

# Jay T. Bender

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## Education

2020-Present Ph.D. Candidate in Chemical Engineering, University of Texas at Austin.

Advisors: Professors Joaquin Resasco & Delia Milliron

2016-2020 B.S. Chemical Engineering, Cornell University, 2020, *Magna Cum Laude*

## Research & Industry Experience

2020-present Graduate Research Assistant, University of Texas at Austin. Principal Investigator: Joaquin Resasco.

2020-present Graduate Research Assistant, University of Texas at Austin. Principal Investigator: Delia Milliron.

2017-2020 Undergraduate Research, Cornell University. Principal Investigator: Professor Jefferson W. Tester.

2019 Technical Operations Specialist Intern, Merck. Manager: Susan Froman.

## Awards and Honors

- National Science Foundation Graduate Research Fellow 2020
- Harry P. Whitworth Endowed Graduate Fellowship in Engineering 2020
- Cornell University Robert F. Smith School of Chemical & Biomolecular Engineering Outstanding Service Award 2020
- AIChE National Student Conference Undergraduate Poster Competition: Catalysis & Reaction Engineering IV Third Place Award 2019
- AIChE Eckhardt Northeast Student Regional Conference Paper Competition First Place Award 2019
- AIChE National Student Conference Undergraduate Poster Competition: Catalysis & Reaction Engineering II Second Place Award 2018
- Cornell University College of Engineering Dean's List (x6)

## Publications

### [Google Scholar Profile](#)

3. Hawkins, A.J., **Bender, J.T.**, Grooms, R.D., Schissel, C.J., & Tester, J.W.. Temperature-responsive smart tracers for field-measurement of inter-well thermal evolution: Heterogeneous kinetics and field demonstration. *Geothermics* **2021**, 92, 102046.

2. Beentjes, I., **Bender, J. T.**, Hawkins, A. J., & Tester, J. W.. Chemical Dissolution Drilling of Barre Granite Using a Sodium Hydroxide Enhanced Supercritical Water Jet. *Rock Mechanics and Rock Engineering* **2020**, 53, 483-496.
1. Beentjes, I., **Bender, J. T.**, & Tester, J. W.. Dissolution and thermal spallation of barre granite using pure water hydrothermal jets. *Rock Mechanics and Rock Engineering* **2019**, 52, 1339-1352.

### **Selected Conference Presentations**

1. **J. Bender**, A. Hawkins, R. Grooms, C. Schissel, J. Tester. "Heterogeneous Hydrolysis of a Thermally Degrading Tracer" 45<sup>th</sup> Workshop on Geothermal Reservoir Engineering, Stanford, CA.
2. I. Beentjes, **J. Bender**, S. Hillson, J. Tester. "Hydrothermal Spallation of Barre Granite Using Supercritical Water Jets" 43<sup>rd</sup> Workshop on Geothermal Reservoir Engineering, Stanford, CA.

### **Teaching**

- 2020 Undergraduate Teaching Assistant, *Chemical Engineering Thermodynamics*, CHEME 3130. Instructor: Jeffrey Varner
- 2020 Undergraduate Teaching Assistant, *Applied Process Controls*, CHEME 3700. Instructor: Franklin Lomax
- 2018 Undergraduate Teaching Assistant, *Physics II: Electromagnetism*, PHYS 2213. Instructor: Alan Giambattista
- 2017 Undergraduate Teaching Assistant, *Chemical Concepts*, CHEM 1002.

### **Service**

- 2021 Capital of Texas Undergraduate Research Conference Judge. Evaluated 20+ undergraduate student research projects with a panel of four judges during live Q&A sessions.
- 2021 UT Austin Girl Day Booth Organizer. Designed a synchronous virtual science experiment for elementary school aged students to follow along with at home. Taught students thermodynamic states and phase transitions through making homemade ice cream.
- 2020-2021 First-Years' representative for University of Texas at Austin McKetta Department of Chemical Engineering Graduate Leadership Council. Coordinated virtual and socially-distanced events to ease the transition into graduate school for Fall 2020 and Fall 2021 graduate student cohorts.
- 2019-2020 President of Cornell University's AIChE Student Chapter. Organized educational fieldtrips, led professional development workshops, and arranged social events to help classmates achieve professional goals and promote cohesiveness among the undergraduate student body.

*2018-2019* Fundraising and Outreach Chair of Cornell University's AIChE Student Chapter. Collaborated with on-campus outreach groups to teach socioeconomically underrepresented high school students chemical engineering principles. Taught approximately 120 students throughout the 2018-2019 academic year.

*2017-2018* Sophomore Representative of Cornell University's AIChE Student Chapter. Planned and taught a four week chemical engineering course for more than 20 Ithaca High School students.

**Students Mentored**

Sean Heffernan, B.S. Chemical Engineering, University of Texas at Austin, Expected Graduation 2023.