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Resumé

After interesting years of pre-professional experience and knowledge assimilation, I received my bachelor's degree in Civil Engineering in 2011. Consequently, I worked at an Infrastructure Technical Department in an infrastructure project named "Trasvase Daule Vinces", in which I could perform, in almost 3 years, both analytical work at the office and practical engineering solutions in the field. A few years later, I decided to participate in a scholarship program granted by the Ecuadorian government, in which I was fortunately rewarded with full-tuition funding to obtain a master's degree in Civil Engineering with a Major in Geotechnical Engineering at the Los Andes University in Bogotá –Colombia.

I did my thesis project under the guidance of Professor Nicolas Estrada, simulating through DEM, a two-dimensional simple shear test. The sample we used was composed of smooth circular particles with different diameters, and then, a normal force was applied with incremental shear stresses, to understand how the particle arrangement works and how their micro characteristics as input, were capable of improving the micromechanical characteristics of the granular soil sample. The software used for the test simulation was the Sandbox code, based on the Discrete Element Method (DEM) developed by Professor Estrada and Professor Emilien Azema from the University of Montpellier.

Since my return to Ecuador, I have been working as a Geotechnical Engineer Consultant for private and public companies in different projects and designs. In the last year, I gained teaching experience in Soil Mechanics and Foundation Engineering. In this period, I published my first indexed journal article (Latindex) working all together with Dr. Kervin Chunga, about Coastal hazard assessment and climate change, discussing the slope instability of soft rock formations, mainly siltstones and fine-grained sandstones, caused by the rising of the seawater level and the corresponding increment of cliff-erosion.

Among all the latter Geotechnical Engineering activities and construction projects that I was involved in, it is worth to mention, that those performed under the leadership of Dr. Luque in projects mainly focused on design and assessment of infrastructure elements, such as wastewater treatment plants built on soils susceptible to liquefaction; ports and wharf construction alternatives in the southern part of Ecuador; and an important city's building part of Ecuador's cultural heritage. All those uplifting experiences made me realized how much is waiting for me overseas to be learned, how important is to acquire state-of-the-art knowledge in deep foundations and soil improvement, and that knowledge makes THE difference between developed and developing countries.

Academic Background.

2020 - currently Partial scholarship	Graduate student, Ph.D. – Geosystems Engineering Georgia Institute of Technology - United States of America **GPA:** 4.00/4.00 **Advisor:** Dr. Jorge Macedo
2015-2016 National scholarship	Master in Civil Engineering – Geotechnical Engineering University of Los Andes – Colombia **GPA:** 4.55/5 - **RANKING**: 3/52. **Advisor:** Dr. Nicolas Estrada

2006 – 2011	Civil Engineer **Catholic University of Santiago de Guayaquil (UCSG)** **School of Engineering** **GPA:** 7.96/10 **Advisor:** Dr. Jaime Argudo
Languages	English proficient: TOEFL-iBT score: 94/120 (R:27, L:25, W:22, S:20) GRE QUANTS: 162/170. Spanish (native)
IT Knowledge	Programming languages: Matlab. Engineering Software: Slope-W, Plaxis 2D-3D, Cliq, Settle 3D, CAPWAP, SandBox (DEM), AutoCAD, Office, ArcMap (ARCGIS)

Relevant Conferences, courses, and symposiums

2015-10	**IGS – I Colombian International Congress on Geosynthetics.** **Cámara de la construcción - Colombia** Implementing Geosynthetics solutions on the Infrastructure projects. Case Histories.
2017-01	**BERKIL Asociados** **Lima-Perú** A course of Geotechnical and Seismic Engineering with application on mining projects. Soil liquefaction and consideration in the design of tailing dams with Professor John Bray from California, Berkeley.
2017-10	**ICC Colombia** **Bogota – Colombia** Slope Stability analysis and design with GEOESTUDIO, static cases, and pseudo-static cases. Subprograms: Slope –W, Seep, Sigma, Q
2018-07	**Geosísmica - ASCE** **Guayaquil – Ecuador** Seismic & Geotechnical Engineering International Course.

Publications.

Quiñonez-Macías, M., Chunga, K., Torres González, J., & Méndez Mata, W. (2017). Evaluación de riesgo costero y registros climáticos MIS 1 a MIS 3 en la costa central del Ecuador. Revista Científica Y Tecnológica UPSE, 4(3), 122-132. doi:10.26423/rctu.v4i3.283

Latino College & STEM Fair (2020), Engineers with Hispanic heritage at Georgia Tech working on natural hazards and critical infrastructure. Co-author of the “Soil liquefaction at Home” experiment. Pages 74-77. Retrieved from: https://issuu.com/ceismc/docs/lcsf_digital_draft_as_of_4-15

Teaching experience

2017-1 & 2	**State University Península de Santa Elena UPSE** Full-time-Professor Course: Soil Mechanics I, Soil Mechanics II, Foundations.
2019-2	**State University of Guayaquil** Full time-Professor Course: Soil Mechanics II. Course: Foundations

Projects at Georgia Tech – as a Ph. D. graduate student

2020- Currently	**Cone Penetration Testing (CPT) for Illinois Subsurface Characterization and Geotechnical Design** The project will conduct field CPTu (and seismic piezocones, SCPTu) to obtain data and establish correlations between the CPTu and the standard penetration test (SPT) for Illinois soils. **Reference:** https://trid.trb.org/view/1647905
2020 - Currently	**Towards the Implementation of a Geotechnical Asset Management Program in the State of Georgia** Our framework will include specific planning recommendations that address the most significant challenges for the implementation of a Geotechnical Asset Management (GAM) program in the state of Georgia, according to the NCHRP (2019) guidelines. **Reference:** https://rip.trb.org/view/1732437

Relevant professional experience

Geosísmica S.A. & NYLIC S.A.
2019

(1) Peer review of Geotechnical designs of an important port to be built in the southern region of Ecuador

(2) Geotechnical characterization and earthquake-resistant design for a patrimonial building "Distrito 100".

- Serviceability and bearing capacity analyses.
- Geotechnical characterization and soil profile interpretation.
- Forensic engineering (Structural and Geotechnical Engineering).
- Design with Finite Element Method on Plaxis 2D applying well studied constitutive soil models such as soft soil and hardening soil model.
- Interpretation of CPT and SPT results, with energy measurement.
- Pseudo-static slope stability analyses
- Coupled and uncoupled analyses.
- Project planning and quality control

Geosísmica S.A.
2018
Geotechnical studies for the assessment and redesign of the Waste Water Treatment Plant foundations built on soils susceptible to liquefaction.

- Serviceability and bearing capacity analyses of pile foundations.

- Liquefaction analysis in saturated granular soils and loose sands.
- Geotechnical characterization and soil profile interpretation.
- Recommendation and design of massive soil improvement techniques.
- Lateral loads in piles.
- Design with Finite Element Method on Plaxis 2D applying well studied constitutive soil models such as soft soil and hardening soil model.
- Interpretation of CPT and SPT results, with energy measurement.

Geoestudios S.A. 2016 - 2017
Geotechnical studies for the Manta Port rehabilitation after 7.6 Mw Earthquake, Ecuador.

- Serviceability and bearing capacity analyses of pile foundations.
- Management of geotechnical and geophysical exploration.
- CPT-u data interpretation, using Idriss and Boulanger, Cetin, Robertson, Ishihara.
- Liquefaction analysis in saturated granular soils and loose sands.
- Simplified Seismic Slope Displacement Procedures.
- Recommendations and design of massive soil improvement techniques.
- Static and pseudo-static slope stability analyses of the breakwater
- Geotechnical characterization and soil profile interpretation.
- Soil-Structure interaction.
- Damage report focused on large deformation due to liquefaction effects.
- Lateral loads in piles.

Geocon S.A. 2011 – 2012
Civil and Geotechnical Engineering

- Elaboration of Shallow foundations reports, retaining walls design, embankments and pavements design, slope stability, and quality control in housing projects.
- As a Geotechnical exploration assistant, I used to work with the drilling and sampling team on the field, recovering soil samples and writing down preliminary soil or rock classification reports.

Academic and professional references

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