Lía V. Vergara Peña

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SUMMARY OF QUALIFICATIONS

- Experienced in hydrologic modeling, hydrodynamic modeling, and water quality modeling for conventional parameters and toxic substances.
- Skilled in processing and analyzing statistical, hydrologic, and hydraulic information.
- Capable of preprocessing, interpolating, and analyzing high-resolution geospatial datasets within GIS software.
- Competent in civil structure design.
- Qualified for the elaboration of wastewater discharge permits, environmental impact assessments, feasibility studies, and design studies (Colombia's regulations).

EDUCATION

University of Georgia — Athens, GA, United States of America
Master of Science, Civil and Environmental Engineering — 2025 – 2027 (expected)

Universidad Nacional de Colombia — Medellín, Colombia
Specialist in Hydraulic Resource Utilization — 2017 - 2018

Universidad del Norte — Barranquilla, Colombia
Bachelor of Science, Civil Engineering — 2012 - 2017

RELEVANT COURSEWORK

Advanced Numerical Modeling for Flood Mitigation Solutions | Fundamentals of Natural Infrastructure and Nature-Based Solutions | Advanced Topics in Engineering (Natural Catastrophe Risk Modeling and Resilience) | Engineering Design of Natural and Hybrid Infrastructure | Field Experiences in Natural Infrastructure

SKILLS

Technical: HEC-RAS, HY-8, HEC-HMS, HEC-DSSVue, HEC-MetVue, HEC-SSP, GSSHA, ADCIRC, ArcGIS, QGIS, SAGA GIS, QUAL2Kw, WASP8, OTIS, Autodesk Civil 3D, and Autodesk AutoCAD.

Professional: Critical thinking, teamwork, self-motivation, adaptability, technical expertise, and problem-solving.

RESEARCH EXPERIENCE

University of Georgia — Athens, GA, United States of America
Graduate Research Assistant

August 2025 – Present

- Developed a semi-distributed gridded hydrologic model to simulate hundreds of synthetic tropical cyclones.
- Conducted sensitivity analyses on hydrologic parameters.
- Calibrated and validated the hydrologic model using historical tropical cyclone events.
- Evaluated and calibrated parametric precipitation models.
- Incorporated projected land-use changes to update Curve Numbers.
- Analyzed synthetic tropical cyclones for present and future conditions.
- Estimated annual exceedance probabilities for simulated peak discharges.
- Quantified future flood hazard shifts.

University of Georgia Athens, GA, United States of America
Temporary Research Assistant July 2025 – August 2025

- Assisted a graduate student with research.
- Processed hydrology model results.
- Performed a sensitivity analysis.
- Developed code for conduct a flood depth frequency analysis.

Universidad del Norte Barranquilla, Colombia
Research Assistant September 2016 – December 2016

- Assisted a graduate student with research.
- Performed physicochemical analyses of lake sediment cores.

Universidad del Norte Barranquilla, Colombia
Research Assistant February 2015 – July 2015

- Processed hydrological data from gauge stations.
- Performed physicochemical analyses of lake sediment cores.

Universidad del Norte Barranquilla, Colombia
Research Assistant March 2014 – November 2014

- Conducted secondary information searches.
- Processed hydrological data from gauge stations.
- Performed physicochemical analyses of lake sediment cores.

CONFERENCE ACTIVITY

- Restrepo A., I. C.; Vergara P., L. V.; Escobar P., H. A.; Balbin B., S. *Hydrodynamic modeling of the lower Nechí River basin for flood risk analysis*. XXXI Latin American Hydraulics Congress. Medellín, Colombia. October 2024.
- Vergara-Peña, L. V.; Santiago-Collazo, F. L.; Ramírez-Ávila, J. J. *Discharge frequency-magnitude analysis of extreme weather events under future conditions.* Watershed Management Conference. Reston, Virginia, US. August 2026.

AWARDS & HONORS

2026 Distinguished Recognition for Applied Hydrology (American Institute of Hydrology).
2026 Distinguished Recognition for Interdisciplinary Innovation and Impact (American Institute of Hydrology).

PROJECT EXPERIENCE

Hydrodynamic modeling of the lower Nechí River basin for flood risk analysis (April 2023–July 2024)

- Analyze flood hazard in the lower Nechí River basin under different flood events and climate change scenarios, using a two-dimensional hydrodynamic model.
- Identify the most vulnerable sites, villages, and urban areas to flood hazard.
- Evaluate whether the Cauca River can influence the flow of the Nechí River within their confluence, due to the backwater effect.

PROFESSIONAL EXPERIENCE

Freelance consulting Medellín, Colombia
Consulting engineer October 2024 – May 2025

- Planned and coordinated projects, providing technical guidance.
- Developed studies in hydraulics, hydrology, and water quality.
- Analyzed data and processed technical information.
- Conducted hydraulic and water quality modeling.
- Designed hydraulic structures.

Hidrased Ingeniería Sostenible Medellín, Colombia
Technical Project Coordinator November 2022 – October 2024

- Planned and coordinated projects, providing technical guidance.
- Developed studies in hydraulics, hydrology, water quality, and sediment.
- Led and organized water quality monitoring campaigns.
- Analyzed data and processed technical information.
- Conducted hydraulic, hydrologic, and water quality modeling.
- Designed hydraulic structures.

Integral Ingenieros Consultores Medellín, Colombia
Junior Engineer (Water Resources) March 2018 – November 2022

- Developed studies in hydraulics, hydrology, water quality, and sediment.
- Analyzed data and processed technical information.
- Conducted hydraulic and water quality modeling.
- Designed hydraulic structures.

PROFESSIONAL MEMBERSHIPS & SOCIETY AFFILIATIONS

2026-Present American Institute of Hydrology (AIH).
2026-Present American Society of Civil Engineers (ASCE).

LANGUAGES

Spanish: Native or bilingual proficiency | English: Professional working proficiency