practicum for Venezuelan undergraduate students at NC State (to be re-started in summer 2023).

#### GRADUATE STUDENT AND POSTDOC ADVISING

<i>Name</i>	<i>Degree</i>	<i>Date</i>	<i>Dissertation/thesis title/Current position</i>
Sugandha Singh	Ph.D. (graduated)	2020	Design Ground Motions compatible with High-frequency Energy Content in Low-to-Moderate Seismicity Regions. <i>Now an Assist. Prof. at Jaypee University of Information Technology, India</i>
Ishika Chowdhury	Ph.D. (graduated)	2021	Hazard-Consistent Ground Motions for Geotechnical Earthquake Engineering Analysis <i>Now at Lettis Consultants International in CA</i>
Chunyang Ji	Ph.D. (graduated)	2021	Seismic attenuation parameterization for nonergodic probabilistic seismic hazard analysis. <i>Now a Postdoctoral Researcher at NCSU</i>
Kyunguk Na	Ph.D. (graduated)	2023	Characterization of Dynamic Properties of Bio-Mediated Soils using the Resonant Column and Torsional Shear Test. <i>Currently at Geosyntec Consultants (Atlanta office)</i>
Cristina Lorenzo-Velazquez	Ph.D.	2024*	Regional Seismic Hazard Assessment: Quantifying Site Effects on Spatially Variable Ground Motions
Nancy Ingabire-Abayo	Ph.D.	2024*	Geomorphological Considerations in Lateral Spreading Estimations.
Cassie Gann	Ph.D.	2025*	Quantifying multi-scale attenuation mechanisms in site response analysis
Jungmin Lee	Ph.D.	2026*	Rapid Post-Earthquake Seismic Hazard Assessment at Regional Scales incorporating Effects of Local Soil Conditions
David Barba	Ph.D.	2027*	<i>Multiscale Evaluations of Site Response</i>
Melanie Dickenson	M.S.	2025*	<i>Human-centered approaches to disaster resilience</i>
Maria E. Ramos Sepulveda	M.S. (graduated)	2020	Site Effects on Ground Motion Directionality <i>Now a PhD student at UCLA</i>
Rajprabhu Thangappa	M.S. (graduated)	2019	Scaling and spectral matching of ground motions <i>Now a PhD student at NCSU</i>

\*Anticipated graduation date

**Postdoctoral Researchers:** Dr. Chunyang Ji (01-2022/12-2024)



## UNDERGRADUATE TRAINING AND MENTORING

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- Ariana Paul (NCSU Park Scholar; freshman; Fall 2022 – present): Assessment of lateral spreading case histories from recent earthquakes.
- Melanie Dickson (senior; Fall 2022 – Spring 2023), Undergraduate student from Universidad Pontificia Madre y Maestra in Dominican Republic. She will pursue a MS degree at NC State starting in Fall 2023.
- Zachary Militello (RISE<sup>1</sup> student, REU Spring 2022-present): 3D Vs model for the Atlantic and Gulf Coastal Plains.
- Cassie Gann (RISE<sup>1</sup> student, junior, Summer 2018, REU Fall 2019): Investigation of the Contribution of Input Motion Selection Protocols on Estimated Ground Motion Intensity Measures Relevant to Geotechnical Analyses. *Now a Ph.D. student at NCSU.*
- Cord Anthony (2019: granular physics and variation of stiffness in soils, anisotropy)
- Nancy Ingabire Abayo (RISE<sup>1</sup> student, senior, Summer 2018): Assessment of lateral spreading case histories from recent seismic events. *Now a Ph.D. candidate at NCSU.*
- Tristan Miller (junior, Spring 2017): Implementation of 1D linear seismic site response analysis using modified models of minimum shear strain damping.
- Daniela Espinoza-Pulgar (Fall 2017), Visiting scholar from Universidad de Concepcion in Chile): Liquefaction triggering in subduction zones.
- Patricia Cárcamo (Spring 2014, Visiting Researcher from Universidad Austral de Chile): Implications of the Elastic Halfspace assumption in Site Response Analysis. *Now a Ph.D. candidate at Auburn University.*

### *Research Awards won by students:*

- Ishika Chowdhury, top 6 submissions to the national poster competition at GeoFrontiers 2017.
- Nancy Ingabire-Abayo, Winner of Undergraduate Student Paper Award, **2018 EERI Undergraduate Student Paper Competition.**
- Ishika Chowdhury, Best presentation award at 2019 5th Annual Symposium in Geotechnical Engineering at NCSU.
- Maria Ramos-Sepulveda, Travel grant to present her poster at GeoCongress 2020.
- Ishika Chowdhury, CCEE Thomas G. Coffey Graduate Award, Spring 2020.
- Maria Ramos-Sepulveda, CCEE Thomas W. Griffin Graduate Award, Spring 2020.
- Chunyang Ji, Student Travel Grant, 2021 Seismological Society of America Annual meeting.
- Chunyang Ji, CCEE Thomas Griffin Graduate Award for Spring 2021.
- Nancy Ingabire Abayo, 2nd Place CCEE 3-Minute Thesis Competition, 2021.
- Cristina Lorenzo Velazquez, **Honorable Mention Ford Fellowship, 2021.**
- Cristina Lorenzo Velazquez, **NSF Graduate Research Fellowship, 2021.**
- Nancy Ingabire Abayo, Honorable Mention at the AGU Outstanding Student Presentation Awards.
- Nancy Ingabire Abayo, **First place at the National GeoPoster Competition (2021 IFCEE).**
- Cassie Gann-Phillips, **NSF Graduate Research Fellowship, 2022.**
- Cristina Lorenzo Velazquez, 2022 SSA Global Travel Grant.
- Nancy Ingabire Abayo, **Second place at the 2023 National GeoPoster Competition.**
- Cassie Gann-Phillips, **First place at the 2023 National GeoPoster Competition.**
- Cassie Gann-Phillips, Cristina Lorenzo Velázquez, Ariana Paul, 3<sup>rd</sup> Place National GeoVideo Competition at ASCE GI GeoCongress 2023
- Cassie Gann, SSA Global Travel Grant, GeoCongress 2024
- Cristina Lorenzo-Velazquez, 2024 SSA Annual Meeting Travel Grant
- Cristina Lorenzo-Velazquez, 2023-2024 EERI/FEMA NEHRP Graduate Fellowship in Earthquake Hazard Reduction, Honorable Mention.

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<sup>1</sup>Research Internship Summer Experience

- Nancy Ingabire-Abayo, Margaret McNamara US-Canada Education Grant Awardee.
- David Barba, 2023 NC State Provost Fellowship.

## **DIVERSITY, EQUITY AND INCLUSION EFFORTS**

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- **E<sup>2</sup>SCALA - Earthquake Engineering and Seismology Community Alliance in Latin America and the Caribbean (PI and founder) Web-based platform for community and capacity building; NSF-funded. (<https://e2scala.ccee.ncsu.edu/>)**

Description of the program: E<sup>2</sup>SCALA is a central online repository and virtual collaboration environment for Latin American and the Caribbean (or Latin American/Caribbean descent) professionals and students with interest in earthquake engineering and engineering seismology. E<sup>2</sup>SCALA means to “climb” but also “scale” in Spanish and those are key drivers of this program; to help Latin American students and young professionals reach their highest potential (climb), while building a network that grows with our community’s goals (scale up).

E<sup>2</sup>SCALA will provide global, and open access to resources, mentorship and collaboration opportunities with peers at academic institutions and the industry. Resources on this virtual collaboration environment will provide a sustainable path for students to learn about earthquake engineering and play active roles in the reduction of seismic risks in Latin American cities. Building community and capacity, specifically in Latin America and the Caribbean, will be a game changer when the next destructive earthquake takes place in the region. Importantly, resources and content developed through the E<sup>2</sup>SCALA initiative will be available in English and in Spanish

Partnerships: So far, the program has 22 global partners from institutions including Universidad de Concepción, Chile; Universidad de Puerto Rico in Mayaguez; Pontificia Universidad Católica Madre y Maestra in Dominican Republic; National Autonomous University of Mexico; Université d'État d'Haïti; Universidad Centroamericana José Simeón Cañas, Université Gustave Eiffel in France, University of Canterbury in New Zealand, among others. Partnering institutions in the US include Stanford, Georgia Tech, Rice University, Virginia Tech, University of Washington, among others. The industry and governmental agencies including the US Army Corps of Engineers, Geosyntec, and GeoPier, have also expressed interested in joining and supporting this community.

- **Future Ingenieros- outreach program for Latinx high-school students from NC (Faculty Mentor 2018 - present).**

## **INDUSTRY EXPERIENCE**

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**Geotechnical Project Engineer**, PREGO Geotechnical Engineering, Caracas, Venezuela (2008 – 2010)

- Design of deep foundations and earth retaining structures.
- Site exploration and subsurface characterization.

## **SCIENCE COMMUNICATION AND MEDIA APPEARANCES**

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- ASCE Geo-Institute Director’s Cut interview (available [here](#))
- Center for Geospatial Analytics invited presentation at the Geospatial Forum (Fall 2023, available [here](#)). Title: Spatial Variability of Ground Motion and Deformation
- Geo-PIT 2023: Building an Alliance to Reduce Seismic Risk in Latin America & Caribbean (available [here](#))
- Guest at Getting Curious Podcast with Jonathan Van Ness ([“What’s like to survive an earthquake?”](#)).
- New Faces of GI interview on ASCE’s Geostrata magazine (available [here](#))

- Why the Turkey-Syria Earthquakes were so Destructive (available [here](#), original story appeared first in the College of Natural Resources News, then on the CCEE website)
- Featured in the Jan/Feb 2016 issue of Pile Buck Magazine as a Deep Foundations Institute's Women in Deep Foundations committee member.
- Other educational outcomes:
  - [E<sup>2</sup>SCALA YouTube Channel](#)
  - [Site Conditions and the amplification of seismic waves](#)
  - [Introduction to Seismic Waves](#) [in English and Spanish]
  - [Downhole Array](#) [CE593 Soil Dynamics Class Project]
  - [Jupyter Notebooks to access the DesignSafe Ground Motion Database](#)