Natalie Malka Isenberg

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Education

University of Pittsburgh – B.S. Chemical Engineering (August 2016) GPA: **3.69/4.0**

Carnegie Mellon University – Ph.D Chemical Engineering (August 2016 - Present) GPA: **3.54/4.0**

Research Interests & Expertise

Mathematical modeling, mathematical optimization/programming, mixed-integer linear programming (MILP), materials design & discovery, catalysis, alternative energy technology, process systems engineering

Research Experience

Carnegie Mellon University, Department of Chemical Engineering, ***Graduate Student Researcher*** (Fall 2016 - Present)

- Formulating and solving mathematical optimization models to determine optimal materials for CO_2 adsorption
- System modeling and algorithm development

DAAD Research Internship in Science and Engineering (RISE), ***Intern*** (Summer 2015)

- Awarded research internship in Germany to investigate effects of modified **ceramics** in energy storage processes
- Lived and worked in Magdeburg, Germany for 11 weeks

Swanson School of Engineering, Dr. C. Wilmer, ***Undergraduate Researcher*** (January 2015 – 2016)

- Developing computational methods for chemical **gas sensors** using **metal organic frameworks**
- Working on algorithm using Python to determine ambient gas composition from measured chemical signals

Swanson School of Engineering, Dr. G. Veser, ***Undergraduate Research*** (May 2013 – August 2014)

- Studied effects of modified **nanoparticles** as oxygen carriers in **chemical looping combustion**

Mascaro Center for Sustainable Innovation (MCSI), Dr. G. Veser, ***Research Intern*** (Summer 2014)

- Headed a research project to test an array of **dopants** in cerium dioxide **supports** for improved structural integrity and oxygen availability

Pitt Excel Summer Research Internship, Dr. G. Veser, ***Research Intern*** (Summer 2013)

- Worked on optimizing oxygen utilization and stability of materials used in chemical looping combustion technology

Manuscripts

1. S. Bhavsar, N. Isenberg, A. More, G. Veser, *Lanthana-doped ceria as active support for oxygen carriers in chemical looping combustion*, Applied Energy, Volume 168, 15 April 2016.

Volunteer and Work Experience

Pennsylvania Junior Academy of Science Region 7, ***Volunteer Judge*** (February 2017)

Carnegie Mellon University, Department of Chemical Engineering, ***Teaching Assistant (TA)*** (Fall 2017 - Present)

- Introduction to Chemical Engineering (Fall 2016)
- Optimization Modeling and Algorithms & Chemical Process Design (Spring 2016)

Propel EAST Middle School, ***Volunteer Instructor*** (2015 - 2016)

- Co-taught a weekly introductory creative programming course to elementary and middle school students

EXCEL Engineering Diversity Program, ***Tutor*** (Spring 2014)

- Tutored local high school students in mathematics and chemistry

Awards and Proficiencies

Research Awards:

- Won the Bayer/Covestro Award for outstanding undergraduate students in chemical engineering (2016)
- Won 1st place poster presentation at “Chemical Engineering Research Day” at the University of Pittsburgh (2015)
- Won 1st place for undergraduate research in the Mascaro Center for Sustainable Innovation Internship (2014)
- Won “Best Research Mentee” in Pitt EXCEL Summer Internship (2013)

Poster Presentations: AIChE Mid-Atlantic Regional,Conference 2015, ACS Central Regional Meeting 2014

Programming Languages: C++, Java, Python, MATLAB

Languages: Fluent in Hebrew, proficient in Spanish