

# Natalie Malka Isenberg

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## Education

University of Pittsburgh – B.S. Chemical Engineering (August 2016)

GPA: **3.63/4.0**

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<sub>2</sub> adsorption
- System modeling and algorithm development

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

- Awarded research internship in Germany to investigate effects of modified **ceramics** in energy storage processes

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

- Developed computational methods for chemical **gas sensors** using **metal organic frameworks**

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

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

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

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

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

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

## Manuscripts

- S. Bhavsar, N. Isenberg, A. More, G. Vesper, *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)

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

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

- Tutored local high school students in mathematics and chemistry

## Awards and Proficiencies

### Research Awards:

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

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

**Languages:** Fluent in Hebrew, proficient in Spanish