

Bonnie C. Roberts

Associate Professor of Practice, Department of Mechanical Engineering
Colorado State University

1374 Campus Delivery, Fort Collins, CO 80523

bonnie.roberts@colostate.edu | Office: 970.491.1422

www.engr.colostate.edu/me/faculty/dr-bonnie-roberts/

<https://orcid.org/0000-0001-5734-0418>

EDUCATION

The University of Texas at Austin | Ph.D. in Mechanical Engineering

May 2017 | Cum. GPA: 3.81 / 4.0

Major Field: Thermal / Fluid Systems

Dissertation: Fire Safety in Sustainable Buildings: Status, Options, Alternatives

Advisers: Ofodike Ezekoye & Michael Webber

The University of Texas at Austin | B.S. in Mechanical Engineering | with Honors

May 2005 | Cum. GPA: 3.86 / 4.0 | Major GPA: 3.97 / 4.0

Senior Research Project: The Production of a Synthetic Fuel Oil from Wind or Biomass Energy Sources

EXPERIENCE

Associate Professor of Practice | Colorado State University

August 2023 – Present | Fort Collins, CO

- **MECH 231 ENGINEERING EXPERIMENTATION** Fall 2023 – Present

First time teaching course; created lectures, assessments, & iClicker quizzes for active learning in class.

Gave in-class demonstrations of Stirling Engine, stroboscope, & sling psychrometer.

- **MECH 201 ENGINEERING DESIGN I** Fall 2023 – Present

Assistant Professor of Practice | Colorado State University

August 2018 – August 2023 | Fort Collins, CO

- **MECH 486A&B ENGINEERING DESIGN PRACTICUM I&II** Fall 2018 – Spring 2023

Lead Instructor starting Fall 2021. COORDINATION & MANAGEMENT: · Develop & maintain Canvas course

· Improved communications with & engagement from industry sponsors to ensure timely action &

satisfaction with sponsorship process · Organize & facilitate showcase for proposed projects (including

department labs tour for industry sponsors & happy hour networking event) · Manage expectations of

approx. 150 students & 40 project sponsors to assign students to projects & remove projects without

enough interest · Source & allocate funding for projects · Organize & allocate workspace for projects ·

Provide a workspace resources orientation · Restructured faculty adviser role to require signed

agreement to fulfill specified duties, including advising, reviewing certain documents, grading

presentations & reports, & monitoring team health · Provide a faculty adviser orientation luncheon ·

Collaborate with college on spring showcase for capstone projects (including facilitating a Mechanical

Engineering Advisory Board meeting to review capstone design projects & select winners) · Collaborate

on a spring-start track, offering students more flexibility to achieve their graduation target; CURRICULUM

IMPROVEMENTS: · Team size limited to 6 people to improve supervision · Teams must meet with adviser,

develop team contract, & assign required leadership roles (Project, Scheduling, Financial, & Technical) ·

Teams must meet with sponsor, develop customer requirements, & receive sponsor feedback within the

first week · Increased checkpoints throughout the semester: Required weekly meetings with adviser who

signs meeting minutes; 4x peer evaluations per semester; 4x worklog checks per semester; 3x 45-minute

business-meeting-style presentations per semester · Continuous improvement of course materials (e.g.,

streamlined & enhanced peer evaluation & team formation process, presentation & report requirements) ·

Give lectures, recruit industry & other guest speakers, including Engineering Business Office guest

speaker to educate students on how to successfully navigate the purchase-request process · Offer

extracurricular welding workshop; ASSESSMENT IMPROVEMENTS: · Improved course grading scheme

such that individual students' contributions factor more heavily into their final grade · Simplified course grading scheme to make it easy for advisers to use & students to understand, considering the variation in graders & projects; COVID CONSIDERATIONS: · Used MS TEAMS channel to post recorded lectures for asynchronous learning options & to facilitate teamwork · Organized & facilitated virtual showcase for proposed projects · Collaborated with college on spring virtual showcase for capstone projects (including facilitating a virtual Mechanical Engineering Advisory Board meeting to review capstone design projects & select winners).

- **MECH 201 ENGINEERING DESIGN I** Fall 2018 – Spring 2023

Reorganized & redesigned course to improve & streamline curriculum: adopted SolidProfessor for SolidWorks lab tutorials, increased GD&T coverage, added a design for manufacturing lesson, created a surface-modeling project · Developed, recorded & edited lecture videos & transcripts to offer hybrid course for more flexibility in students' schedules · Streamlined online learning environment through Canvas integration: weekly modules outline homework, practice, discussions etc.; provide assignment rubrics/comments, grades, & solutions through Canvas · Collaborated with SolidWorks vendor to provide students free SolidWorks downloads, MySolidWorks accounts, & SolidWorks certification exams · CSWA exam initially optional resume builder to students, now integrated into course (required as final exam) · Invite & host industry guest speakers (OtterBox employees) to assist students with surface modeling projects.

- **MECH 202 ENGINEERING DESIGN II** Spring 2019 – Spring 2023

Reorganized & redesigned course to improve, streamline, & add lectures: added lessons on design for production, risk & liability, engineering ethics, design for sustainability, presenting work & public speaking · Changed required textbook to align with MECH 486 textbook · Invited & hosted professional guest speakers on public speaking & intellectual property · Added project presentation requirement to facilitate development of communication skills · "Flipped" course such that students do preparatory work before class (reading, watch recorded lecture, take quiz), then attend class for active learning in teams with learning assistants & instructor support · Invited research faculty guest speaker to link course project to real-world applications.

- **MECH 338 THERMAL/FLUID SCIENCES LABORATORY** Spring 2021 – Spring 2022

Developed & maintained Canvas course, integrating class management & assignment grading into accessible environment · Reorganized, streamlined, & combined current experiments such that new experiments & concepts could be integrated into the course for a more well-rounded & exciting TFS, hands-on learning experience.

Instructor | University of South Florida

August 2017 – August 2018 | Tampa, FL

Courses Taught: EML 3035 Programming Concepts; EML 4106C Thermal Systems & Economics; EML 3041 Computational Methods.

Lecturer | The University of Texas at Austin

June 2017 – August 2017 | Austin, TX

Course Taught: ME 130L Experimental Fluid Mechanics.

Graduate Research Assistant | The University of Texas at Austin

June 2013 – May 2017 | Austin, TX

Detailed, qualitative & quantitative analyses regarding the nexus of fire safety & green buildings. Focus on thermal insulation & polymeric materials. Investigated the viability of two emerging nontoxic, environmentally benign flame retardants. Characterized the thermal degradation, thermophysical properties, & combustion properties of flexible polyurethane foam with flame retardant nanocoatings. Developed a multi-objective optimization tool to assess building thermal insulation materials through a number of performance parameters. This tool allows building designers & regulators to easily identify a preferred insulation via these objectives, which include both fire safety & sustainability. Explored the effects of energy efficient/sustainable design on the penetrability of wildfire into wildland urban interface (WUI) homes. Started a study to develop a testing protocol for firebrand penetration into & ignition of unprotected & large quantities of insulation in attic spaces; purpose was to comprehensively understand & quantify key properties of insulation, firebrand transport through attic vents, & ignition behavior of insulation.

Graduate Research Assistant | The University of Texas at Austin

December 2012 – June 2013 | Austin, TX

Experimental research regarding the effects of relative humidity on hygroscopic particles deposited on

HEPA filters.

Teaching Assistant | The University of Texas at Austin

August 2012 – May 2013 | Austin, TX

Thermal-Fluid Systems & Experimental Fluid Mechanics. Prepared & delivered discussion lectures, supervised laboratory experiments, graded reports, homework, & exams.

Engineering Scientist Associate | Applied Research Laboratories

June 2008 – June 2012 | Austin, TX

Employed in the Advanced Technology Laboratory. Conceived, researched, designed, fabricated, & tested High Resolution Sonar Systems. · Designed & analyzed internal framework of deep-sea pressure vessels for sonar electronics, & electronics chassis for rack mounted hardware, including packaging, slides, & z-arms. · Oversaw purchasing of both OEM & custom products. · Hired machinists for parts fabrication using techniques such as CNC, extrusion, water jet, sheet metal bending, SLS, & SLA. · Managed a submarine sonar system project, which included the coordination of design, assembly, & installation of over 100 electronics chassis & cabling within a restrictive framework. · Supervised student employees.

Mechanical Engineer Consultant | GE Energy (Through Adecco Technical)

March 2008 – June 2008 | Houston, TX

Customized redesigns of LM2XXX Series Aeroderivative Gas Turbine Power Generation Systems. Aided in form, fit, & function design/drawing review & correction.

Engineering Scientist Associate | Applied Research Laboratories

May 2005 – June 2007 | Austin, TX

Employed in the Signal & Information Sciences Laboratory. Conceived, researched, designed, fabricated, assembled, & field tested aquatic dynamic & static systems, which host a variety of sensors. · Designed & analyzed sensor housings & suspensions, anchoring systems, winches, gearing, subsea pressure vessels for batteries, electronics, & motors. · Researched & interfaced with various vendors for products, including custom battery pack fabrication, DC motors, underwater cables, syntactic foam, pressure transducers, solar panels, & acoustic releases. · Hired machinists for parts fabrication. · Project manager for Persistent Littoral Undersea Surveillance Network (PLUSNet), which included supervision of schedule & budget. · Lead Designer for Littoral Monitoring Photovoltaic System. · Supervised student employees.

Student Technician | Applied Research Laboratories

May 2004 – May 2005 | Austin, TX

Employed in the Environmental Science Laboratory. Worked in sonar acoustics & digital signal processing. Created GUI's, binary file readers & writers, & other data analysis code.

Undergraduate Research Assistant | The University of Texas at Austin

February 2004 – May 2004 | Austin, TX

Performed experiments & data collection on an acoustics-related research project. Obtained acoustic pressure information & digitally processed the data.

UNDERGRADUATE ADVISING & MENTORING

F 2018 – Present	ADVISER	CSU ASME Student Section
F 2022 – S 2023	ADVISER	2x Undergraduate Honors Theses
F 2022 – S 2023	MEMBER	4x Undergraduate Honors Thesis Committees
F 2022 – S 2023	ADVISER	USDA Helicopter Baiting Device Capstone Project
F 2022 – S 2023	ADVISER	Telescope Balancing System Capstone Project
F 2022 – S 2023	ADVISER	CourseRover Entrepreneurial Capstone Project
F 2022 – S 2023	MEMBER	MECH 498 Examination Committee
F 2021 – S 2022	ADVISER	Brewery Cogeneration Integration Capstone Project
F 2021 – S 2022	ADVISER	Brewery CO2 Capture & Reuse Capstone Project
F 2021 – S 2022	ADVISER	Bulk Wine Shipping Capstone Project
F 2021 – S 2022	ADVISER	Handheld Device Thermal Management Capstone Project
F 2021 – S 2022	MEMBER	5x Undergraduate Honors Thesis Committees
F 2020 – S 2021	ADVISER	Diseased Animal Monitor Capstone Project
F 2020 – S 2021	ADVISER	Media Cart Capstone Project
F 2020 – S 2021	ADVISER	Special Needs Playground Capstone Project
F 2019 – S 2021	ADVISER	Solar Hydronic Heating Capstone Projects
F 2020 – S 2021	ADVISER	4x Undergraduate Honors Theses
F 2020 – S 2021	MEMBER	2x Undergraduate Honors Thesis Committees
F 2019 – S 2020	ADVISER	Undergraduate Honors Thesis
F 2019 – S 2020	MEMBER	2x Undergraduate Honors Thesis Committees
F 2019 – S 2020	ADVISER	Fluid Power Club Student Organization
F 2019	ADVISER	Independent Study: Pressure Vessel Stress/Strain Analysis for Materials Lab
F 2018 – S 2020	ADVISER	NFPA Fluid Powered Vehicle Challenge
F 2018 – S 2020	ADVISER	ASME Human Powered Vehicle Challenge
Oct. 25, 2018	MENTOR	Student Professional Mentoring Open Office Hours
S – Su 2018	ADVISER	USF ASME Student Section
S 2016	MENTOR	Graduates Linked with Undergraduates in Engineering (GLUE)
S 2015	SPONSOR	Test Apparatus for Attic Insulation Ember Ignition Capstone Project

OUTREACH & ENGAGEMENT

Faculty-in-Residence August 2019 – August 2023

Colorado State University, Engineering Residential Learning Community (ERLC)

- Aug. 2020 – May 2023 **ERLC CANVAS CREATION & MAINTENANCE** Helped create, organize, & manage a Canvas shell for ERLC, including creating a "Fall Start Survey" to understand student interest in various programming.
- Apr. 16, 2023 **ERLC SPRING CREEK TRAIL HIKE** Facilitated weekend hike for students.
- Sept. 28, 2022 **ERLC IDEA2PRODUCT LAB TOUR** Organized & facilitated 3D printing lab tour & training for incoming students.
- Sept. 2021 – Mar. 2022 **ERLC WOMEN IN ENGINEERING DINNERS** Organize & host monthly student dinners with female guest speakers from industry.
- Oct. 6, 2021 **ENGINEERING EXPLORING MAJORS FAIR** Represented Mechanical Engineering, provided degree/career information to students.
- Oct. 3, 2021 **ERLC RESERVOIR RIDGE HIKE** Facilitated weekend hike for students.
- Aug. 19, 2021 **ERLC FACULTY/STUDENT BIKE RIDE** Organized & led incoming students on bike ride around town.
- Aug. 18, 2021 **ERLC IDEA2PRODUCT LAB TOUR** Organized & facilitated tour of 3D printing lab space for incoming students.
- Apr. 6, 2021 **ERLC SENIOR ADVICE PANEL** Organized & facilitated senior students advice panel for first-year students.
- Feb. 9, 2021 **ERLC SUCCULENTS PAINTING VIRTUAL PARTY** Organized & hosted social activity.
- Nov. 18, 2020 **ERLC CAREER ADVICE PANEL** Organized & facilitated career advice panel with industry panelists from different engineering disciplines.
- Aug. 26, 2020 **ERLC VIRTUAL WELCOME EVENT** Helped facilitate event for incoming students.

- Jan. 2020 – Mar. 2020 **ERLC WOMEN IN ENGINEERING DINNERS** Organized & hosted monthly student dinners with female guest speakers from industry.
- Dec. 14, 2019 **ERLC GINGERBREAD HOUSE COMPETITION** Organized & hosted a social, friendly gingerbread house-building competition for students.
- Aug. 22, 2019 **ERLC FACULTY/STUDENT BIKE RIDE** Organized & led incoming students on bike ride around town.
- Aug. 21, 2019 **ERLC HOUSEWARMING PARTY** Organized & hosted a social for incoming students.

Summer Camp Development November 2019 – November 2021

Colorado State University, Department of Mechanical Engineering

Organized & developed an ambitious project to relaunch defunct middle & high school engineering summer camps to encourage & recruit more women & underrepresented groups into engineering. The pandemic delayed these efforts (canceled camps in 2020 & 2021), but several community relationships were established in the interim (e.g., The Quarter Project to recruit more girls & partnering with industry to give real-world experiences & perspectives to campers). Main contributions as project manager:

- Provided focused, consistent, & responsive project management
- Attended multiple summer camp informationals to better understand the task at hand
- Refocused summer camp strategy by determining the mission, vision, & outcomes
- Structured camp itineraries & developed camp content/activities
- Created more precise accounting of camp content & costs
- Reduced camp costs through better planning & choosing free hosting facilities
- Worked with Richardson Design Center to secure proper venue for camps
- Developed advertising materials & set up timely registration
- Advertised to after school programs, regional schools, social media, & CSU network
- Continuously pushed to improve funding streams to provide scholarships for underprivileged students. Created donation portal on CSU college & ME websites
- Attended community events to recruit campers

Other Outreach & Engagement

- Mar. 22, 2023 **ADVANCED ENERGY TOUR** Organized & facilitated an industry facilities tour for engineering students (collaboration with ASME).
- Nov. 30, 2022 **LINCOLN ELECTRIC AUTOMATION TOUR** Organized & facilitated an industry facilities tour for engineering students.
- May 4, 2022 **SOLIDWORKS & INDUSTRY NETWORKING EVENT** Collaboration with regional industry partners to provide an opportunity for networking.
- Apr. 9, 2022 **INTRODUCE A GIRL TO ENGINEERING** Panelist on the Parent Educator Panel.
- Mar. 1 - 5, 2022 **ADAMS STATE UNIVERSITY MECHANICAL ENGINEERING PROGRAM RECRUITMENT** Recruitment of the inaugural class of students in the ASU/CSU partnership to provide a CSU mechanical engineering degree at the ASU campus. Visited multiple high schools in the San Luis Valley to connect with students about the opportunity; met with community & industry members to develop interest in offering internships & sponsoring senior design projects; gave local radio interviews; participated in ASU Discover Day for potential students.
- Feb. 23, 2022 **WAREHOUSE BUSINESS ACCELERATOR TOUR** Meeting with the Executive Director to discuss potential avenues for partnerships.
- Apr. 26, 2021 **LINCOLN ELECTRIC/WOLF ROBOTICS VIRTUAL TOUR** Organized & facilitated an industry facilities tour for engineering students.
- Apr. 3, 2021 **INTRODUCE A GIRL TO ENGINEERING** Panelist on the Parent Educator Panel.
- Feb. 16, 2021 **ENGINEERING EXPLORATION WEEK** Presented at Mechanical Engineering: My Favorite Lecture Series.
- Oct. 21, 2020 **ENGINEERING EXPLORATION WEEK** Presented at Mechanical Engineering: My Favorite Lecture Series.
- Mar. 6, 2020 **ADVANCED ENERGY TOUR** Organized & facilitated an industry facilities tour for engineering students.
- Feb. 14, 2020 **MULLER TECHNOLOGY TOUR** Organized & facilitated an industry facilities tour for engineering students.
- Oct. 10, 2019 **CSU DRONE CENTER TOUR** Organized & facilitated a facilities tour for engineering students.
- Oct. 2, 2019 **ASME CENTENNIAL CHAPTER MEETING** Facilitated engineering student networking with local professional ASME chapter.
- May 23, 2019 **SOLIDWORKS & INDUSTRY NETWORKING EVENT** Collaboration with regional industry

partners to provide an opportunity for networking.

- Sept. 22 – 23, 2018 **PRETTY BRAINY / MISSION INNOVATION MARATHON** Mentored group of young women (high school & college) during a climate impact innovation marathon. The team I advised won the competition! They had a great idea & I helped them develop the details & evidence needed to make a good pitch to the judging committee.
- 2013 – 2016 **EXPLORE UT** Volunteer for annual community engagement, university-wide open house.
- 2014 **EANES ELEMENTARY ENERGY DAY** Volunteer.
- 2013 **HOUSTON ENERGY DAY** Volunteer at K-12 STEM outreach community event.

COMMITTEES

Aug.	2018 – Present	MEMBER	Computing & Design Working Group
Aug.	2018 – Present	MEMBER	Thermal Science Working Group
Aug.	2023 – Present	MEMBER	CCAF Promotion
Aug.	2023 – Present	MEMBER	Undergraduate Curriculum
Feb.	2023 – Mar. 2023	MEMBER	WSCOE Faculty Awards Selection Committee
Sept.	2022 – Nov. 2022	MEMBER	ASU Undergraduate Teaching Labs Engineer Search
June	2022 – Aug. 2022	MEMBER	Career Line Faculty Design & Advanced Manufacturing Search
May	2022 – June 2022	MEMBER	Career Line Faculty Advanced Manufacturing Search
Oct.	2021 – Dec. 2021	MEMBER	Associate Dean for Academic & Student Affairs Search
May	2021 – Oct. 2021	MEMBER	Career Line Faculty - Engineering Mechanics Search
Mar.	2021	MEMBER	Statistics Curriculum Infusion
Dec.	2020	MEMBER	Diversity, Equity, & Inclusion Curriculum Infusion
Aug.	2019 – May 2020	MEMBER	Career Line Faculty Search
Aug.	2018 – Dec. 2019	MEMBER	Undergraduate Curriculum
Jan.	2019 – Sept. 2019	MEMBER	Career Line Faculty Department Code Development
Oct.	2018 – Nov. 2018	MEMBER	Instructor Search
Jan.	2018 – May 2018	MEMBER	Heat Transfer Qualifying Examinations
Jan.	2018 – May 2018	CHAIR	Thermodynamics Qualifying Examinations

OTHER SERVICE

- May 14, 2023 **REPRESENTATIVE** WSCOE Commencement Ceremony
- May 12, 2023 **PRESENTER** Mechanical Engineering Curriculum Retreat
- Mar. 8, 2023 **PANELIST** Writing Center, STEM Writing Talk
- Sept. 24, 2022 **PRESENTER** Mechanical Engineering Advisory Board Meeting
- May 14, 2022 **MARSHAL** WSCOE Commencement Ceremony
- Apr. 19, 2022 **GUEST SPEAKER** "Geometric Dimensioning & Tolerancing" (MECH 486A, Engineering Design Practicum I, CSU)
- Feb. 15, 2022 **GUEST SPEAKER** "Quality Function Deployment" (MECH 486A, Engineering Design Practicum I, CSU)
- Feb. 4, 2022 **PARTICIPANT** ASME Advisor Focus Group
- Feb. 2022 **REVIEWER** 2022 Capstone Design Conference Paper
- Dec. 16, 2021 **PRESENTER** Order of the Engineer Ceremony, CSU
- June 9, 2021 **PANELIST** "What to Keep from the COVID Experience" (Virtual Capstone Conference)
- Mar. 31, 2021 **GUEST SPEAKER** "How I Obtained a Faculty Position" (MSE 793, Graduate Student Professional Development Seminar Course, CSU)
- Nov. 1, 2019 **FACULTY LIAISON** Mechanical Engineering Advisory Board Meeting
- Apr. 15, 2019 **JUDGE** Celebrate Undergraduate Research & Creativity Showcase
- June 2017 **REVIEWER** Advances in Polymer Technology
- 2013 – 2016 **PARTICIPANT** Mechanical Engineering Graduate Recruiting Weekend Poster Session
- 2015 **CONSULTANT** U.S. Department of Energy Solar Decathlon Fire Suppression/Safety Systems
- Oct. 2014 **GUEST SPEAKER** "Fire Safety in Sustainable Building Design" (Fire Science Course, UT Austin)
- May 19 – 21, 2014 **VOLUNTEER** CleanTech Forum Europe
- June 10 – 11, 2013 **RAPPORTEUR** NSF Energy Water Nexus Workshop

PROFESSIONAL DEVELOPMENT ACTIVITIES & CERTIFICATIONS

- 2019 – Present **MEMBER** American Society for Engineering Education (ASEE)
- 2017 – Present **MEMBER** American Society of Mechanical Engineers (ASME)
- Dec. 4, 2023 **TRAINEE** Uncovering Bias
- Nov. 6, 2023 **TRAINEE** Social Construction of Identity
- Nov. 2, 2023 **TRAINEE** Diversity, Equity and Inclusion Foundations
- Oct. 31, 2023 **TRAINEE** Faculty Search Chair
- Oct. 26, 2023 **ATTENDEE** Symposium for Inclusive Excellence 2023
- Jan. 15, 2023 **TRAINEE** ERLC Spring Retreat
- 2019 – 2022 **MENTEE** Mechanical Engineering Department Faculty Mentoring & Peer Evaluation
- June 6 – 8, 2022 **ATTENDEE** 2022 Capstone Design Conference
- Feb. 15, 2022 **TRAINEE** WSCOE Active Assailant Training
- Feb. 2, 2022 **TRAINEE** 3DExperience Demonstration
- Nov. 17, 2021 **ORGANIZER** SolidWorks Simulation (FEA) Seminar
- Oct. 15, 2021 **TRAINEE** MindView - Engineering Capstone Design Software Webinar
- June 9, 2021 **ATTENDEE** Virtual Capstone Conference 2021, Capstone Design Community
- Apr. 30 – May 1, 2021 **ATTENDEE** ASME Group Leadership Development Conference, Student Section Advisers
- Mar. 31, 2021 **TRAINEE** Salary Negotiation for Women Workshop
- Mar. 24, 2021 **TRAINEE** Campus Security Authority Training
- Mar. 9, 2021 **ATTENDEE** "Picture a Scientist" Screening & Discussion
- Feb. 13, 2021 **ATTENDEE** Teaching Critical Thinking & Information Literacy in Introductory STEM Courses
- Jan. 13, 2021 **TRAINEE** Mechanical Engineering Department Diversity, Equity, & Inclusion Retreat
- Jan. 7, 2021 **TRAINEE** InSpace Demonstration
- Oct. 15, 2020 **TRAINEE** Bias Reporting System Informational
- Sept. 23, 2020 **TRAINEE** CSU Reads: Citizen Facilitator Training
- July 2020 **SELF-STUDY** Online Teaching Through Microsoft Teams
- Feb. 12, 2020 **ATTENDEE** CSU Summer Programs Panel: Lessons Learned
- Feb. 7, 2020 **ORGANIZER** SolidProfessor Lunch & Learn
- Jan. 13 – 15, 2020 **ATTENDEE** TILT Professional Development Institute Conference
- Nov. 8, 2019 **TRAINEE** Title IX Training
- Oct. 9, 2019 **PARTICIPANT** Learning Management System Lunch & Learn
- Sept. 12, 2019 **TRAINEE** Search Committee Member Training
- Aug. 19, 2019 **TRAINEE** Notice & Respond Training
- May 27, 2019 – June 16, 2019 **TRAINEE** TILT Short Course: Best Practices: Engage Students in Your Online Course
- May 28 – 31, 2019 **TRAINEE** Mobile Summer Institute: Integrating Evidence-Based Teaching Strategies
- May 22 – 23, 2019 **ATTENDEE** TILT Summer Conference: Growing Academic Mindset: Cultivating Learning Strategies for All Students
- May 19 – 21, 2019 **ATTENDEE** Rocky Mountain Section ASEE Conference
- May 1, 2019 **ATTENDEE** CSU 1st Destination + Satisfaction Results Presentation
- Feb. 11, 2019 – Mar. 3, 2019 **TRAINEE** TILT Short Course; Best Practices: Design & Develop Your Online Course
- Feb. 28, 2019 – Mar. 2, 2019 **PARTICIPANT** McGraw-Hill Think Like an Engineer: Active Learning in the Engineering Classroom Symposium
- Oct. 25, 2018 **PARTICIPANT** WSCOE MTI Workshop: Crafting a Teaching Persona
- Sept. 27, 2018 **PARTICIPANT** WSCOE MTI Workshop: A Look at Today's CSU Students: Trends & Student Success
- Sept. 28, 2016 **CERTIFIED** Inclusive Classrooms Leadership Certificate Seminar
- Feb. 20, 2016 **TRAINEE** LEED Green Associate Class
- 2014 **CERTIFIED** Women in Engineering Program, K-12 STEM Outreach
- 2014 **TRAINEE** Introduction to Electric Power Short Course
- 2011 **TRAINEE** ASME Y14.5-2009, GD&T Fundamentals Short Course
- 2006 **TRAINEE** COSMOS Short Course
- 2005 **TRAINEE** SolidWorks Fundamentals Short Course
- 2005 **OBTAINED** Security Clearance, Secret Level

- 2005 **PASSED** Fundamentals of Engineering Examination

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

Development of Kinetic Parameters for Polyurethane Thermal Degradation Modeling Featuring a Bioinspired Catecholic Flame Retardant | Combustion and Flame, 2017

DOI: 10.1016/j.combustflame.2016.12.014

Why and How the Sustainable Building Community Should Embrace Fire Safety | Current Sustainable/Renewable Energy Reports, 2016

DOI: 10.1007/s40518-016-0060-2

Development of a Multi-Objective Optimization Tool for Selecting Thermal Insulation Materials in Sustainable Designs | Energy and Buildings, 2015

DOI: 10.1016/j.enbuild.2015.07.063

PEER-REVIEWED CONFERENCE PROCEEDINGS

A Multi-objective Fire Safety and Sustainability Screening Tool for Specifying Insulation Materials | ASME International Mechanical Engineering Congress & Exposition, 2014

DOI: 10.1115/IMECE2014-38593

PRESENTATIONS & POSTERS

CONFERENCE PRESENTATIONS & POSTERS

How to Use Canvas LMS to Streamline Project Assignments and Peer Evaluations | 2022 Capstone Design Conference

Workshop Presentation | June 2022 | Dallas, TX

Fatal Launch: Fireworks Fatality and Determination of Generated Recoil Force | AAFS 69th Annual Scientific Meeting

Presentation | February 2017 | New Orleans, LA

Bioinspired Catecholic Flame Retardant: Investigation of Thermal Degradation with Flexible Polyurethane Foam | ASME International Mechanical Engineering Congress & Exposition

Presentation | November 2016 | Phoenix, AZ

Pyrolysis Model Development to Predict Ignition Behavior of Thermal Insulation Materials | AAAS Meeting

Poster | February 2016 | Washington, DC

Improvements upon a Multi-objective Fire Safety and Sustainability Screening Tool for Specifying Insulation Materials | ASME Power & Energy

Presentation | June 2015 | San Diego, CA

Development of a Multi-Objective Optimization Tool for Selecting Thermal Insulation Materials in Sustainable Designs | UT Energy Week

Poster | February 2015 | Austin, TX

A Multi-objective Fire Safety and Sustainability Screening Tool for Specifying Insulation Materials | ASME International Mechanical Engineering Congress and Exposition

Presentation | November 2014 | Montreal, Canada

INVITED TECHNICAL PRESENTATIONS & POSTERS

Why and How the Sustainable Building Community Should Embrace Fire Safety | Webber Energy Group Research Symposium

Presentation | January 2016 | Austin, TX

The Nexus of Fire Safety and Sustainability in the Built Environment: Thermal Insulation Case Study | Webber Energy Group Research Symposium
Presentation | January 2015 | Austin, TX

A Multi-objective Fire Safety and Sustainability Screening Tool for Specifying Insulation Materials
| SP Technical Research Institute of Sweden
Presentation | May 2014 | Borås, Sweden

Fire Safety in Sustainable Buildings | IGSSE Forum
Poster | June 2014 | Burghausen, Germany

HONORS & AWARDS

2023 Engineering College Council "Golden Screw" Award for Most Challenging Professor
2022 George T. Abell Outstanding Faculty Teaching & Mentoring Award
2016 Professional Development Award
2016 Thrust 2000 Graduate Fellowship in Engineering
2015 1st Place in Energy Efficiency, Environmental & Sustainability, UT Energy Week Research Competition
2013 Integrative Graduate Education & Research Traineeship
2012 Engineering Foundation Endowed Graduate Presidential Scholarship
2004 Leah Moncure Scholarship
2003 Chevron Phillips Chemical Company Scholarship
2003 Amoco UT Alumni Endowed Scholarship in Engineering
2002 Engineering Scholar Award
2001 C.R. Smith Endowed Scholarship
2001 Jesse H. Jones Scholarship