

Elizabeth Volpe, EIT, LEED-GA

PhD Candidate, Civil & Coastal Engineering, University of Florida

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Education

Ph.D. Civil Engineering, University of Florida, (May 2024)

Advisor: Denise R. Simmons, Ph.D., PE, PMP

M.S. Civil Engineering, University of Florida, (May 2023)

Engineering Leadership Graduate Certificate (May 2023)

Micro Credential Credit: Introduction to the Ethics of AI (May 2023)

B.S. Civil Engineering, Clemson University (May 2020)

Certifications

Fundamentals of Engineering Exam - Engineer In Training (EIT)

LEED Green Associate (LEED-GA)

Introduction to Generative AI Google Cloud Badge

OSHA 10

Responsible Conduct of Research Certified (University of Florida 2020)

Women Lead Program (University of Florida 2023)

Preparing Future Faculty (University of Florida 2024)

Research Interests

Inclusion, Mentorship, Broadening Participation in Engineering, Civil Engineering, Workforce Development, Workforce Sustainability, Sustainable Engineering, Engineering Education, Inclusive Spaces.

Research Experience

Research Assistant Clemson University January 2020-August 2020

Clemson Engineering & Science Education Department (ESED)- **Dr. Lisa Benson**

- Engineering, Science, and Mathematics Education Research (ESMER) Institute
- Participated in developing an institute for Clemson to train STEM faculty in Discipline Based Education Research (DBER)
- Quantitative and Qualitative thematic analysis on pilot data
- Assisted in proposal writing and reviewing
- Identified additional funding opportunities to broaden opportunities for diverse faculty to conduct STEM Education Research
- Participated in developing a conference to train diverse STEM faculty in STEM Education Research
- Assisted in writing a proposal to the Spencer Foundation

- Disseminated research at IUPUI conference

Research Assistant University of Florida

Simmons Research Lab (SRL) -

August 2020-Present

Advisor: **Dr. Denise R. Simmons**

- **Serve as the current “Professional Development Coordinator”** for SRL - entails overseeing the mentorship and professional development of all graduate and undergraduate students in the lab, leading lab meetings, hosting professional development trainings for the lab, developing plans with students, conducting performance evaluations, overseeing lab billing/purchasing, identifying funding opportunities, and publishing across numerous projects.
- Collected data and published on numerous NSF funded projects: Preparing a 21st century stem workforce: defining & measuring leadership in engineering education, REU project, and Dr. Simmons CAREER award
- Engage in the strategic planning of research activities and development of NSF annual reports
- Manage lab purchasing of research materials and software
- Mentoring graduate (Hwangbo Bae, Edward Obi-Rapu, Mary Nwanua) and undergraduate research assistants (Danielle Weisenfeld, Sara Rojas, and Jackson Carcaba) and REU Students on the qualitative analysis of the data
- Engaged in leadership and mentorship trainings
- Mentored 2 undergraduate REU students Summer 2021
- Weaving findings from the project into the development of a graduate course at the University of Florida
- Scripting and developing lessons, rubrics, assignments and lectures for Dr. Simmons project-based courses
- Training undergraduate graders for project management courses
- Conducting recruitment to the Simmons Research Lab (creating videos, flyers, interest forms and sharing our research through many platforms, conducting interviews, onboarding and mentoring new students)
- Conducting Semi-Structured interviews with construction industry safety professionals
- Conducting and disseminating research on my dissertation topic on early career women in civil engineering
- Aid in the development of NSF proposals, grant writing, NSF annual reports, and securing funding opportunities for our lab

Industry Positions

Sweetwater Energy

April 2016-June 2016

Chemical Research and Mechanical Engineering Internship

Assisted in the lab, researching the most efficient materials and processes to create ethanol using only biowaste materials (e.g. mushroom substrate). Gained experience in research, critical thinking, efficiency, organization, problem solving, productivity, and creativity.

Wegmans Construction

May 2018-August 2018

Civil Engineering Co-op

Worked specifically with the cost estimation group. Assisted in the transition from 2D design software (AutoCAD) to 3D design (Revit). Coded their new estimation software (CostX) with

company specific costs and templates for reports. Created user guides and held training sessions for senior employees on how to best implement and use the new estimating software. Gained experience in construction project management, estimating, budgeting, and leadership.

Burns & McDonnell

May 2019-August 2019

Civil Engineering Intern

Worked as a structural engineer for the Transmissions & Distributions group. Ran structural design calculations for substations structures as well as modeled structures in RISA-3D.

Developed an app for maintenance to help manage the vegetation overgrowth along power lines in southern California in order to reduce the risks of wildfires. Gained experience in structural engineering, communication, sustainability, consulting and telecommunications.

Publications

Polmear, M., Volpe, E., Simmons, D. R., Clegorne, N., Weisenfeld, D.(2021). Leveraging Engineering Faculty Knowledge, Experience, and Training for Leadership Education in Undergraduate Curricula. *European Journal of Engineering Education*.

Polmear, M., Simmons, D. R., Volpe, E. Weisenfeld, D. (2021). Students that stand out: faculty perspectives on the competencies that define outstanding engineering students entering the workforce [Paper] *Applied Human Factors and Ergonomics (AHFE) International Conference*.

Volpe, E., Polmear, M., Simmons, D. R., Weisenfeld, D., Carcaba J. (2022). The Role of Out-of-class Activities in Civil Engineering Students' Career Preparation and Leadership Development. [Paper] *American Society of Engineering Education (ASEE) 2022 Conference - Engineering Leadership Development Division*.

Volpe, E., Polmear, M., Simmons, D. R., Weisenfeld, D., (2023). The Role of Social Capital in Civil/Construction Engineering Students Leadership Development and Workforce Preparation. *ASCE Journal of Civil Engineering Education*. **Editor's Choice**.

Volpe, E., Simmons, D. R., Rojas, S. (2023). Building A Leadership Toolkit: The Development of Essential Leadership Enabling Competencies for Undergraduates Through an REU Summer Research Experience [Paper] *American Society of Engineering Education (ASEE) 2023 Conference - Engineering Leadership Development Division*.

Volpe, E., Simmons, D. R., Rojas, S., Mondisa, J. L., (2023). Impactful Mentorship: Examining the Impactful Mentorship Strategies and Outcomes over a Summer REU. [Paper] *International Journal of Mentoring and Coaching in Education*. *Under Review*.

Volpe, E, Simmons, D. R. (2024). AI's Visual Representation Gap: Redefining Engineering Workspaces for Women [*Paper*] *American Society of Engineering Education (ASEE) 2024 Conference - Engineering Leadership Development Division*. *Under Review*.

Volpe, E., Simmons, D. R., Polmear, M. (2023). Proving Yourself and Fighting for Your Worth: Unveiling the Journeys of Early-Career Women in STEM and Proposing Strategies for Support, Retention, and Inclusion. *Journal of Women and Minorities in Science and Engineering*.
Under Review.

Polmear, M., Volpe, E, Simmons, D. R. (2023). Broadening Participation: Exploring the Narratives of Hispanic Women in Engineering and their Engagement in Out-of-Class Activities. *Journal of Engineering Education*.
Under Review.

Current Manuscripts under development

Volpe, E, Simmons, D. R. (to be submitted early 2024). Balancing the Beams: Assessing the Long-Term Viability of a Construction Career through the Narratives of Early-Women in the Field. *American Society of Civil Engineering (ASCE) Journal of Construction Engineering and Management*.

Achievements and Awards

Academic Scholarship to The Harley School, Rochester, NY (HS).
Kenneth O Hobbs Endowed Scholarship Clemson University (BS).
R F Poole Scholarship Clemson University (BS).
Academic Tuition Scholarship Clemson University (BS).
Clemson University President's list (2018 & 2019) and Dean's list (2016-2020).
Bushnell Graduate Fellowship Award University of Florida (MS) (PhD).
Graduate School Fellowship Award University of Florida (MS) (PhD).
Mentoring and Professional Development Program (University of Michigan, 2022).
UF Engineering Leadership Program Award to attend the Simmons Women's Leadership Conference 2023.
Attributes of a Gator Engineer Award for Diversity, Equity, and Inclusion in the Herbert Wertheim College of Engineering at the University of Florida, 2023.
ASCE Journal of Civil Engineering Education Editor's Choice, 2023.
University of Florida Three-Minute Thesis Finalist Fall 2023.
Association for Academic Women's (AAW) Emerging Scholar Awardee.

Presentations

- "Professional Development Workshop on Conducting and Publishing Discipline-Based Education Research (DBER)", presented virtually via Zoom. Publication of Research with Clemson University at the IUPUI Assessment Institute, October 26, 2020.
- "Integrating Revit and CostX estimating software presentation and training" - Wegmans Construction (held towards the end of my internship to train the team on how to best use our new 3D design and estimation software)
- "Final Presentation" - Wegmans Construction (100+ attendees, summarized my work and what I learned in this position)
- "Engineering Intern Presentation" - Burns & McDonnell (a summary of the work I did on the App for vegetation management around power lines - recorded and broadcast to entire national company)
- Limon, A.H.*, Volpe, E., Polmear, M., & Simmons, D. R. (2021) *Modern View on Why She Leaves, Why She Stays*. ENGagED NSF REU Summer 2021 Virtual Research Symposium.
- Felix, A.*, Volpe, E., Polmear, M., & Simmons, D. R. (2021) *Experiences of Women in Structural Design Industry*. ENGagED NSF REU Summer 2021 Virtual Research Symposium.
- Volpe, E., Polmear, M., Simmons, D. R., & Weisenfeld, D. [conference session] (2021) *Students Who Stand Out: Faculty Perspectives On The Competencies That Define Outstanding Engineering Students Entering The Workforce*. Applied Human Factors and Ergonomics conference 202.1
- Volpe, E., Polmear, M., Simmons, D. R., Weisenfeld, D., & Carcaba, J. [conference session] (2022) *How Undergraduate Students Prepare to Become Engineers: The Role of Out-of-Class Activities in Civil Engineering Students' Career Preparation and Leadership Development*. American Society of Engineering Education Conference 2022.
- Inclusive Leadership Panel Member American Society of Engineering Education Conference 2023.
- 'How can AI-generated workplace imagery inform the design of more inclusive engineering spaces?' Three-Minute Thesis finalist presentation to the University of Florida. November 1, 2023.
- Invited Lecture at the University of Michigan: CEE Early Career Researcher Seminar Series, "Connections Between Construction / Civil Engineering and Diversity Equity and Inclusion - Facilitating Inclusive Leadership, Mentorship, and Engineering Spaces" November 29, 2023.

*Mentored Undergraduate Researchers (REU Students)

Course Development, Teaching, and Mentoring Experience

Civil Engineering Operations I - Grader and Guest Lecturer

Guest Lectured 9 weeks for this hybrid graduate and undergraduate course. Served as a grader and held office hours to support students throughout the course. Conducted a course evaluation for my performance to improve my teaching and educating skills in this area.

Civil Engineering Operations I – Graduate Course Development

Integrated research findings into the material of this University of Florida graduate Civil Engineering / Construction Management course.

Developed and reviewed Lectures, Assignments, and Class Activities.

Lead the development of the Course Project - A team based semester long project worth 55% of students grades and developed to address all of the course objectives and partnered with industry leaders and nonprofits to facilitate a meaningful and impactful course project.

Clemson LIFE - Math Teaching Assistant

The Clemson LIFE program is the college for students with intellectual disabilities at Clemson University. I worked with this program for 4 years. I mentored students with autism and down syndrome in physical activity classes, dinners, and helped to organize their fall formal dance. My senior year, I had the opportunity to be a teaching assistant for the Sophomore Math class for the Clemson LIFE class.

CEMent Mentor

Appointed as a mentor in the Civil Engineering program to incoming engineering students.

Attended additional leadership and diversity courses and helped organize events such as the new student orientation for Civil Engineers and the Hard Hat Ceremony. The goals of this mentorship program are to help ease the transition into such a challenging major and provide resources for new students. As well as make sure our civil engineering program is as inclusive as possible.

Served as a direct mentor to 5 incoming sophomores to the major.

Simmons Research Lab Mentor

Mentor of graduate civil engineering students, Hwangbo Bae, Edward Obi-Rapu, and Mary Nwanua. Provide weekly support and resources for navigating graduate school, lead weekly discussions around literature and research methods, review writing materials, connect them with valuable resources. Mentor of undergraduate civil engineering Students, Danielle Weisenfeld, Sara Rojas, and Jackson Carcaba. Trained them in qualitative research methods, provided reading materials and resources, engaged them in writing and provided weekly feedback, as well as assisting in professional development (i.e., interview prep, CV development, review of writing materials). Supported undergraduate students to receive funding through various scholarships for their own independent research projects. I reflect on my mentorship practices at the end of every semester using reflections from my students and continue to work to improve my inclusive mentorship practices. I have also conducted research on mentorship best-practices for underrepresented students in engineering and for engaging in virtual/remote mentorship.

Attended the Mentoring and Professional Development Program Summer 2022

Attended various virtual workshops throughout the summer related to mentorship and professional development for PhD students led by Dr. Joi-Lynn Mondisa at the University of Michigan.

REU ENGagED Mentor

Attended various workshops and seminars through the REU ENGagED program, including effective mentoring strategies for underrepresented students within engineering. Mentored 2 REU students in the summer 2021: Andrea Hernandez Limon and Atlantida Felix throughout the program.

Society of Women Engineers (SWE) Member

Participate in SWE events, professional development, and serve as a SWE mentor for women in civil engineering programs.

Science and Math Tutor

As demonstrated in my research interests, I have a passion for broadening participation in STEM. At the onset of the COVID-19 pandemic and transition to a virtual classroom, I provided customized one-on-one tutoring sessions, via Zoom, for (K-12) students to provide additional support for Math and science courses. The majority of the students I worked with were girls in 5th - 10th grade and I aimed to not only provide additional learning opportunities for them, but to also increase their enjoyment and confidence in Science and Mathematics.

Certified Yoga Instructor

Completed the yoga teacher training at YogaPod and am certified to teach hot yoga classes. The teaching skills, public speaking, mindfulness and meditation techniques have proved useful in managing and navigating mentoring, teaching and research positions as well. I strive to cultivate a culture of mindfulness and inclusion in all classroom settings.