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Ruben Jerves

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Professional Profile

Dr. Jerves specializes in assessing and improving the performance of buildings under extreme loads, including earthquakes, wind, and other natural or man-made hazards. His expertise spans performance-based design, structural modeling, and risk assessment to ensure safety and functionality under demanding conditions. He also focuses on timber and mass timber systems—such as cross-laminated timber—addressing their design, structural behavior, connection detailing, and long-term durability. His work integrates large-scale experimental testing with advanced modeling and probabilistic methods to evaluate uncertainty and support resilient, code-compliant solutions.

During his Ph.D. at Virginia Tech, Dr. Jerves developed and assessed mass timber rocking systems for seismic resilience, integrating them with traditional wood light-frame walls to reduce collapse probability, damage, and downtime after earthquakes. His work advanced sustainable, high-performance structural design and earned him the Davenport Leadership Fellowship for academic excellence and leadership. Previously, at Washington State University, he focused on creating durable structural wood composites and mass timber products, receiving the John Roberson Award for innovation. This research combined material manufacturing, mechanical characterization, and structural integration to support commercialization and broader adoption.

Dr. Jerves has authored numerous peer-reviewed publications, presented at multiple conferences, and contributed as a guest lecturer and teaching assistant for graduate-level structural engineering courses. He brings extensive experience in large-scale structural testing, advanced nonlinear modeling, and probabilistic methods for risk and uncertainty assessment.

Academic Credentials & Professional Honors

Ph.D., Civil Engineering, Virginia Polytechnic Institute and State Univ, 2025

M.S., Civil Engineering, Washington State University, 2021

B.S., Civil Engineering, University of Cuenca, 2018

Engineering Structures Featured Paper Award, 2024

Davenport Leadership Fellowship, 2023

John Roberson Thesis/Dissertation Award, 2022

Prior Experience

Civil Engineer Consultant, IDYC - Engineering Design and Consulting, 2018-2019

Summer Engineering Intern, IDYC - Engineering Design and Consulting, 2016 & 2017

Professional Affiliations

American Society of Civil Engineers (ASCE), associate member

Structural Engineering Institute (SEI)

American Institute of Steel Construction (AISC)

Patents

V. Yadama, M. Aro, and R.A. Jerves. 2021. "Thermally modified composite wood-strand products for construction and other applications," U.S. Patent Application 63/191,184, Filed May 20, 2021

Publications

Jerves R. Investigation of modular cross-laminated timber rocking walls and rocking wall–light-frame shear wall dual systems for seismic resilience. Ph.D. Dissertation, Virginia Tech, 2025.

Jerves R, Phillips A. R. Cyclic testing and modeling of CLT rocking walls with modular base connections and LSL wall toes. Engineering Structures, 2024; 321:118924

Vilguts A., Phillips A. R., Jerves R., Antonopoulos C., Griechen D. Monotonic testing of single shear-plane CLT-to-CLT joint with hardwood dowels. Journal of Building Engineering, 2024; 88:109252.

Jerves R., Yadama V., Aro M., Pelaez-Samaniego M. R. Cross-laminated strand veneer lumber mass timber panels from thermally modified strands. Construction and Building Materials, 2023; 368:130370.

Nickelson W., Jerves R., Motter C. J., Phillips A. R. Fiber reinforced polymer (FRP) seismic retrofit of reinforced concrete bridge columns vulnerable to long-duration subduction zone earthquakes. Technical Report 2020-UCD-01, 2022.

Jerves R. Thermally modified composite wood-strand panels for building construction applications. Master's Thesis, Washington State University, 2021.

Flores F. X., Astudillo B. X., Barrera D. V., Jerves R., Martinez I. L., Pozo S. P. Level of detail required to model special steel moment frames to evaluate floor accelerations in nonstructural components. Structures Congress, 2019.

Carrillo V., Jerves R., Lucero F., Palacios C., González P., Chávez A., Pacheco E., Cisneros F. Experimental and numerical simulation as a calibration measure of a venturi tube. International Journal of Hydrology, 2018; 2.

Presentations

Jerves, R., V. Yadama, M. Aro, R. Pelaez-Samaniego. May 12, 2022. "Towards Durable Wood-Strand Composite Mass Timber Panels." International Conference on Wood Adhesives, Portland, OR.

Jerves, R., V. Yadama, M. Aro, R. Pelaez-Samaniego. June 17, 2021. "Thermally modified composite wood-strand panels for building construction.", Forest Products Society International Conference, Virtual

Event.

Jerves, R., Machado, J. F., Acosta, E. November 18, 2016. "Multi-Temporal Analysis of PM10 Content in the Air of Cuenca Based on Landsat Images." IV Congreso Ecuatoriano de Tecnología de la Información y la Comunicación, Guayaquil, Ecuador.