

# Edwin C. López Ramos

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## Education

- B.S. in Mechanical Engineering, University of Puerto Rico: Mayaguez Campus  
Graduation Date: May 2018 | GPA: 3.11/4.00
- Ph.D. In Mechanical Engineering, University of Puerto Rico: Mayaguez Campus  
Focus: Bubble Dynamics, Blood, and Acoustics  
Graduation Date: December 2022

## Work Experience

- UPRM Radon Measurement Team | (Feb,2022-Present) | Logistics  
Determined project logistics for effective acquisition of new measuring locations, appointment scheduling and route planning for the operation of five teams within the north and north-west of Puerto Rico. Additionally, worked as part of one of the measurement teams.
- SIL Technologies LLC | (June,2018-Present) | Research Scientist  
Designed, manufactured, and implemented test benches to acquire data and study high concentration nanobubble generation, decompression bubble formation, and bubble rupture/dissolution and detection. Test benches consisted of designing and implementing custom made bubble injectors, acoustic chambers and modifying a hyperbaric chamber to simulate decompression scenarios.

## Research Experience

- UPRM Bubble Dynamics Laboratory (BDL) | (2018-Present) | Doctoral Student  
Improved and manufactured various test benches to study and/or induce bubble injection, acoustic bubble detection and acoustic bubble rupture. The objective is to determine the effects of bubble rupture and resonant acoustic standing waves in blood in both in vitro and swine thigh models. Part of the work is documented in two publications and a preliminary patent in bubble detection and rupture.

## Academic Projects

- PACE-RSMS | (2014-2016) | Global Team Leader
  - Reconfigurable vehicle cradle to grave design with local and international student teams.
  - Determined technical specifications based on consumer trends, insight, and client feedback.
  - Won 2<sup>nd</sup> place in manufacturing, engineering, design, and consumer insight categories and excellence
  - Won the Siemens PLM Software PACE Excellence in Design and Simulation Award.
- CD-Adapco STAR Global Conference Sim Contest | 2016 | Team Member
  - Won the global sim contest by developing an external aerodynamics CFD simulation of a Skoda Octavia.
- Undergraduate Computer Aided Engineering Association (UCAE) | 2016-2017 | Vice-President
  - Part of the team that won the CD-Adapco STAR Global Conference Sim Contest by developing an external aerodynamics CFD simulation of a Skoda Octavia.
  - Team effort to develop accurate simulations of the UPRM department of general engineering fluid mechanics laboratory experiments to serve as supplemental material to the laboratory course.

## **Skills & Certifications**

- Bilingual: Excellent command of English and Spanish.
- Programs: MATLAB, STAR CCM+, COMSOL Multiphysics, ANSYS, AutoCAD, Autodesk Inventor, Siemens NX.
- Siemens Go PLM NX 10 Basic and Intermediate Modelling Certification.
- Manufacturing with CNC Milling machining and manual operation of milling and lathe machines.

## **Publications**

- Rivera, Manuel, Edwin López, and Silvina Cancelos. "A non-invasive, low frequency resonant method to detect bubbles in liquid media." *Applied Acoustics* 179 (2021): 108044.
- Rivera, Manuel, Edwin López, Silvina Cancelos, and Carlos Marín. "Low-power gas microbubble detection technology based on acoustic resonance." *Engineering Reports* 3, no. 12 (2021): e12401.