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Education

- Expected Dec. 2026 **PhD in Civil Engineering**, *Stanford University*, Stanford, CA, United States.
Advisor: Prof. Barbara G. Simpson
- 2023 **MS in Wood Science**, *Oregon State University*, Corvallis, OR, United States, GPA: 4.0/4.0.
Thesis: “Design, Experimental Testing, and Numerical Analysis of a Three-Story Mass Timber Building with a Pivoting Spine and Buckling-Restrained Energy Dissipators”
Advisor: Profs. Arijit Sinha and Barbara G. Simpson
- 2021 **MS in Civil Engineering**, *Universidad del Norte*, Barranquilla, ATL, Colombia, GPA: 4.48/5.0.
Thesis: “Seismic Risk Assessment of the Thin and Lightly Reinforced Concrete Wall Building System”
Advisor: Prof. Carlos A. Arteta
- 2018 **BS in Civil Engineering**, *Universidad del Norte*, Barranquilla, ATL, Colombia, GPA: 4.4/5.0.

Research Interests

- Nonlinear finite-element analysis
- GPU-accelerated computing
- Earthquake engineering and seismic risk
- Mass timber and low-damage structural systems
- Reinforced concrete

Languages

Spanish Native

English Proficient
French Beginner

Certifications

- 2026 **Supervised Machine Learning: Regression and Classification**, *DeepLearning.AI & Stanford University*, Online.
Credential verification
- 2024 **Fundamentals of Accelerated Computing with CUDA Python**, *NVIDIA*, Online.
Credential verification

Teaching Experience

- Winter 2025 **Teaching Assistant**, *Stanford University*, Stanford, CA, United States.
Course: CEE 282 – Nonlinear Structural Analysis
- 2018–2019 **Graduate Teaching Assistant**, *Universidad del Norte*, Barranquilla, ATL, Colombia.
Course: Statics
- 2014–2017 **Undergraduate Peer Tutor**, *Universidad del Norte*, Barranquilla, ATL, Colombia.
Courses: Statics, Mechanics of Materials, Differential Equations, Soil Mechanics, and Structural Analysis

Research Experience

- 2023–Present **Graduate Research Assistant**, *Stanford University*, Stanford, CA, United States.
NSF-funded research including:
(i) CAREER project on accelerating real-time hybrid physical–numerical simulations in natural hazards engineering using GPU computing (CMMI-2145665), in collaboration with the NSF-NHERI SimCenter, Lehigh University, and DesignSafe; and
(ii) NHERI Converging Design project on multi-objective optimization of resilient structural spines (CMMI-2120683), involving shake-table testing at the University of California, San Diego.
- 2020–2022 **Graduate Research Assistant**, *Oregon State University*, Corvallis, OR, United States.
Project: Innovative Mass Timber Lateral Systems, funded by the Tallwood Design Institute. Work included large-scale experimental testing of hybrid and mass timber spine systems.
- 2018–2019 **Graduate Research Assistant**, *Universidad del Norte*, Barranquilla, ATL, Colombia.
Project: Recent building typology puts Colombia at earthquake risk? From large-scale structural laboratory test to city-scale assessment (INV-ING-2743).
- Summer 2017 **PEER Summer Intern**, *University of California, Berkeley*, Berkeley, CA, United States.
Project: Nonlinear modeling of thin reinforced concrete wall buildings.

Industry Experience

- 2017–2019 **Engineering Intern**, *Ingenia Structural Co.*, Barranquilla, ATL, Colombia.
Structural analysis and design of reinforced concrete structures. Relevant projects included the Casa de Estudio Correa de Andreis; expansion of the Guillermo León Valencia Airport (PPN) in Popayán; nonlinear modeling to support the redesign of the collapsed Chirajara Bridge; and vulnerability assessment of older reinforced concrete frame buildings at Universidad del Norte.

Professional Memberships

- 2024–2025 Co-President, EERI Student Leadership Council
2023–2024 Lead SDC Chair, EERI Student Leadership Council
2022–2023 SDC Chair, EERI Student Leadership Council

Fellowships and Awards

- 2025–2026 **Shah Fellowship on Catastrophic Risk**, *Department of Civil and Environmental Engineering, Stanford University*, Stanford, CA, United States.
- 2025 **EERI Learning From Earthquakes (LFE) Travel Study Participant**, *Earthquake Engineering Research Institute*, Mexico City, Mexico.
- 2023 **PEER Lightning Talks Contest (Runner-up)**, *University of California, Berkeley*, Berkeley, CA, United States.
- 2022 **PEER Pitches Contest (Winner)**, *University of California, Berkeley*, Berkeley, CA, United States.
- 2020–2022 **Tallwood Design Institute Fellowship**, *Oregon State University*, Corvallis, OR, United States.
- 2020 **Provost's Distinguished Graduate Scholarship**, *Oregon State University*, Corvallis, OR, United States.
- 2020 **Diversity Scholar Recruitment Award**, *Oregon State University*, Corvallis, OR, United States.
- 2021 **Cum Laude Distinction (MS Thesis)**, *Universidad del Norte*, Barranquilla, ATL, Colombia.
- 2018 **Diploma for Graduate of Excellence**, *Universidad del Norte*, Barranquilla, ATL, Colombia.
- 2016–2017 **French Language Seedbed Program**, *Universidad del Norte*, Barranquilla, ATL, Colombia.
- 2013–2017 **Orgullo Caribe Scholarship**, *Universidad del Norte*, Barranquilla, ATL, Colombia.

Journal Papers

- Kontra, S., Barbosa, A. R., Sinha, A., Pryor, S., Zimmerman, R. B., Simpson, B. G., van de Lindt, J. W., Pei, S., **Araújo R., Gustavo A.**, McBain, M., Pieroni, L., Mishra, P., Uarac P., P. A., Field, T., & Freddi, F. (2026). Mass timber wall splice connection using glued-in rods: Design methodology, implementation, and shake-table testing in a six-story building. *Engineering Structures*, 361, 122859. <https://doi.org/10.1016/j.engstruct.2026.122859>
- McBain, M., Pieroni, L., **Araújo Rodríguez, Gustavo A.**, Kontra, S., Mishra, P., Barbosa, A. R., Gioiella, L., van de Lindt, J. W., Sinha, A., Brown, N., Freddi, F., & Simpson, B. G. (2025). Design and shake-table testing of a full-scale, six-story mass timber building with post-tensioned rocking walls and buckling-restrained boundary elements [In press]. *Journal of Structural Engineering*. <https://doi.org/10.1061/JSENDH.STENG-15854>
- Araújo R., Gustavo A.**, Simpson, B. G., Barbosa, A. R., Pieroni, L., Ho, T. X., Orozco O, G. F., Miyamoto, B. T., & Sinha, A. (2025). Experimental and Numerical Simulation of a Three-Story Mass Timber Building with a Pivoting Wall and Buckling-Restrained Boundary Elements. *Journal of Structural Engineering*, 151(7), 04025089. <https://doi.org/10.1061/JSENDH.STENG-13781>
- Arteta, C., Carrillo, J., Archbold, J., Gaspar, D., Pajaro, C., **Araujo, G.**, Torregroza, A., Bonett, R., Blandon, C., Fernandez-Sola, L., Correal, J. F., & Mosalam, K. M. (2019). Response of Mid-Rise Reinforced Concrete Frame Buildings to the 2017 Puebla Earthquake. *Earthquake Spectra*, 35(4), 1763–1793. <https://doi.org/10.1193/061218EQS144M>
- Arteta, C., **Araújo, G. A.**, Torregroza, A. M., Martínez, F. M., & Lu, Y. (2019). Hybrid approach for simulating shear–flexure interaction in RC walls with nonlinear truss and fiber models. *Bulletin of Earthquake Engineering*, 17, 6437–6462. <https://doi.org/10.1007/s10518-019-00681-6>

Conference Papers

- McBain, M., Simpson, B. G., Pieroni, L., **Araújo R., Gustavo A.**, Barbosa, A. R., van de Lindt, J. W., Sinha, A., Kontra, S., Mishra, P., Uarac, P., & Field, T. (2025). Response of mass ply panel, self-centering rocking walls with buckling-restrained boundary elements as energy dissipators in shake table testing. *Proceedings of the 14th World Conference on Timber Engineering (WCTE 2025)*. <https://doi.org/10.52202/080513-0300>
- Pieroni, L., **Araújo R., G. A.**, Simpson, B., Freddi, F., Mishra, P., Uarac, P., Barbosa, A. R., Sinha, A., van de Lindt, J. W., & Brown, N. (2024). Estimating First and Higher-Mode Effects for the Design of Rocking Mass Timber Walls with Controlled Overturning Moments. In *World Conference on Earthquake Engineering, WCEE 2024*.
- Araújo R., G. A.**, Simpson, B. G., Zhu, M., & Scott, M. H. (2024). Accelerating Finite-Element Structural Elastic Dynamic Analysis Using GPU Computing. In *World Conference on Earthquake Engineering, WCEE 2024*.
- Araujo R., G. A.**, Simpson, B. G., Ho, T. X., Orozco O., G. F., Barbosa, A. R., & Sinha, A. (2023). Cyclic Testing and Numerical Modeling of a Three-Story Mass-Timber Building with a Pivoting Mass Ply Panel Spine and Buckling-Restrained Energy Dissipators. In *Proceedings of the 2023 World Conference on Timber Engineering*.
- Orozco O., G. F., Ho, T. X., **Araújo R., G. A.**, Barbosa, A. R., Sinha, A., & Simpson, B. G. (2022). Innovative Mass Timber Seismic Lateral Force Resisting Systems: Testing of a Full-scale Three-story Building with Mass Ply Panels (MPP) Rocking Walls. In *Proceedings of the 12th National Conference on Earthquake Engineering*. Earthquake Engineering Research Institute.

- Araujo R., G. A.**, Simpson, B. G., Ho, T. X., Orozco O., G. F., Barbosa, A. R., & Sinha, A. (2022a). Design of a Three-story Building Using a Hybrid of Mass Ply Panel Walls with Buckling-Restrained Braces. *Proceedings of the 12th National Conference on Earthquake Engineering*.
- Araujo R., G. A.**, Simpson, B. G., Ho, T. X., Orozco O., G. F., Barbosa, A. R., & Sinha, A. (2022b). Numerical Modelling of a Three-Story Building Using a Hybrid of Mass Timber Walls with Buckling-Restrained Braces. In F. Mazzolani, D. Dubina, & A. Stratan (Eds.), *Proceedings of the 10th International Conference on Behaviour of Steel Structures in Seismic Areas* (Vol. 262). Springer. https://doi.org/10.1007/978-3-031-03811-2_45
- Segura, C. L., Arteta, C. A., **Araujo, G.**, & J., W. (2018). Flexural Compression Capacity of Thin Reinforced Concrete Structural Walls. *Proceedings of the 11th National Conference on Earthquake Engineering*.

Theses and Dissertations

- Araujo R., G. A.** (2022). *Design, Experimental Testing, and Numerical Analysis of a Three-Story Mass Timber Building with a Pivoting Spine and Buckling-Restrained Energy Dissipators* [M.S. thesis]. Oregon State University. Corvallis, OR, United States. https://ir.library.oregonstate.edu/concern/graduate_thesis_or_dissertations/k643b860n
- Araujo R., G. A.** (2021). *Seismic Risk Assessment of the Thin and Lightly Reinforced Concrete Wall Building System* [M.S. thesis]. Universidad del Norte. Barranquilla, Colombia. <http://hdl.handle.net/10584/9495>

Presentations

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| May 28, 2026 | Enabling Higher-Resolution Nonlinear Structural Analysis Through GPU-Accelerated Solvers , 2026 NHERI Computational Symposium, Berkeley, CA, United States. Session 4A |
| Sept. 19, 2025 | 2025 EERI LFE Travel Study – Mexico: Lessons on Post-Earthquake Engineering Interventions on Cultural and Historic Buildings , 40th Mexico City Earthquake Anniversary Symposium, Mexico City, Mexico. |
| Feb. 1, 2024 | Accelerating Finite-Element Structural Elastic Dynamic Analysis Using GPU Computing , 2024 NHERI Computational Symposium, Los Angeles, CA, United States. |
| Aug. 24, 2023 | Design Procedure for Pivoting and Rocking Mass Timber Walls with Controlled Overturning Moment , 2023 PEER Annual Meeting, Berkeley, CA, United States. |
| June 21, 2023 | Cyclic Testing and Numerical Modeling of a Three-Story Mass-Timber Building with a Pivoting Mass Ply Panel Spine and Buckling-Restrained Energy Dissipators , 2023 World Conference on Timber Engineering, Oslo, Norway. |
| June 29, 2022 | Design of a Three-story Building Using a Hybrid of Mass Ply Panel Walls with Buckling-Restrained Braces , 12th National Conference on Earthquake Engineering, Salt Lake City, UT, United States. |

May 27, 2022

Numerical Modelling of a Three-Story Building Using a Hybrid of Mass Timber Walls with Buckling-Restrained Braces, *10th International Conference on Behaviour of Steel Structures in Seismic Areas*, Timisoara, Romania.