

Humberto Jaramillo, Ph.D. Candidate

U.S. Citizen

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Objective

Implement my analytical, engineering, research, and technical skills to design water and wastewater treatment processes with a focus on potable reuse projects

Education

Yale University

Ph.D., Environmental Engineering, (Expected grad. June 2018)

Advisor: Menachem Elimelech

Dissertation: "Optimizing membrane surface chemistry to prevent organic fouling and gypsum scaling in brackish water RO systems for water reuse applications"

M.S., Environmental Engineering, 2015

Rutgers, The State University of New Jersey

B.S., Civil and Environmental Engineering, 2013

Summa Cum Laude

Engineering Experience

Yale University

June 2013-Present

Graduate Research Assistant in Environmental Engineering

- Developed systematic study that discerned factors causing gypsum scaling which resulted in optimal membrane characteristics for brackish water RO treatment
- Designed reverse osmosis (RO) experiments optimizing hydrodynamic conditions
- Procured, assembled, and operated FO and RO bench-scale systems for over four years
- Knowledgeable of water quality and treatment technologies with varying process schemes
- Collaborated in three projects resulting in membranes with organic antifouling performance
- Gained experimental and technical skills while performing chemical procedures and utilizing instrumentation in the laboratory
- Performed duties as Laboratory Safety Officer for two years in research group with over 25 workers maintaining an accident-free workplace

University of Illinois at Urbana-Champaign

May 2012-Aug. 2012

Undergraduate Research Assistant in Environmental Engineering to Dr. Timothy Strathmann

- Safely operated and sampled bench-scale High-Pressure-High-Temperature Reactor
- Conducted experiments and analyzed data to demonstrate kinetic trends of catalyst for biofuel production

Rutgers University

May 2011-May 2012

Undergraduate Research Assistant in Civil and Environmental Eng. to Dr. Qizhong Guo

Established design parameters for removal of nitrate from stormwater with green infrastructure

Publications and Presentations

- Co-authored five peer-reviewed articles with over 400 citations up-to-date
- Published first-author articles elucidating principles to prevent gypsum scaling in RO
- Presented posters in international conferences on “Membrane Processes and Materials” and “Environmental Nanotechnology”
- Presented research progress to industrial partners and funding agency (NSF)
- Selected for oral presentation in AMTA Membrane Technology Conference, March 2018

Professional Development and Involvement

- License: Engineer in Training ID 18-652-83, June 30th, 2018
- AWWA Committees: Water Reuse. Water Treatment Facilities Design and Construction
- EPA Webinars “Challenges/Treatment/Solutions for Small Drinking Water/WW Systems”
- Stormwater Treatment Design Training, University of New Hampshire, 2011, Durham, NH
- American Membrane Technology Association member

Selected Honors and Awards

- National Science Foundation Graduate Research Fellow (GRFP), 2013-2018
- Excellence in Water Resources, Rutgers, 2013
- Outstanding Leadership, University of Illinois at Urbana-Champaign SROP, Summer 2012
- Rutgers University Academic Excellence Award, 2011

Skills

- Software: AutoCAD, MATLAB, Microsoft Office (Excel, PowerPoint, Word), OLI, Origin
- Technical: Analytical methods, wet chemistry and laboratory trained, membrane processes, brackish and seawater desalination, concentrate management, reactors, biological and physicochemical processes, operating bench-scale systems, microscopes, stormwater, writing, water chemistry, water/wastewater regulations and treatment
- Languages: English and Spanish

Leadership/Management Experience

Yale University Nov. 2015-July 2017

Vice President, Student Leadership Council (SLC) of Nanosystems Engineering Research Center for Nanotechnology-Enabled Water Treatment (NEWT)

- Strategized with NEWT directors to increase collaboration and innovation at the Center
- Recruited students from partnering universities to engage in the SLC and attend events
- Spearheaded outreach activities for two years boosting attendance and involvement

Yale University Aug. 2014-Dec. 2014

Air Quality Teaching Assistant

Clarified key concepts to undergraduate students and received all positive feedback

Rutgers University March 2010-Dec. 2011

Multivariable-Calculus Tutor

Explained and coached problem-solving techniques to undergraduate students