Zachary Binger

Graduate Research Assistant

Contact

Phone

575-418-1151

Email

zacharybinger@icloud.com

Skills

Systems Modeling

Data Science

Membrane Seperations

Computational Fluid Dynamics

Languages

Python	Numpy
Matlab	Pandas
C++	Tensorflow
Javascript	d3.js

Software

ANSYS Fluent

OpenFOAM

Data Scientist familiar with gathering, cleaning and organizing data for use by technical and non-technical personnel. Advanced understanding of statistical, numerical and other analytical techniques. Highly organized motivated and diligent with significant background in engineering and systems modeling

Eductation

08-2017 - 12-2021 **Ph.D.: Chemical Engineering**
University of Arizona - Tucson, AZ

08-2017 - 2019 **Master of Science: Chemical Engineering**
University of Arizona - Tucson, AZ

08-2013 - 05-2017 **Bachelor of Science: Chemical Engineering**
The University of New Mexico- Albuquerque, NM

Work History

Graduate Research Assistant- University of Arizona

- Research is currently focused on desalination using reverse osmosis (RO) as well as osmotically driven membrane processes (ODMPs), such as forward osmosis (FO) and pressure retarded osmosis (PRO) for power generation and energy recovery.
- Created models using numerical techniques and computational fluid dynamics (CFD) libraries to perform both module and system-scale investigations of pressure loss, water flux, convection-diffusion phenomena specific to spiral-wound membranes.
- Performed system-level analysis of reverse osmosis system integration with ODMPs to minimizing exergy and maximize energy efficiency while simultaneously reducing the environmental impact of seawater desalination.
- Experimental work focuses on the deformation of membranes and support spacers resulting from applied pressure in membrane modules and the impact on performance.

Undergraduate R&D Intern- Sandia National Labs

- Maintained and tracked quality engineering standards for the development & manufacture of multiple parts critical to maintaining the nuclear weapon stockpile.
- Traveled on-site to collaborate with manufacturers to draft and implement build instructions for the production of components.
- Learned new software that improved the workflow of core quality engineering tasks then held training for the quality engineering teams.

Accomplishments

- NSF Bridge to Doctorate Fellow
- 2020 North American Membrane Society (NAMS) David LaMonica Award Recipient