

Lisa Clemence Benson

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Education:

Clemson University, Ph.D. in Bioengineering	1997 – 2002
Clemson University, M.S. in Bioengineering, Minor in Electrical Engineering	1985 – 1986
University of Vermont, B.S. in Bioengineering	1978 – 1982

Employment Experience:

Assistant Professor

Clemson University, Clemson, SC
Department of Engineering and Science Education
and Department of Bioengineering October 2006 – present

Adjunct Assistant Professor

Medical University of SC, College of Grad. Studies, Charleston, SC January 2004 – present

Adjunct Assistant Professor

Department of Surgery, Greenville Hospital System, Greenville, SC January 2005 – present

Research Assistant Professor

Clemson University, Department of Bioengineering, Clemson, SC January 2003 – October 2006

Research areas include engineering education and musculoskeletal biomechanics. Education research includes the use of active learning in undergraduate engineering courses, undergraduate research experiences, and service learning in engineering and science education. Biomechanics research includes the development of a novel system of inertial sensors to evaluate kinetics and kinematics of the lower limb, for use in determining physiological loading patterns and biomechanics education. The biomechanical parameters measured with this system can be used for testing orthopaedic implants such as joint replacements and fracture fixation devices, and can also be applied to assess functional outcomes for patients with limb-threatening diseases and disorders.

Education Director, Center for Advanced Engineering Fibers and Films

Clemson University, Clemson, SC August 2005 – October 2006

Teaching/Research Assistant

Clemson University, Department of Bioengineering, Clemson, SC August 1997 – December 2002

Doctoral Research: Development of clinically relevant loading patterns for force-controlled total knee joint simulation. Conducted wear and kinematic testing of knee implants using a force-controlled Instron/Stanmore knee joint simulator. Conducted surface analysis using non-contacting surface profilometry and electron microscopy. Advisor: Dr. Martine LaBerge

Teaching assistant for courses in Bioinstrumentation, Physiology and general bioengineering.

Biomedical Electronics Technician

East Alabama Medical Center, Clinical Engineering Department, Opelika, AL 1990 - 1993

Responsible for the maintenance and repair of patient-related electronic equipment. Areas included Labor and Delivery, Neonatal, Respiratory Therapy, Endoscopy, and Pulmonary Function System. (Part-time)

Bioelectronics Specialist

Greenville Hospital System, Clinical Engineering Department, Greenville, SC 1986 - 1989

Responsible for the maintenance and repair of patient-related electronic equipment. Team leader, Critical Care Areas, 1989. Supervised three technicians and scheduled maintenance. Special training received on Intra-Aortic Balloon Pump, Fetal Monitors, and critical care monitoring systems.

Research Assistant

Clemson University, Department of Bioengineering, Clemson, SC 1985 - 1986

Responsible for departmental computer tasks and research related to bone healing, animal surgery, biomechanical testing and hard tissue processing. Advisor: Dr. Edward O'Brien

Product Development Engineer

Howmedica, Inc., Trauma Product Development, Rutherford, NJ 1982 - 1984

Designed and evaluated fracture fixation devices. Involved in new product development for a system of interlocking titanium plates, screws and rods, as well as product line maintenance for soft tissue staples, intramedullary rods, and external fixation systems. Trained in CAD/CAM design techniques.

Publications:

E. Stephan, B. Sill, W. Park, **L. Benson** and D. Bowman. Thinking like an Engineer: Tools and Techniques, Prentice-Hall Publishing, 2007.

Benson, L.C., S.B. Biggers, W.F. Moss, M.W. Ohland, M.K. Orr, and S.D. Schiff. Adapting and Implementing the SCALE-UP Approach in Statics, Dynamics, and Multivariable Calculus, 2007 ASEE Annual Conference Proceedings

Switzer, D. and **L.C. Benson**. Assessing Impact of Outreach Activity on Motivation of Undergraduate Engineering Students, 2007 ASEE Annual Conference Proceedings

Dombrowski, J.A., A. Koslin, J.B. Catanzarite, **L.C. Benson**, and D. Koon. A mechanical analysis of subtrochanteric femur fracture fixation with retrograde intramedullary nails, Journal of Orthopaedic Trauma, accepted for publication.

Catanzarite, J., R. Alan, R. Baig, P. Forno, **L. Benson**. Biomechanical Testing of Unstable Humeral Shaft Fracture Plating, Injury, in preparation.

L.C Benson. Hooked on Histology: Using Science Education to Recruit Future Scientists, Journal of Histotechnology, 29(3):151-153.

Gustafson, L.M., J.D. DesJardins, **L.C. Benson**, and M. LaBerge, 2006. Quantification of Dynamic Tibiofemoral Contact in a Total Knee Replacement During Simulated Daily Activity, Medical University of South Carolina Orthopaedic Journal, Vol IX:12-19.

Koslin, A., R.B. Davis, **L.C. Benson**. Validation of an Inertial Sensor System for Quantifying Knee Function, Clinical Biomechanics, in preparation.

Benson, L.C., M. Zebuhr, J.S. Broderick, K. Jeray, S.L. Tanner and C.B. Kendall. Biomechanical Testing of Clavicle Fracture Fixation Devices. Journal of Orthopaedic Trauma, in preparation.

Benson, L.C. 2005. Engineers Communicating with the Public: Collateral Benefit of a Pre-College Program in Bioengineering. Proceedings of ASEE Southeastern Section Annual Conference, April 3-5, 2005, Chattanooga, TN.

- Recknor, C., S. Grant, J. Catanzarite, K. Mohr, **L. Benson**, and T. Bateman. Bone Safety Evaluation and Functional Risk for Fracture Index. Proceedings of the Sixth International Symposium on Osteoporosis: Current Status and Future Directions, April 6-10, 2005, Washington, D.C.
- Benson, L.C.** 2005. Accelerometers, in Wiley Encyclopedia of Biomedical Engineering, Metin Akay, editor, John Wiley & Sons.
- Benson, L. C.**, T.B. Pace and M. LaBerge, 2003. Knee joint loading patterns during activities of daily living in TKR patients. Proceedings of IMECE2003, Volume 1, #42955.
- Benson, L.C.**, J.D. DesJardins, M.K. Harman and M. LaBerge, 2002. Effect of stair descent loading on UHMWPE wear in a force-controlled knee simulator. Proceedings of the Institute of Mechanical Engineers (Pt. H, Journal of Engineering in Medicine), 216(6):409-418.
- Benson, L.C.**, J.D. DesJardins and M. LaBerge, 2002. Stair descent loading pattern applied in a force-controlled knee simulator. Trans. of the 28th Annual Meeting of the Society for Biomaterials, Tampa, FL.
- Harman, M.K., **L.C. Benson**, J.D. DesJardins and M. LaBerge, 2002. Kinematics and wear damage during stair descent loading in knee simulation. Transactions of the 28th Annual Meeting of the Society for Biomaterials, Tampa, FL.
- Benson, L. C.**, J.D. DesJardins and M. LaBerge, 2002. Stair descent loading pattern for TKR wear simulation. Transactions of the 48th Annual Meeting of the Orthopaedic Research Society, Dallas, TX.
- Benson, L. C.**, J.D. DesJardins and M. LaBerge, 2001. Effects of *in vitro* wear of machined and molded UHMWPE tibial inserts on TKR kinematics. Journal of Biomedical Materials Research (Applied Biomaterials). Vol. 58(5):496-504.
- Benson, L. C.**, J.D. DesJardins and M. LaBerge, 2000. TKR sliding and rolling displacements: comparison of molded and machined UHMWPE. Transactions of the Sixth World Biomaterials Congress, Kamuela, HI.
- DesJardins, J.D., **L.C. Benson**, and M. LaBerge, 2000. The stability of bovine serum proteins and lipids during prolonged knee joint simulator wear testing. Transactions of the Sixth World Biomaterials Congress, Kamuela, HI.
- Benson, L. C.**, S.M. Lewis, G. Powell and M. LaBerge, 2000. Effect of lubricant biochemical changes on TKR frictional behavior. Transactions of the Sixth World Biomaterials Congress, Kamuela, HI.
- Benson, L. C.**, J.D. DesJardins, D.W. Schroeder and M. LaBerge, 1999. Effect of wear on kinematics of a TKR: a simulator comparison of molded and machined UHMWPE tibial plateaus. ASME BED Advances in Bioengineering, Vol. 43, pp.131-132.
- Benson, L. C.** and M. LaBerge, 1999. Inter-station repeatability of a pneumatically controlled multi-station knee simulator. Transactions of the 25th Annual Meeting of the Society For Biomaterials, vol. XXII, Providence, RI.
- Benson, L. C.** and E. M. O'Brien. 1988. Skin measurements of electrical impedance at osteotomy sites. Proceedings of the Seventh Southern Biomedical Engineering Conference, p. 212.
- Gross, U. M., D. L. Powers and **L. Clemence-Benson**. 1986. Special Aspects of Hard Tissue Processing. Chapter 39 in Handbook of Biomaterials Evaluation, A. F. vonRecum, ed., Macmillan Publishing Co., New York, pp. 439 - 459.

Presentations and Invited Lectures:

- Benson, L.** and K.J.L. Burg, "Curriculum-Based Biomaterials Education for Secondary Students," Annual Meeting of the Society for Biomaterials, Chicago, IL, April 20, 2007.
- Benson, L.** "Science as Art." Summer Program for Research Interns, Clemson University, July 6, 2006.
- Benson, L.** "CSI: Fibers Make the Scene." Old 96 Girl Scout Troop, Camp Wabak, Marietta, SC, July 11, 2006.

- Benson, L.,** D. Switzer, M. Ohland. "Active Participation of Engineering Undergraduates in Pre-college Outreach." American Society of Engineering Education Annual Meeting, Chicago, IL, June 16, 2006.
- Gustafson, L.M., **L.C. Benson,** J.D. DesJardins, and M. LaBerge. "Dynamic Tibiofemoral Contact Mechanics in a Total Knee Replacement." International Mechanical Engineering Congress and Expo, Anaheim, CA, November 19, 2004.
- Benson, L.C.** "Current Research in Orthopaedic Biomechanics at Clemson University." Orthopaedic Grand Rounds, Greenville Hospital System, Greenville, SC, September 1, 2004.
- Benson, L.C.,** T.B. Pace and M. LaBerge. "Knee Joint Loading Patterns During Activities Of Daily Living In TKR Patients." International Mechanical Engineering Congress and Exposition, Nashville, TN, November 17, 2003
- Benson, L.C.** "Development of Spectrum Loading Patterns for a Force-Controlled Knee Simulator." Rush- Presbyterian/St. Luke's Medical Center Department of Orthopaedic Surgery, Chicago, IL, April 29, 2003.
- Benson, L. C.,** J.D. DesJardins and M. LaBerge. "Stair Descent Loading Pattern for TKR wear simulation." The 48th Annual Meeting of the Orthopaedic Research Society, Dallas, TX, February 2002.
- Benson, L.C.** "Overview of Bioengineering." TriCounty Junior Chapter of the National Society of Black Engineers, Clemson University, December 2, 2001.
- Benson, L.C.** "Stair Descent Loading Applied in a Force-Controlled Knee Simulator." CU/MUSC Bioengineering Initiative, Charleston, SC, October 12, 2001.
- Benson, L.C.** "Biomaterials and Their Interactions." BioSystems Engineering, Clemson Univ., April 2001.
- Benson, L. C.,** J.D. DesJardins and M. LaBerge. "TKR Sliding and Rolling Displacements: Comparison of Molded and Machined UHMWPE." The Sixth World Biomaterials Congress, Kamuela, HI, May 2000.
- Benson, L. C.,** S.M. Lewis, G. Powell and M. LaBerge. Effect of Phospholipid Content in Knee Simulator Lubricant on TKR Frictional Behavior. The 19th Southern Biomedical Engineering Conference, Blacksburg, VA, April 15, 2000.
- Benson, L. C.,** J.D. DesJardins, D.W. Schroeder and M. LaBerge. "Effect of Wear on Kinematics of a TKR: A Simulator Comparison of Molded and Machined UHMWPE Tibial Plateaus." ASME Winter Annual Meeting, Nashville, TN, November 19, 1999.
- Benson, L. C.** and M. LaBerge. "Inter-Station Repeatability of a Pneumatically Controlled Multi-Station Knee Simulator." The 25th Annual Meeting of the Society For Biomaterials, Providence, RI, April 1999.
- Benson, L.C.** "Neat Things About Knees." Clemson Track and Trail Club, Clemson, SC, April 29, 1998.

Abstracts:

- Koslin, A., R.B. Davis, **L.C. Benson.** Validation of an Inertial Sensor System for Quantifying Knee Function, South East Biomechanics Conference. Atlanta, GA. April 2006.
- Catanzarite, J.B., J.F. Isbill, J.M. Kapitan, **L.C. Benson.** Biomechanical Testing Of The Arctec[®] Spinal Plating System, South East Biomechanics Conference. Atlanta, GA. April 2006.
- Zebuhr, M., A. Koslin, **L. Benson.** Wireless Human Motion Analysis Using Inertial Sensors, Biomedical Engineering Society Meeting, Baltimore, MD September 2005.
- Catanzarite, J.B., Koslin, A., A. Allen, J. Dombrowski, **L.C. Benson.** Biomechanical Study of Fixation of Subtrochanteric Femur Fractures with Retrograde Intramedullary Nailing. 3rd Annual NIH-NSF BBSI Symposium on Innovative Biomaterials. Clemson, SC. July 2005.
- Kendall, C.B., J.S. Broderick, **L.C. Benson,** K.J. Jeray, S.L. Tanner, M. Zebuhr. Biomechanical Analysis of Seven Techniques for Internal Fixation of Midshaft Clavicular Fractures. South Carolina Orthopaedic Association. Kiawah Island, SC, July 14-16, 2005.

- Recknor, C., S. Grant, J. Catanzarite, K. Mohr, **L. Benson** and T. Bateman. Bone Safety Evaluation and Functional Risk for Fracture Index for Pre-Fracture Osteoporosis Treatment. Sixth Annual National Osteoporosis Foundation ISO Meeting, Washington, DC, April 6-10, 2005.
- Asgill, N. and **L. Benson**. Through-Knee Amputation: Co-morbidities and Functional Outcomes. NSF Research Experience for Undergraduates Innovations in Biomaterials Program, Clemson, SC, August 12, 2004.
- Zebuhr, M. and **L. Benson**. Biomechanical Testing of Clavicle Fracture Fixation Devices. NSF Research Experience for Undergraduates Innovations in Biomaterials Program, Clemson, SC, August 12, 2004.
- Bowers, L.M., M. Zebuhr, **L.C. Benson** and J. S. Broderick. Testing the Stiffness and Yield Strength of Clavicular Fracture Fixation Devices. Third Annual Summer Program for Research Interns, Clemson, SC, July 16, 2004.
- Ellison, J. and **L. Benson**, Stress Distribution in Prosthesis Sockets. Third Annual Summer Program for Research Interns, Clemson, SC, July 16, 2004.
- Birdwell, A. and **L. Benson**. Estimation of Internal Muscle Forces Acting on the Knee by correlations with EMG signals. NSF Research Experience for Undergraduates Innovations in Biomaterials Program, Clemson, SC, August 7, 2003.
- Boessneck, K., **L. Benson**, and J. Wood. Mechanical Testing System for Use with Optical Interferometry Microscope. NSF Research Experience for Undergraduates Innovations in Biomaterials Program, Clemson, SC, August 7, 2003.
- Cartner, J. and **L. Benson**. Biomechanical Analysis of Internal Fixation Devices Clavicular Fractures. NSF Research Experience for Undergraduates Innovations in Biomaterials Program, Clemson, SC, August 7, 2003.

Honors and Awards:

- Sigma Xi Grants-in-Aid of Research Recipient, June 2002, \$1000 award for PhD research
- Student Travel and Professional Development Award (Hon. Mention), Society for Biomaterials, 2002
- National Science Foundation Engineering Education Scholars Workshop, 1999
- Student Travel and Professional Development Award, Society for Biomaterials, 1999
- Alpha Epsilon Lambda, Eta Chapter, Honor Society for Graduate Students, 1998
- Outstanding Student Paper Award, 7th Southern Biomedical Engineering Conference, 1988.
- Outstanding Bioengineering Graduate Student, Clemson, 1986.
- Tau Beta Pi National Engineering Honor Society, elected 1980. Membership Committee Chairperson, Vermont Alpha, 1980-1982.
- Dean's List, University of Vermont, 1978-1981.

External Funding:

- National Science Foundation Research Experience for Teachers (PI), 2007 – 2009, Engineering Fibers and Films Experience (EFF-X), \$400,000
- National Science Foundation Separation and Purification Processes (co-PI; S. Husson, PI), 2007 – 2010, Inverted Colloidal Crystal Membranes, \$428,000 (25% effort)
- Synthes USA (coinvestigator; M. LaBerge, PI), 2007, CU-MUSC Orthopaedic Research and Training Program, \$125,000 (20% effort)
- National Science Foundation Course, Curriculum, and Laboratory Improvement (PI), 2006-2008, Adapting and Implementing the SCALE-UP Approach in Statics, Dynamics, and Multivariate Calculus, \$180,000
- Howard Hughes Medical Institute, (coinvestigator; B. Speziale, PI), 2006 – 2010, Teacher Enhancement in Bioengineering, \$2,000,000 (3% effort)
- Rigorous Research in Engineering Education Mini-grant, 2006, Active Participation of Engineering Undergraduates in Pre-college Outreach, \$4,000
- Clemson University Athletic Department, 2004 – 2006, Graduate Research Assistantship for Studies in Sports Biomechanics, \$15,000

Blue Ridge Orthopaedic Associates (PI), 2005, Wireless Inertial Sensor System for Human Motion Analysis, \$3,000

Altiva Corporation (PI), 2006, Mechanical Testing of an Anterior Spinal Buttress Plating System, \$10,000

Altiva Corporation (PI), 2005, Biomechanical Testing of the ArtTec Spinal Plating System, \$20,000

Palmetto Health/University of South Carolina Medical School (PI), 2005, Biomechanical Testing of Subtrochanteric Fracture Fixation Devices, \$5,000

Palmetto Health/University of South Carolina Medical School (PI), 2005, Biomechanical Testing of Humerus Fracture Fixation Devices, \$5,000

Teaching Experience:

- Instructor, Engineering Fundamentals (ENGR 130), Spring 2006 and 2007
- Instructor, Engineering Discipline and Skills (CES 102), Fall 2006
- Co-Instructor (with Dr. Karen Burg), Communicating Biomedical Technology (BioE 850; for secondary science teachers), Summer 2006
- Co-Instructor (with Dr. Karen Burg), Bioengineering Undergraduate Design (BioE 450), Spring 2005
- Guest Lecturer, Undergraduate Biosystems Engineering courses, Clemson University, 2001 – 2004
- Guest Lecturer, Undergraduate and Graduate Biomechanics courses (BioE 320, 820), Clemson University, 2001 – 2005
- Co-Instructor (with Dr. Larry Dooley), Organs and Their Replacements (BioE 201), Fall 2000
- Co-Instructor (with Dr. Martine LaBerge), Biomedical Basis for Engineered Replacements, Clemson University, Fall 1998

Professional Activities:

- Director, Research Experiences for Undergraduates program, Center for Advanced Engineering Fibers and Films, Summer 2006
- Research Co-Advisor:
 - Michael Zebuhr, Ph.D. candidate, Department of Bioengineering, 2005-2006
 - Joshua Catanzarite, Ph.D. candidate, Department of Bioengineering, 2004-
 - Ryan Posey, M.S. candidate, Department of Bioengineering, 2004-2006
 - Aaron Koslin, M.S. candidate, Department of Bioengineering, 2004-2006
 - William Mostertz, M.S. candidate, Department of Bioengineering, 2006-
 - Kiran Manika, M.S. graduate, Department of Bioengineering, 2003-2004
- Graduate thesis committee member:
 - Jeffrey Willey, Ph.D. candidate, Department of Bioengineering, 2005-
 - Neil Travis, M.S. candidate, Department of Bioengineering, 2005-2007
 - Andrew Clark, Ph.D. candidate, Department of Bioengineering, 2005-2007
 - John D. DesJardins, Ph.D. candidate, Department of Bioengineering, 2004-2006
 - Sarah Hamilton, M.S. candidate, Department of Bioengineering, 2004-2006
 - Wei Du, M.S. candidate, Department of Mechanical Engineering, 2005
 - Hunter Howard, M.S. candidate, Department of Bioengineering, 2004-2005
 - Myles Alexander, M.Arch. candidate, Department of Architecture, 2004-2005
 - Jarred Cammon, M.S. candidate, Department of Bioengineering, 2003-2005
 - Sagar Joshi, M.S. candidate, Department of Bioengineering, 2003-2005
 - Karen Mohr, M.S. candidate, Department of Bioengineering, 2003-2005
 - Andrew Miesse, M.S. candidate, Department of Bioengineering, 2003-2005
 - Lisa Gustafson, M.S., Department of Bioengineering, 2002-2004
- Research Advisorship: Undergraduate Student Interns
 - Howard Crawford, Genetics and Biochemistry Senior Thesis, Spring 2007
 - Barrett Hutto, Bioengineering Independent Study, Spring 2007
 - Sabrina Lau, Bioengineering and Bioinformatics Summer Institute, Summer 2005
 - Michael Zebuhr, Bioengineering and Bioinformatics Summer Inst., Summer 2005

Joanna Isbill, Bioengineering Independent Study, Spring 2005
Sabrina Puckett, Bioengineering Independent Study, Spring 2005
Ryan Spivey, Bioengineering Independent Study, Spring 2005
Daniel Alge, Calhoun Honors College independent study, Fall 2004
Damon Andrews, National Honors Scholar independent study, Fall 2004
Maureen Lynch, Mechanical Engineering Senior Thesis, Fall 2004 – Spring 2005
Lauren Schmelter, Biosystems Engineering Senior Thesis, Fall 2004
Stephanie Hughes, Bioengineering Independent Study, Spring 2004
Nathan Allison Bioengineering Independent Study, Spring 2004
Nicola Asgill NSF Research Experience for Undergraduates, Summer 2004
Michael Zebuhr NSF Research Experience for Undergraduates, Summer 2004
Alex Birdwell, NSF Research Experience for Undergraduates, Summer 2003
Kirsten Boessneck, NSF Research Experience for Undergraduates, Summer 2003 and
Calhoun Honors College independent study, 2003 - 2004
Jacob Cartner, NSF Research Experience for Undergraduates, Summer 2003

- Research Advisor: High School Student Interns
 - Amanda Allen, Summer Program for Research Interns, Summer 2005
 - Lauren Bowers, Summer Program for Research Interns, Summer 2004
 - Joel Ellison, Summer Program for Research Interns, Summer 2004
- Review Panelist, NSF Graduate Research Fellowship, Washington DC, 2003-2007
- External Grant Proposal Reviewer, American Institute of Biological Sciences, 2007
- Coordinator of weeklong camp for high school students, “Engineering Fibers and Films Experience (EFF-X)” through the Clemson University Summer Science, Engineering and Architecture Enrichment Programs, Summer 2006 and 2007
- Co-director (with Bob Lippert) of Paws for Polymers, a polymers exploration outreach program for Hispanic middle school students. Highlighted on the NSF Engineering Research Center Achievement Showcase website: <http://showcase.erc-assoc.org/accomplishments/manufacture/clemson-07-2-newhorizons.htm>
- Co-director (with Serita Acker), Introduce a Girl to Engineering and Science Day, Spring 2006
- Director, “Science as Art,” Clemson University, Spring 2006 and 2007
- Coordinator, CAEFF Industry Day, Clemson University, Spring 2006
- Rigorous Research in Engineering Education attendee (NSF CCLI program), Golden, CO, Summer 2005; invited back as group leader, Summer 2006
- Member of the Human-Machine Interaction Research Group, Department of Architecture, Clemson University, Fall 2004 - present
- Coordinator of weeklong camp for high school students, “Bioengineering: Building a Better You” through the Clemson University Summer Science, Engineering and Architecture Enrichment Programs, Summers 2004-2005
- External Grant Proposal Reviewer, Swiss National Science Foundation, 2004
- External Grant Proposal Reviewer, University of Missouri Research Board, 2003 - 2004
- Advisor to middle school science teacher through NSF Research Experience for Teachers Program, Summer 2003
- Founded the Clemson Orthopaedic Journal Club, a biweekly campus meeting to discuss current topics in orthopaedic research, 2003-2005
- Ad Hoc Grant Proposal Reviewer, Research Into Ageing Programme, April 2003
- NIH Workshop Attendee, Update on Policies, Procedures and Funding Opportunities, University of South Carolina, Columbia, SC, March 28, 2003
- Ad Hoc Reviewer, NSF/NATO Postdoctoral Fellowship Program, February 2003
- Subject Editor, Synergy (online undergraduate research journal), 2002
- Science Fair Judge, Anderson-Oconee-Pickens Regional Science Fair, Clemson, SC, 2000 – present
- Moderator, Total Joint Replacement Podium Session, 27th Annual Meeting of the Society for Biomaterials, St. Paul, MN, April 27, 2001
- Biomaterials Laboratory Demonstrations, Project WISE Outreach program for rising 8th and 9th grade Females, 2001 – 2004

- Biomechanics/Biomaterials Demonstrations, Girl Scouts Engineering Day, 2001
- National Institutes of Health Consensus Forum Attendee, Implant Retrieval and Analysis, Bethesda, MD, January 2000
- NSF Engineering Education Workshop Participant, Carnegie Mellon University, Pittsburgh, PA, July 1999

Professional Memberships:

American Society of Engineering Education
National Society of Professional Engineers
American Society of Mechanical Engineers
Council on Undergraduate Research
Society for Biomaterials; Biomaterials Education Special Interest Group officer
Sigma Xi, The Scientific Research Society; Clemson chapter officer
Orthopaedic Research Society
Tau Beta Pi, Engineering Honor Society