

Elizabeth Spicer

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Education

- M.S. Meteorology**, University of Oklahoma – Norman, OK **August 2023**
Thesis topic: Carbon-Based Pollutant Analysis and Remote Sensor Validation Using Column-Observing Fourier Transform Infrared (FTIR) Spectrometers During the TRACER Campaign | Advisors: Dr. Sean Crowell and Dr. Feng Xu
- B.S. Chemical Engineering, Minor in Chemistry**, Virginia Tech – Blacksburg, VA **May 2021**
In-Major GPA: 3.63/4.00 | GPA: 3.31/4.00
- High school diploma**, Fayetteville High School – Fayetteville, AR **May 2016**
GPA: 4.05/4.00 | Ranked #1 out of 472 | Graduated with Distinguished Honors

Employment History

- Graduate Research Assistant** **July 2021 – Present**
GeoCarb Mission, University of Oklahoma – Norman, OK
- Started spectrometer-based validation effort, establishing infrastructure for data collection and processing
 - Managed a team of ten, provided troubleshooting for, collected data during, and led analysis of the GeoCarb-TRACER campaign to observe carbon-based emissions in Houston, TX during the summer of 2022
 - Utilized machine learning techniques to analyze influence of urban, industrial pollutants on total column data
 - Presented work to interdisciplinary groups at the 2022 GMU ATD conference and AMS 2023
- Experimental Safety Lab Intern** **May 2019 – Aug. 2019**
BASF (hired by BCforward) – Wyandotte, MI
- Created Excel analysis tool to effectively communicate experimental hazards based on customer inputs
 - Performed detailed process hazard analysis via modeling with PHAST to improve safety of chemical storage
 - Aided incident investigation process by reporting on safety information in plant presentations
- Process Control/Process Engineering Co-op** **Aug. 2018 – May 2019**
Georgia-Pacific – Big Island, VA
- Consulted on engineering processes to maximize quality, efficiency, & safety of containerboard production
 - Assisted in onboarding new hires in lab and around mill, teaching safety, process, and testing techniques
 - Drove digital process optimization, alarm reduction, & process automation with operators and management
 - Developed control logic and graphics in mill-wide effort to utilize big data and increase process sustainability
- Undergraduate Research Assistant** **Summers 2017, 2018**
Chemical Hazards Research Center, University of Arkansas – Fayetteville, AR
- Practiced hands-on experimental procedures involving lasers, gases, and fluid flow in wind tunnel
 - Conducted individual project regarding heat transfer, including data collection, analysis, & a technical report
- Assistant Instructor, Virginia Tech String Project (violin)** **Oct. 2016 – May 2018**
Virginia Tech – Blacksburg, VA
- Selected based on musical excellence, superior communication, and professionalism among peers
 - Assisted instructors of multiple classes at two campuses and filled in for main instructors as needed
 - Managed logistics for biannual concerts and worked well with professionals of all ages and skillsets

Honors and Awards

- Outstanding Student Oral Presentation Award** **Jan. 2023**
- Presented by the American Meteorological Society's 25th Conference on Atmospheric Chemistry
- Inducted into Omega Chi Epsilon** **April 2021**
- Invited to join the national chemical engineering honor society after demonstrating academic success
- Dean's List** **Spring 2018 and Fall 2019 Semesters**
- Awarded at Virginia Tech for attempting 12+ A-F graded credit hours and earning a GPA of 3.4 or above

Conference Presentations

Urban and Industrial Carbon-Based Pollutant Monitoring Using EM27/SUNs in Houston, Texas During the Summer 2022 GeoCarb-TRACER Campaign (January 2023)

25th Conference on Atmospheric Chemistry, American Meteorological Society 103rd Annual Meeting

GeoCarb-TRACER Campaign: Urban and Industrial Carbon-Based Pollutant Tracking for Meteorological Studies and Remote Sensor Validation (July 2022)

26th Annual George Mason University Conference on Atmospheric Transport and Dispersion Modeling

Service

Mentor to Undergraduate Research Assistant **Aug. 2022 – Present**

METR 2613 research instrumentation tours **March 2022**

- Taught undergraduate students about atmospheric radiation and remote sensing techniques with live instrument demonstrations during two class sessions of METR 2613

Professional Affiliations

American Meteorological Society **Nov. 2022 – Present**

Order of the Engineer **April 2021 – Present**

- Accepted the Obligation of the Engineer, pledging to uphold an ethical code and serve humanity

Omega Chi Epsilon Honor Society **April 2021 – Present**

- National chemical engineering honor society

College of Engineering Dean's Team **Aug. 2019 – May 2022**

- Recruit prospective students for the College of Engineering via individual meetings and information sessions
- Represent the College of Engineering at the Admissions and College of Engineering Open House events

American Institute of Chemical Engineers (AIChE) **2017 – Present**

- Attend social & professional events spanning the gap between industry and academics while growing network

Alpha Omega Epsilon Sorority (Historian 2017-2018) **2017 – 2021**

- Professional and social sorority focused on promoting women in STEM, community outreach, and sisterhood
- As Historian, managed logistics and personnel, maintained image of the organization by documenting events

Virginia Tech Wind Turbine Team (Aerodynamics Sub-team Lead 2020-2021) **2016 – 2022**

- Design, manufacture blades to optimize performance for Collegiate Wind competition & farming application
- Manage sub-team, focusing on frequent communication, task delegation, and thorough documentation
- Responsible for communicating progress and technical design in twice-weekly meetings, year-end reports
- Presented technical verbal exhibitions of work on behalf of "Blade Team" at mock competition in 2018

National Speech & Debate Association **2013 – 2016**

- Successful at impromptu speeches, diplomatic policy debates, and extensively researched arguments
- Awarded Degree of Excellence by National Speech & Debate Association for performance at competitions

Certifications

Safety	<i>American Institute of Chemical Engineers (AIChE): SACHÉ</i> Process Safety Lessons Taught from Experience (License: ELA908) Importance of Process Safety (License: ELA950) Hazard Recognition (License: ELA951) Identifying and Minimizing Process Safety Hazards (License: ELA952) An Introduction to Managing Process Safety Hazards (License: ELA953) Inherently Safer Design (License: ELA984)
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Software Experience

CAD (Autodesk Inventor) | \LaTeX (Overleaf) | Linux Command Line + Shell Scripting (Bash) | MATLAB
Microsoft Office | PID Tuning (TaiJi PID) | Process Hazard Analysis (PHASt) | Process Simulation (Aspen Plus)
Python (Jupyter Notebook) | R (RStudio)