

James A. Righter
jrighter@citadel.edu

EDUCATION

Doctor of Philosophy, Mechanical Engineering, Clemson University, Clemson, SC
“Engineering Design Leadership within Undergraduate Design Teams” (2019)
Advisor: Dr. Joshua Summers

Master of Science degree in Military Studies, Command and Staff College, Marine Corps
University, Quantico, VA (2009)

Bachelor of Science degree in Mechanical Engineering, United States Naval Academy,
Annapolis, MD (1995)

TEACHING EXPERIENCE

2020 – Present Assistant Professor, The Citadel, Charleston SC

- Mechanical Engineering System Design (MECH 360)
- Manufacturing (MECH 340)
- Computer Applications (MECH 225)
- Introduction to Mechanical Engineering (MECH 101)
- Senior Design I (MECH 481)
- Senior Design II (MECH 482)
- Mechatronics (MECH 450)
- Applications of Quality Management (PMGT 652)
- Military Technology in Society (FSEM 101)

2019 – 2020 Instructor, The Citadel, Provide instruction in Mechanical Engineering, Project Management and Freshman Seminar:

- Mechatronics (MECH 450)
- Machine Design (MECH 345)
- Measurements and Instrumentation (MECH 330)
- Applications of Quality Management (PMGT 652)
- Military Technology in Society (FSEM 101)

2018 - 2019 Instructor, Clemson University

- Fundamentals of Machine Design (ME 3060), 250 students
- Mechanical Engineering Laboratory for Juniors, Thermo-Fluids (ME 3330)
 - Course instructor and coordinator, responsible for the mentorship and supervision of eight (8) graduate student teaching assistants and coordinating the instruction of 125 students on data acquisition and thermal fluid systems laboratories.

2015 – 2018 Graduate Teaching Assistant, Clemson University

- Mechanical Engineering Laboratory for Juniors (ME 3330)

- Provided instruction for laboratories on data acquisition, thermal sensors, vibration analysis, heat exchanger, HVAC, wind tunnel, and water tunnel.
- Provided instruction and assessment for 6 sections with approximately 20 students per section.
- Co-developed new module for undergraduate students on data acquisition and signal filters.
- Provided guest instruction to senior design course on teamwork and team building for summer Capstone design course (30 students).

SPONSORED RESEARCH

Renu, R., **Righter, J.**, "Improving Workforce Readiness and Capabilities in South Carolina,"
Sponsored by SCRA. (July 2021 – July 2024)

RESEARCH EXPERIENCE

2015 - 2019 Clemson Engineering and Design Applications Research Laboratory

- Design leadership research (dissertation) including protocol analysis, case studies and interviews to understand leadership emergence and distribution in undergraduate engineering design teams.
- Research group focused on engineering design research, methods, and practice.
- Cognitive load research team, sponsored by BMW, investigating cognitive load during assembly processes. Research uses NASA Task Load Index and explores use of physiological sensors to measure cognitive load while engaged in assembly operations.

ADVISING EXPERIENCE

2018 – 2019 Graduate teaching fellow mentor

- Mentor graduate student as a graduate teaching fellow, preparing her to instruct Fundamentals of Machine Design (2 fellows mentored).
- Supervise and develop two graduate student graders.

2016 – 2018 Graduate Advisor

- Boeing Aerospace Capstone Design course: students develop fixed wing unmanned aerial vehicle (UAV)
- 10 students each academic year, students located at Clemson University, Brigham Young University, and Georgia Technical Institute

2016 (Fall Semester) Graduate Advisor, ME4020 Mechanical Engineering Capstone Design

- BMW sponsored project, 12 students
- Students develop automatic fastener dispenser for production line

PROFESSIONAL EXPERIENCE

United States Marine Corps (representative positions)

- Directed logistics program for organization of more than 50 nationwide learning centers with more than 6,500 full-time employees and an average annual throughput of 14,000 students.
- Executive Assistant, Joint Development, Joint Staff, Suffolk, Virginia
- Led \$2M defense concept development experimentation project investigating concepts related to the logistical support of operations in a geographically dispersed environment.
- Logistics and Distribution Planner
- Executive Officer, Support Battalion, Parris Island, South Carolina

PUBLICATIONS

Peer-Reviewed Journal Papers

Righter J., Elena M., and Summers J. D., 2020, “Establishing Faculty Perceptions of Undergraduate Engineering Design Team Leadership,” *International Journal of Engineering Education*, 36, No. 2, pp. 814–827.

Greenburg, D. **Righter, J.**, and Michalaka, D. (2021), “Introduction to Problem Solving Using a Monte Carlo Spreadsheet Simulation,” *Journal of Strategic Innovation and Sustainability*, 20(9).

Mochida S., **Righter J.**, and Summers J. D., 2017, “A Study of Project Cost Management Based on Requirements Analysis,” *Biomed. Soft Comput. Hum. Sci.*, 21, No. 1(January), pp. 21–27.

Peer-Reviewed Conference Papers

Renu, R., **Righter, J.**, Lytch, J. (2022). “Developing Requirements for a Manufacturing Training Platform: A Three-Pronged Approach,” *Proceedings of the ASME 2022 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, St. Louis, Missouri.

Righter, J., Summers, J. D., 2021, “Leadership and Communication Network Identification with Dependency Structure Matrices in Capstone Student Design,” *Proceedings of American Society for Engineering Education Annual Conference & Exposition*.

Righter, J., Greenburg, D., Rabb, R., Washuta, N., 2021, “Quality Function Deployment in Late Stages of Capstone Design.” *Proceedings of American Society for Engineering Education Annual Conference & Exposition*.

Greenburg, D., Michalaka, D., **Righter, J.**, 2021, “Introduction to Forecasting Using Monte Carlo Spreadsheet Simulation,” *Proceedings of the American Society for Engineering Education Southeast*.

Rabb, R., Righter, J., Washuta, N., Skenes, K., 2021, “Freshman General Education Outcomes that Reinforce ABET Student Outcomes,” *Proceedings of American Society for Engineering Education Annual Conference & Exposition*.

Greenburg D., **Righter J.**, 2020, “Introduction to Forecasting Methods for Engineering Students Using R,” *Proceedings of the American Society for Engineering Education Southeast*, Auburn, AL.

Skenes, K., Rabb, R., Washuta, N., **Righter, J.**, 2020, “Teaching Engineering in the General Education Curriculum,” *Proceedings of American Society for Engineering Education Annual Conference & Exposition*.

Rabb, R. J., **Righter, J. A.**, 2020, “‘Just in Time’ Mechatronics in Senior Design Capstones,” *Proceedings of American Society for Engineering Education Annual Conference & Exposition*.

Washuta, N., Rabb, R., Bierman, E., Bass, P., Howison, J., **Righter, J.** (2020). Using Course Workbooks as a Classroom Supplement. *2020 ASEE Virtual Annual Conference and Exposition*.

Righter J., Wentzky C., Summers J. D., 2019, “Application of a Protocol to Observe Leadership Behaviors in Engineering Design Teams,” *Proceedings of the ASME 2019 International Design Engineering Technical Conference and Computers and Information in Engineering Design*, Anaheim, California, DETC 2019-97632.

Chickarello D., **Righter J.**, Patel A., and Summers J. D., 2018, “Establishing a Protocol to Observe Leadership Behaviors within Engineering Design Teams,” *Proceedings of the ASME 2018 International Design Engineering Technical Conference and Computers and Information in Engineering Design*, Quebec City, Quebec, Canada, DETC 2018-85869.

Righter J., Chickarello D., Stidham H., Patel A., O’Shields S., and Summers J., 2017, “Literature Based Review of a Collaborative Design Taxonomy,” *21st International Conference on Engineering Design, Vol. 8, Human Behavior in Design, Vancouver, Canada*.

Righter J., Blanton A., Stidham H., Chickarello D., and Summers J., 2017, “A Case Study of the Effect of Design Project Length on Team Collaboration in Senior Mechanical Engineering Projects,” *IDETC 2017, ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Cleveland, OH, DETC2017-68197*.

Peer-Reviewed Presentations and Abstracts

Righter J., Summers J., 2019, “Establishing Faculty Perceptions of Undergraduate Engineering Design Team Leadership,” *Clive Dym Mudd Design Workshop XI*, Harvey Mudd College.

Righter J., Chickarello D., Kramer W., Summers J., Shuffler M., 2017, “The Classification and conduct of engineering team design review meetings: an organizing taxonomy of influencing factors,” *Interdisciplinary Network for Group Research Conference, St. Louis, MO*.

Patel, A., Knackstedt, S., O’Shields, S., Blanton, A., **Righter, J.**, DelSpina, B., Gilliam, S., Lee, B., Summers, J., (2016), “A User Study of Design Requirement Fixation in Senior Mechanical Engineering Students”, *Creativity Workshop at Design Cognition and Computing (DCC16)*, Evanston, IL.

MEMBERSHIPS

American Society of Mechanical Engineers
American Society for Engineering Education
Society of American Military Engineers

LANGUAGES

French: Intermediate proficiency reading and listening, Defense Language Proficiency Test (2015)

COMPUTERS

LabVIEW
MATLAB/SIMULINK
SolidWorks
Microsoft Excel
C++, Arduino

AWARDS AND ADDITIONAL TRAINING AND EDUCATION

ASEE, Southeast Region Outstanding New Faculty Research Award, 2nd Place, 2022
Essay Award - National Science Foundation (graduate student), 2016
Joint Professional Military Education (JPME) II, Joint Forces Staff College
Joint Qualified Officer Designation