Juan Rea-Avila

juan.rea@rutgers.edu
LinkedIn
Google Scholar
GitHub

Rutgers University
Richard Weeks Hall of Engineering
500 Bartholomew Road, Room 322A
Piscataway, NJ 08854

CV Date: September, 2026

EDUCATION

M.S. in Civil & Environmental Engineering, Rutgers University, 2027 *(Expected)*

B.S. in Civil Engineering, University of Cuenca, 2023

RESEARCH & PROFESSIONAL APPOINTMENTS

2026–present	Graduate Assistant, Center for Advanced Infrastructure and Transportation (CAIT), Rutgers University
2025–2026	Graduate Fellow, Department of Civil and Environmental Engineering, Rutgers University
2024–2025	Teaching Assistant Professor, Department of Computer Sciences, University of Cuenca, Ecuador

RESEARCH INTERESTS

- Earthquake geotechnical engineering: seismic slope response and ground deformation
- Natural hazards, probabilistic risk, and multi-hazard resilience of infrastructure systems
- Artificial intelligence and data-driven methods for geotechnical and natural-hazard engineering

HONORS AND AWARDS

- Michael Argent Scholarship, North American Society for Trenchless Technology (NASTT), 2026
- GeoEngineers, Inc. Scholarship, ACEC Research Institute Scholarship Program, 2026
- Paul DeBruyn Memorial Student Travel Grant, Deep Foundations Institute (DFI), 2026
- NHERI SPARC Travel Award, Texas Advanced Computing Center, 2026
- Vilas and Ingrid Mujumdar Registration Grant, (13NCEE), EERI, 2026
- SEI Futures Fund Student Scholarship, Structural Engineering Institute (ASCE), 2026
- Selected Recipient, Fulbright–SENESCYT Foreign Student Program, Fulbright Ecuador, 2025 *(award not utilized)*
- Graduate Fellowship, School of Engineering, Rutgers University, 2025–2026
- Academic Excellence Award, University of Cuenca, 2020–2023

PUBLICATIONS & MANUSCRIPTS

1. **Rea-Avila, J.**, Oathes, T. J., and Carey, T. J. (2026). "Unified Simplified Seismic Slope Displacement Method for Interface and Intraslab Subduction Earthquakes." *Engineering Geology*. **Submitted**.

2. **Rea-Avila, J.**, Oathes, T. J., Carey, T. J., and Nikolopoulos, E. (2026). "A Continuous Fragility-Based Framework for Assessing Increased Flood Risk in Levees Following Earthquakes." *Manuscript in preparation*.

Theses

1. Chaca, J., and **Rea-Avila, J.** (2023). "Comparative Analysis of the Determinant Factors in the Geodynamic Susceptibility of Two Micro-Basins in the Marianza Sector." Undergraduate thesis, University of Cuenca. Advisor: Vladimiro Tobar, Ph.D.

CONFERENCE PRESENTATIONS

1. **Rea-Avila, J.**, Oathes, T. J., Carey, T. J., and Nikolopoulos, E. "A Probabilistic Framework for Assessing Flood Risk in Levees Following Seismic Damage." *Accepted for presentation at the ASCE2027 Experience*, 2027.

2. **Rea-Avila, J.**, Vintimilla, X., and Estrella, R. "Stochastic Prediction of Nonlinear Structural Response Using Deep Learning Neural Networks." 1st International Civil Engineering Congress, Cuenca, Ecuador, 2024.

3. **Rea-Avila, J.** "Comparative Analysis of Determinant Factors in Geodynamic Susceptibility of Two Micro-Watersheds in the Marianza Sector." *Invited presentation*, Ibero-American Congress: The University and Social Equity, Cuenca, Ecuador, 2023.

PROFESSIONAL SERVICE

- Geotechnical Research Subcommittee Representative, NSF NHERI Graduate Student Council, 2026–present
- Volunteer, Virtual Earthquake Reconnaissance Team (VERT), Earthquake Engineering Research Institute (EERI), 2026–present
- Technical Committee Member, Embankments, Dams, and Slopes (EDS), ASCE Geo-Institute, 2026–present

TEACHING EXPERIENCE

2024–2025	Teaching Assistant Professor, Department of Computer Sciences, University of Cuenca, Ecuador. Courses: Differential and Integral Calculus, Linear Algebra, and Differential Equations
2019–2021	Student Teaching Assistant, School of Engineering, University of Cuenca, Ecuador. Courses: Differential and Integral Calculus
2020–2021	Academic Instructor, Virtual Academic Tutorials, University of Cuenca, Ecuador. Subjects: Mathematics and Geometry

TECHNICAL SKILLS

Geotechnical Engineering: GeoStudio SLOPE/W, DeepEX, slope stability, excavation support, seismic slope-displacement analysis;
Numerical & Engineering Modeling: Delft3D-FM, HEC-HMS, hydrodynamic and sediment-transport modeling;
Programming & Data Analysis: Python, MATLAB, R/RStudio, statistical analysis, machine learning, deep learning(LSTM), uncertainty quantification;
Geospatial & Research Computing: QGIS, DesignSafe, high-performance computing (HPC), LaTeX, Git/GitHub.

LANGUAGES

English (professional proficiency)
Spanish (native language)
French (B2)