Kevin L. Skenes

The Citadel, School of Engineering, 3 Jenkins Avenue, Charleston, SC 29409

kskenes@citadel.edu (843) 953 0535

EDUCATION

- Ph.D. Mechanical Engineering, Georgia Institute of Technology 2014
- M.S. Mechanical Engineering, Georgia Institute of Technology 2011
- B.S. Mechanical Engineering, Georgia Institute of Technology 2009

CERTIFICATION

- Professional Engineer, South Carolina (License No. 33970) 2016

RESEARCH INTERESTS

- Manufacturing processes, mechanics of materials, residual stress creation and interaction, crack propagation, non-destructive evaluation, photoelasticity, photovoltaic silicon, matrix-fiber interaction in composites, polymers, engineering education

EXPERIENCE

- **Department Chair, The Citadel School of Engineering** 2023-Present
  - Responsible for Mechanical Engineering department curriculum, assessment, facilities, personnel, scheduling, faculty development, and student academic advising
- **Associate Professor, The Citadel School of Engineering** 2020-Present
  - Courses designed:
    - ELES 301 Strand Elective – CAD for 3D printing
    - ENGR 101 – Introduction to Engineering
  - Courses taught:
    - FSEM 101 Freshman Seminar – Video Game Culture
    - ELES 301 CAD for 3D printing
    - MECH 340 Manufacturing Processes
    - MECH 345 Machine Design
    - MECH 350 Modeling and Analysis
    - MECH 440 Advanced Manufacturing Processes
    - MECH 445 Advanced Manufacturing Design
    - MECH 481 Senior Design I
    - MECH 482 Senior Design II
    - MECH 640 Manufacturing Processes and Design
    - MECH 645 Machine Design
  - Area of Specialization: Manufacturing
  - Instruct, mentor, and advise undergraduate engineering students
  - Develop curricula for undergraduate and graduate mechanical engineering courses
  - Assist with accreditation documentation and assessment
  - Assist in planning of local outreach events

- Faculty advisor, Baja SAE team
- Faculty Senate representative (2020-present)
- Faculty Tenure and Promotion Committee Chair (2021-2022)
- Faculty Tenure and Promotion Committee Vice Chair (2020-2021)
- Faculty Athletic Advisory Committee Chair (2020-2021)
- Phi Kappa Phi Secretary (2020-present)
- Academic advisor, ~30 students/year

- **Assistant Professor, The Citadel School of Engineering** 2014-2020
  - Courses designed:
    - FSEM 101 Freshman Seminar – Video Game Culture
    - ELES 301 Strand Elective – Challenges of the 21st Century
    - MECH 325 Computer Applications
    - MECH 340 Manufacturing Processes
    - MECH 345 Machine Design
    - MECH 440 Advanced Manufacturing Processes
    - MECH 445 Manufacturing Design
    - MECH 460 Mechanical Engineering System Design
    - MECH 640 Manufacturing Processes and Design
    - MECH 645 Advanced Machine Design
    - MECH 660 Advanced Design
  - Courses taught:
    - FSEM 101 Freshman Seminar – Video Game Culture
    - ELES 301 Strand Elective – Challenges of the 21st Century
    - MECH 101 Introduction to Mechanical Engineering
    - MECH 102 Engineering Computer Applications
    - MECH 325 Computer Applications
    - MECH 330 Measurements and Instrumentation
    - MECH 340 Manufacturing Processes
    - MECH 345 Machine Design
    - MECH 365 Engineering Computational Methods
    - MECH 440 Advanced Manufacturing Processes
    - MECH 445 Manufacturing Design
    - MECH 460 Mechanical Engineering System Design
    - MECH 640 Manufacturing Processes and Design
    - MECH 645 Advanced Machine Design
    - MECH 660 Advanced Design
    - CIVL 203 Dynamics
    - CIVL 304 Mechanics of Materials
    - CIVL 307 Mechanics of Materials Lab
    - CIVL 314 Engineering Economy
  - Faculty Advisor, Baja SAE team
  - Faculty Athletic Advisory Committee chair, 2017-2020
  - Academic advisor, ~50 students/year

- **Graduate Research Assistant, Georgia Tech Manufacturing Research Center** 2010-2014
  - Used near-infrared polariscopy to investigate stresses in photovoltaic silicon wafers
  - Characterized residual stresses in PV Si wafers as a result of varying process techniques
  - Examined high-stress regions at grain boundaries, defects, and inclusions
  - Used photoelasticity to investigate stresses in polymers and composites
  - Created program to analyze and process images and data
  - Optimized algorithms for data acquisition, processing, and smoothing
  - Improved consistency and resolution of experimental apparatus

- **Graduate Teaching Assistant, Georgia Tech ME 3057 Experimental Methods** 2009, 2013
  - Managed, taught, and troubleshot lab equipment for students
  - Graded lab reports and monitored online student forums for support

- **Test Engineer Intern, E-Z-GO Textron. Augusta, Georgia** 2009
  - Developed and wrote test plans for vehicle and component validation
  - Acquired and tracked vehicle parts
  - Managed and participated in four-vehicle prototype build
  - Set up instrumentation on vehicles for testing
  - Performed vehicle-level testing in the lab, on the track, and in the field

- **Product Engineer Intern, E-Z-GO Textron. Augusta, Georgia** 2008
  - Facilitated communication between engineering department and suppliers
  - Assisted in building, modifying, and rebuilding prototype vehicles
  - Researched, developed, and wrote test plans for component validation
  - Wrote DFMEAs and functional specification sheets for vehicle components
  - Put together bills of material and created part drawings

MEMBERSHIPS

- Society of Automotive Engineers
- American Society of Engineering Education
- Order of the Engineer
- Phi Kappa Phi

AWARDS

- 2023 The Citadel James A. Grimsley Jr. Award for Excellence in Undergraduate Teaching
- 2021-2022 Southern Conference All-Conference Faculty
- 2021 The Citadel Faculty Award for Outstanding Contribution to the Graduate College
- 2021 The Citadel Faculty Excellence in Teaching Award
- 2017 ASEE Southeastern Section Outstanding New Teacher Award

GRANTS AWARDED

- 2020: National Science Foundation Rapid Response Research – Impacts of Unprecedented Shift to Online Learning on Students' Cognitive Load and Readiness for Self-Directed Learning ($110,000)
    - Co-Principle Investigators: Dr. Mary Katherine Watson and Dr. Kevin Skenes

REFEREED PUBLICATIONS

- J. Sanders et al, "A canonical Hamiltonian formulation of the Navier-Stokes problem," *Journal of Fluid Mechanics*, Vol. 984, p. A27, 2024.
- M.K. Watson, E. Barrella, K. Skenes, "Development of Self-Directed Learning Readiness among Undergraduate Engineering Students during the COVID-19 Pandemic," *Journal of Civil Engineering Education,* Vol. 150, issue 2, 2023
- M.K. Watson, E. Barrella, K. Skenes, "Impact of Modality on Workload Among Engineering Undergraduates during the COVID-19 Pandemic," *Journal of Civil Engineering Education,* Vol. 149, issue 4, 2023.
- K. Skenes, A. Kumar, R.G.R. Prasath, S. Danyluk, "Crystallographic Orientation Identification in Multicrystalline Silicon Wafers using NIR Transmission Intensity," *Journal of Electronic Materials*, Vol. 47, no. 2, pp. 1030-1037, 2018.
- A. Kumar et al., "Effect of Growth Rate and Wafering on Residual Stress of Diamond Wire Sawn Silicon Wafers," *Procedia Manufacturing*, Vol. 5, pp. 1382-1393, 2016.
- R.G.R. Prasath, K. Skenes, S. Danyluk, "Comparison of Phase Shifting Techniques for Measuring In-Plane Residual Stress in Thin, Flat Silicon Wafers," *Journal of Electronic Materials*, Vol. 42, no. 8, pp. 2478-2485, 2013.
- K. Skenes, R.G.R. Prasath, S. Danyluk, "Polariscopy Measurement of Residual Stress in Thin Silicon Wafers," *Residual Stress, Thermomechanics & Infrared Imaging, Hybrid Techniques, and Inverse Problems, Volume 8: Proceedings of the 2013 Annual Conference on Experimental and Applied Mechanics*, pp. 79-85, 2013.
- C. Yang, F. Mess, K. Skenes, S. Melkote, S. Danyluk. "On the residual stress and fracture strength of crystalline silicon wafers." *Applied Physics Letters*, Vol. 102, 021909, 2013.

REFEREED CONFERENCE PROCEEDINGS

- G. Mazzaro, T. Wood, K. Skenes, "Growth of Student Awareness within a Discipline-Agnostic Introduction-to-Engineering Course," *2024 ASEE Annual Conference and Exposition*, Portland, OR, 2024.
- T. Wood, G. Mazzaro, K. Skenes, "The Eclectic Reader for Introduction to Engineering," *2024 ASEE Southeast Section Conference*, Marietta, GA, 2024.
- G. Mazzaro, K. Skenes, T. Wood, "A Review of Multi-Disciplinary Introduction-to-Engineering Courses and Unified First-Year Engineering Programs," *2024 ASEE Southeast Section Conference*, Marietta, GA, 2024.
- G. Elamin, N. Washuta, J. Righter, K. Skenes, "Assigning Individualized Grades on a Team Capstone Project," *2024 ASEE Southeast Section Conference*, Marietta, GA, 2024.
- M.K. Watson et al, "Impacts of Emergency Online Instruction on Engineering Students' Perceived Cognitive Load during Learning Assessments," *Research in Engineering Education*

Symposium & Australasian Association for Engineering Education Conference," Perth, Western Australia, 2021.

- M.K. Watson, E. Barrella, K. Skenes, "Self-Directed Learning Readiness among Engineering Students during Emergency Online Instruction," *Frontiers in Education Conference 2021*, Lincoln, NE, 2021.
- R. Rabb, J. Righter, N. Washuta, K. Skenes, "Freshman General Education Outcomes that Reinforce ABET Student Outcomes," *2021 ASEE Conference and Exposition*, ASEE Virtual Conference, 2021.
- M.K. Watson et al, "Continuity of Instruction, Cognitive Load, and the Middle Years Slump," *2021 ASEE Conference and Exposition*, ASEE Virtual Conference, 2021.
- K. Skenes, J. Howison, E. Bierman, "Effects of Out-Of-Class Assignment Frequency on Course Performance in Mechanical Engineering Undergradauates," *2020 ASEE Conference and Exposition*, ASEE Virtual Conference, 2020.
- R. Rabb, K. Skenes, N. Washuta, J. Righter, "Teaching Engineering in the General Education Curriculum," *2020 First-Year Engineering Experience*, ASEE Virtual Conference, 2020.
- M. Bubacz, D. Ragan, K. Skenes, "Student Perception on Ethics and Intercultural Issues in Introduction to Mechanical Design Course," *2020 ASEE Southeastern Section Annual Conference*, Auburn, AL, 2020.
- M. Bubacz, D. Ragan, N. Washuta, K. Skenes, "Introducing Competition to Improve Design Aptitudes in Introduction to Mechanical Design Course," *2020 ASEE Southeastern Section Annual Conference*, Auburn, AL, 2020.
- S. Ghanat, J. Grayson, M. Bubacz, K. Skenes, "Assessing the Influence of Lecture/Laboratory Instructor Pairings on Student Perception and Learning Outcomes," *125th Annual ASEE Conference and Exposition*, Salt Lake City, UT, 2018.
- R. Rabb et al., "Complete ABET Program Assessment (CAPA) for a New Engineering Program," *2018 ASEE Southeastern Section Annual Conference*, Daytona Beach, FL, 2018.
- R. Rabb, P. Bass, M. Bubacz, K. Skenes, "A CAD Course Revision: Active Learning In and Out of the Classroom," *124th Annual ASEE Conference and Exposition*, Columbus, OH, 2017.
- M. Bubacz et al., "ABET Program Assessment (A.P.A) for a New Engineering Program," *2017 ASEE Zone 2 Conference*, San Juan, Puerto Rico, 2017.
- R. Rabb, M. Bubacz, J. Howison, K. Skenes, "Effects of Readiness Initiatives on Mechanical Engineering Retention and Success," *123rd Annual ASEE Conference and Exposition*, New Orleans, LA, 2016.
- R. Welch et al., "Holistic Mentoring through Sharing an Entire Course Built on the ExCEEd Model," *123rd Annual ASEE Conference and Exposition*, New Orleans, LA, 2016.
- R. Rabb, M. Bubacz, J. Howison, K. Skenes, "Integrating 2+2 Students in a New Mechanical Engineering Program," *2nd Annual Mid Year Engineering Experience*, College Station, TX, 2016.
- M. Bubacz, R. Rabb, J. Howison, K. Skenes, "Introducing a Tool for ABET Course Assessment for a new Engineering Program," *2016 ASEE Zone II Conference*, Tuscaloosa, AL, 2016.
- A. Kumar et al., "Mechanical Properties of Diamond Wire Sawn Photovoltaic Silicon Wafers," *COPEN^{9}-International Conference on Precision, Meso, Micro and Nano Engineering*, Bombay, India, 2015.

- R. Rabb, J. Howison, K. Skenes, "Assessing and Developing a First Year Introduction to Mechanical Engineering Course," *122nd Annual ASEE Conference and Exposition*, Seattle, WA, 2015.
- M. Bubacz, K. Skenes, "Don't Fear the FE Exam, use FEER' – Developing FE Review Sessions for Students in a New Engineering Program," *2015 ASEE Southeastern Section Conference*, Gainesville, FL, 2015.
- K. Skenes, R.G.R. Prasath, S. Danyluk, "Measurement of residual stresses around Vickers indentations on silicon surfaces via NIR polariscope," *28th European Photovoltaic Solar Energy Conference*, Paris, France, 2013.
- A. Kumar et al., "Spatial distribution of full-field residual stress and its correlation with fracture strength of thin silicon wafers," *28th European Photovoltaic Solar Energy Conference*, Paris, France, 2013.
- K. Skenes, R.G.R. Prasath, S. Danyluk, "Silicon Grain Crystallographic Orientation Measurement from NIR Transmission and Reflection," *39th IEEE Photovoltaic Specialists Conference*, Tampa, FL, 2013.
- K. Skenes, G. Prasath, S. Danyluk, "Polariscopy Measurement of Residual Stress in Thin Silicon Wafers," *SEM 2013 Annual Conference & Exposition on Experimental and Applied Mechanics*, Lombard, IL, 2013.
- K. Skenes et al, "Effect of sawing defects on mechanical strength of PV silicon wafers," *22nd NREL Workshop on Crystalline Silicon Solar Cells and Modules*, Vail, CO, 2012.
- K. Skenes, F. Li, S. Danyluk, "Analysis of Residual Stress in Thin Silicon Wafers with an NIR Polariscope," *26th European Photovoltaic Solar Energy Conference*, Hamburg, Germany, 2011.
- H. Wu et al, "Analysis of Slurry and Fixed Abrasive Diamond Wire Sawn Silicon Wafers," *21st NREL Workshop on Crystalline Silicon Solar Cells and Modules*, Breckenridge, CO, 2011.

CONFERENCE PRESENTATIONS

- K. Skenes, J. Howison, E. Bierman, "Effects of Out-Of-Class Assignment Frequency on Course Performance in Mechanical Engineering Undergraduates," *2020 ASEE Conference and Exposition*, ASEE Virtual Conference, 2020.
- M. Bubacz et al., "ABET Program Assessment (A.P.A) for a New Engineering Program," *2017 ASEE Zone 2 Conference*, San Juan, Puerto Rico, 2017.
- R. Rabb, J. Howison, K. Skenes, "Assessing and Developing a First Year Introduction to Mechanical Engineering Course," *122nd Annual ASEE Conference and Exposition*, Seattle, WA, 2015.
- K. Skenes, R.G.R. Prasath, S. Danyluk, "Measurement of residual stresses around Vickers indentations on silicon surfaces via NIR polariscope," *28th European Photovoltaic Solar Energy Conference*, Paris, France, 2013.
- K. Skenes, R.G.R. Prasath, S. Danyluk, "Silicon Grain Crystallographic Orientation Measurement from NIR Transmission and Reflection," *39th IEEE Photovoltaic Specialists Conference*, Tampa, FL, 2013.
- K. Skenes, G. Prasath, S. Danyluk, "Polariscopy Measurement of Residual Stress in Thin Silicon Wafers," *SEM 2013 Annual Conference & Exposition on Experimental and Applied Mechanics*, Lombard, IL, 2013.

- K. Skenes, F. Li, S. Danyluk, “Analysis of Residual Stress in Thin Silicon Wafers with an NIR Polariscope,” *26th European Photovoltaic Solar Energy Conference*, Hamburg, Germany, 2011.

RELEVANT SOFTWARE EXPERIENCE

- Blackboard, Canvas, Microsoft Office, MATLAB, SolidWorks, AutoCad, Solid Edge, NX, Somat TCE Data Acquisition, Somat EASE, XFMEA, various CAM software, various video and sound editing software