Wesley A. Beckner

CONTACT INFORMATION

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RESEARCH INTERESTS

Analysis and simulation of materials for energy and medicine using data science and statistical methods

EDUCATION

University of Washington, Seattle, Washington USA

Ph.D. Candidate, Chemical Engineering, December 2018 (expected graduation date)

- Advisor: Jim Pfaendtner

University of Washington, Seattle, Washington USA

M.S., Chemical Engineering, December, 2016

University of Texas, Austin, Texas USA

B.S., Chemical Engineering, May, 2014

HONORS AND AWARDS

Data Science Accelerator Award (National Science Foundation), 2017-2018
Data Intensive Research Enabling Clean Technologies (DIRECT) graduate trainee, 2016-2018
National Science Foundation Graduate Research Fellowship Honorable Mention, 2015
Chemical Engineering Endowment, 2014
Achievement Rewards for College Scientists Fellow, 2014-2016
Friends of Alec Scholar, 2014
Undergraduate Research Fellowship, 2013
Tracor/Frank W. McBee, Jr. Scholarship, 2013

ACADEMIC EXPERIENCE

University of Washington, Seattle, Washington USA

Graduate Student **September, 2014 - present**
Includes current Ph.D. research, Ph.D. and Masters level coursework and research/consulting projects.

Visiting Researcher **June 2016**
Assisted in the training of new graduate students to use molecular simulation engines in the research lab of Dr. Yi He at Zhejiang University, Hangzhou, China.

Study Abroad Teaching Assistant **June - July, 2016**
Co-taught unit operations labs for undergraduates from University of Wisconsin and University of Washington at Zhejiang University in Hangzhou, China. Emphasis on responsibility for heat and mass transfer workshops.

Instructor **July - August, 2015**
Co-taught programming course for data science incubator for social good at the UW eScience Institute. Shared responsibility for lectures, workshops, and homework assignments.

Publications

W. A. Beckner, Y. He, J. Pfaendtner, "Chain flexibility in self-assembled monolayers affects protein adsorption and surface hydration, a molecular dynamics study", *J. Phys. Chem. B.*, 2016, 120(40), 10423-10432. DOI: 10.1021/acs.jpcb.6b05882

W. A. Beckner, C. Mao, J. Pfaendtner, "Statistical models are able to predict ionic liquid viscosity across a wide range of chemical functionalities and experimental conditions" , *Mol. Syst. Des. Eng.*, 2018. DOI: 10.1039/C7ME00094D

Papers in preparation

L. Schmser, M. Trefz, S. Roeters, W. A. Beckner, J. Pfaendtner, S. Woutersen, M. Bonn, D. Schneider, T. Weidner, "Refining the X-ray crystal structure of aquaporin with Sum Frequency Generation spectroscopy"

Conference Presentations

Beckner, W. A., Navigating Solvent Design with Statistical Models. Graduate Student Symposium, Seattle, WA, 2017.

Beckner, W. A., Application of High Performance Computing and Machine Learning to Accelerate Material Discovery for Energy Capture and Storage. American Institute of Chemical Engineers Conference, San Francisco, CA, 2016.

Beckner, W. A., Green Events: Engaging Students in Sustainable Practice Through On-Campus Event Planning. Smart and Sustainable Campus Conference, Baltimore, MA, 2014.

Beckner, W. A., Entzminger, K., and Maynard, J. A. Site-Directed Incorporation of Nitrophenylalanine to Study Antibody:Nitro Group Interaction. Rice University Regional Undergraduate Symposium, Houston, TX, 2013.

Professional Experience

Campus Environmental Center, Austin, Texas USA

Assistant Director **August, 2012 - August, 2014**

- Co-founded Green Events, a university-funded events consultation service for registered student organizations
- Provided network of campus resources to organization partners
- Executed and expanded campus sustainability initiatives
- Served as a student liaison between students and administrators
- Planned milestone sustainability events including a world record-breaking build-a-thon on America Recycles Day 2013
- Participated in search committee with other administrators and facilities directors to hire campus zero waste coordinator

Skills

- Languages: C, Unix shell scripts, Python MPI parallel processing library.
- Applications: LaTeX, common Windows database, spreadsheet, and presentation software
- Algorithms: GROMACS molecular dynamics engine
- Operating Systems: Unix/Linux, Windows, iOS.