

# Oswaldo A. Broesicke E.I.T.

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## CERTIFICATIONS

Texas Board of Professional Engineers  
**Engineer in Training - 48358**

**2013**

## EDUCATION

Georgia Institute of Technology

**Ph.D. Environmental Engineering** | GPA: 3.90/4.00

**2020**

- Thesis Subject: Multidisciplinary design optimization for urban infrastructure systems

University of Texas at El Paso

**M.S. Civil Engineering** | GPA: 4.00/4.00

**2015**

- Thesis: Salt and mineral recovery from high salinity waters

**B.S. Civil Engineering** | GPA: 3.82/4.00

**2012**

- Senior Project: Solar Paneled Parking Canopies (<http://solsticeproject.weebly.com/index.html>)
- Honors: Magna Cum Laude

## RESEARCH EXPERIENCE

Georgia Institute of Technology – Brook Byers Institute for Sustainable Systems

**Graduate Research Assistant**

**August 2015 – Present**

- Member of the Resilient and Interdependent Infrastructure Processes and Systems (RIPS) project
- Analyze Controlled Environment Agriculture (CEA) for urban food and water sustainability and security
- Investigate interconnections between nutrient grid and, energy, water, and transportation infrastructure

University of Texas at El Paso

**Research Assistant**

**September 2014 – August 2015**

- Developed treatment for brine water source to yield high purity sodium chloride.
- Performed laboratory experiments and treatment simulations

**Teaching Assistant**

**October 2013 – June 2014**

- Assisted in teaching of: Hydraulic Engineering, Engineering Measurements, Mechanics of Materials, and Transportation Engineering.
- Administrated laboratory exercises for hydraulic engineering and engineering measurements.

**Research Assistant**

**August 2012 – December 2012**

- Analyzed the Specific Energy Consumption of various pumps for desalination at the Kay Bailey Hutchinson Water Treatment Plant.
- Texas A&M AgriLife Research

**Undergraduate Research Assistant**

**July 2011 – September 2011**

- Performed feasibility study for the construction of a polishing wetland for the Sunland Park Wastewater Treatment Plant.
- Created preliminary design to provide adequate residence times for nutrient removal.

## INDUSTRY EXPERIENCE

Quantum Engineering Consultants Inc.

**Junior Engineer**

**February 2013 – October 2014**

- Performed drainage analysis and assist engineers in design of developments.
- Created site plans, and drainage, grading, and design plans using AutoCAD.

ARCADIS

**Technical Intern**

**November 2010 – May 2011**

- Assisted engineers with on-site demolition and deconstruction, dust control, and reuse of materials for the former ASARCO copper smelter in El Paso, TX.
- Generated wind roses to assess critical locations for dust control.

ExxonMobil Chemical

**Student Engineer**

**January 2010 – May 2010**

- Provided support for mechanical contact engineers through research, database management, planning, and design.
- Created expansion joint database to minimize safety hazards to operators during repairs or turn-around.
- Designed and selected heat exchanger tubes to mitigate fouling issues.

University of Texas at El Paso - Academic Center for Engineers and Scientists (ACES)

**Peer Tutor Leader**

**January 2008 – December 2009**

- Assisted students in all levels of STEM courses, while managing placement of all ACES peer tutors.
- Developed tutor certification program to provide the most effective means of teaching students

**INTERNATIONAL EXPERIENCE**Cochabamba, Bolivia**Environmental Technology in the Developing World – Teaching Assistant**

January 2017 – May 2017

- Aided students in planning, logistics, and project management for a drinking-water quality assessment in Cochabamba Bolivia
- Assisted professor in organizing partner institutions: Universidad Católica Boliviana, World Resources Institute, and Duke University

Iracambi Atlantic Rainforest Research Center**Participant**

May 2013 – June 2013

- Organized collaboration between Ball State University and University of Texas at El Paso students
- Developed site plans for Iracambi and aided in the construction of the central campus

**PUBLICATIONS**

Alamailes, A., Walton, J., Sandoval, P., Woocay, A., & **Broesicke, O.** (2014). *Sustainable House-Scale Passive Rainwater Capture Landscape in the Desert Southwest*. *Journal of Green Building*, 9(1), 113–129.

Jeong, H., **Broesicke, O. A.**, Drew, B., Li, D. & Crittenden, J. C. *Life cycle assessment of low impact development technologies combined with conventional centralized water systems for the City of Atlanta, Georgia*. *Front. Environ. Sci. Eng.* 10, (2016).

Jeong, H., **Broesicke, O. A.**, Drew, B., & Crittenden, J. C. *Life cycle assessment of small-scale greywater reclamation systems combined with conventional centralized water systems for the City of Atlanta, Georgia*. *Journal of Cleaner Production* (2018).

James, J.A., Sung, S., Jeong, H., **Broesicke, O. A.**, French, S. P., Li, D., Crittenden J. C., *Impacts of Combined Cooling, Heating, and Power Systems and Rainwater Harvesting on Water Demand, Carbon Dioxide and NOx Emissions for Atlanta*. *Environ. Sci. Technol.* (2017)

**PRESENTATIONS**

*“Passive Rainwater Harvesting – The pathway to sustainable living in the desert southwest”*

Guest speaker at the Sun Country Landscape Conference

2014

*“The role of urban sustainability in food security”*

Guest speaker at the National Science Foundation’s Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) workshop, hosted by Georgia Tech

2016

*“Infrastructure Ecology”*

Guest speaker at the National Science Foundation’s “Urban Infrastructures: Analysis and Modeling for their Optimal Management and Operation” workshop, hosted by the New York Institute of Technology

2017

*“Multidisciplinary Design Optimization for Infrastructure Ecology Analysis and Decision Support”*

Presented poster at the Gordon Research Conference for Industrial Ecology in Les Diablerets, Switzerland.

2018

**AWARDS**Alfred P. Sloan Foundation’s Minority Ph.D. (MPHD) Program**Sloan Scholar, grant number G-2016-20166039**

August 2017

MAES (Latinos in Science and Engineering)**Padrino Award and Medalla de Plata**

October 2016

- Recognition for achievements, dedication, and contribution to the Hispanic community in promoting & developing future STEM leadership

ARCS Foundation**ARCS Scholar Award**

August 2016-Present

- Student award in recognition of academic excellence and influence within a growing community.

Georgia Institute of Technology**Georgia Power CEE Fellowship**

August 2015

- Fellowship to assist first year doctoral students

American Water Works Association (AWWA)**American Water Works Association Scholarship**

April 2015

- Graduate student award for excellence in the field of water quality and water treatment

University of Texas at El Paso**Patricia and Jonathan Rogers Scholarship**

January 2014 – May 2015

Latinos in Science and Engineering (MAES)**Gran Estudiante Award and Graduate Scholarship**

January 2012 – August 2013

- Graduate student scholarship honoring academic and professional excellence

University of Texas at El Paso – College of Engineering**Top Engineering Senior Award**

2012

- Recognition for academic and extracurricular involvement throughout undergraduate career

American Society of Civil Engineers – Texas Region

**1<sup>st</sup> Place Technical Paper Competition “Ethics and Globalization”**

University of Texas at El Paso

**January 2011 – May 2012**

**Presidential Excellence Scholarship**

**January 2007 – May 2012**

**MEMBERSHIPS AND EXTRACURRICULAR WORK**

U.S. Geological Service – National Institutes for Water Resources

**June 2016 - Present**

- Proposal Reviewer

MAES - Latinos in Science and Engineering

**June 2017 – May 2018**

- Region 4 –Vice-Regional Student Representative

**June 2016 – May 2017**

- Region 4 –Regional Student Representative

American Society of Civil Engineers (ASCE)

- Student Chapter President

- Student Chapter Historian

American Water Works Association (AWWA)

Society of Hispanic Professional Engineers (SHPE)

United States Green Building Council

**August 2011 – May 2012**

**August 2013 – May 2014**

- Student Chapter Secretary

**August 2011 – May 2012**