Esteban Valderrama

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Educational Background

Master of Science in Structural & Geotechnical Engineering — University of Wisconsin, Platteville, WI, USA — 06/2015 — Present

Bachelor of Science in Mechanical Engineering — EAFIT University, Medellin, Colombia — 01/2007 — 12/2012

Research Experience

Part-Time Research Assistant — University of Texas at San Antonio, Physics & Astronomy Department — 01/2016 — Present

- ✓ Designed and developed computer software to study biophysical phenomena, the Classical Solvation Density Functional Theory Solver (CSDFTS) is an open-source and it is mainly used for research and teaching purposes.
- ✓ Dramatically decreased the computation time of the CSDFTS software from 90 minutes to 5 minutes, using software optimization techniques. CSDFTS is designed to analyze nanoparticles immersed in aqueous media.

Research Assistant — University of Texas at San Antonio, Physics & Astronomy Department — 08/2013 — 08/2014

- ✓ Designed algorithms to study biophysical phenomena.
- ✓ Trained students in the usage of the computational tools.

Professional Experience

Software Engineer — Accenture LLP, Irving, Texas — 12/2014 — 08/2015

- ✓ Designed and developed testing procedures to comply with user requirements.

Mechanical Engineering Intern — University of Texas at San Antonio, Mechanical Engineering Department — 08/2011 — 07/2013

- ✓ Developed computational tools to study damage tolerance in aerospace structures; CVGROW is a Fortran code used to compute the crack growth and cycles to failure.
- ✓ Created graphical user interface for software to calculate the linear fatigue damage and damage tolerance of small airplanes.

Certifications

Engineer-In-Training No. 53014 — NCEES, Texas, USA — 09/2015 — 09/2023

Professional Engineer No. AN230-111925 — ACOFI, Medellin, Colombia — 12/2012 — Present

Skills/Competences

Computer: Solidworks, RISA 2D, Autodesk Simulation, Ansys. Familiarity with Comsol Multiphysics, Nasgro, Afgrow, Autocad.
Programming: Fortran, Matlab, Visual Basic, Java, VBA. Familiarity with Python and C++.
Engineering: Stress Analysis, Structural Analysis, ASD & LRFD Calculations, Thermodynamics, Heat Transfer.
Personal: Goal Oriented, Critical Thinking, Time Management, Analytical, Dedicated, Organized, Pro-active, Productive, Responsible, Honest, Motivated, Team Oriented.

Publications/Conferences

Ovanesyan, Z., Aljzmi, A., Almusaynid, M., Khan, A., Valderrama, E., Nash, K.L., & Marucho, M. (2016). **Ion-Ion correlation, solvent excluded volume and pH effects on physicochemical properties of spherical oxide nanoparticles.** *Journal of Colloid and Interface Science*, 462, 325-333 — 01/2016

UTSA COS Research Conference, Physics & Astronomy and Nanotechnology, Valderrama, E., Marucho, M. **Ion-Ion correlation, solvent excluded volume and pH effects on physicochemical properties of spherical oxide nanoparticles.** — 01/2016

Memberships

American Institute of Steel Construction (AISC)
American Society of Mechanical Engineers (ASME)
American Institute of Aeronautics and Astronautics (AIAA)
Society of Hispanic Professional Engineers (SHPE)

Awards

2016 – 2017 National Science Foundation Award Scholarship, University of Wisconsin at Platteville