

DAVID EDWARD HALL

James F. Naylor, Jr. Endowed Professor
Associate Professor of Mechanical Engineering
Director of Project-Based Learning
Director of Instrumentation and Control Systems Engineering Technology
Director of Industrial Engineering
P.O. Box 10348
Louisiana Tech University
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EDUCATION

Georgia Institute of Technology, Atlanta, Georgia

Ph.D. in Mechanical Engineering, 9/95, GPA 3.80/4.00

Advisor - Dr. David McDowell (Georgia Tech) and Co-advisor - Dr. Ashok Saxena (University of Arkansas)

Ph.D. thesis: "Analysis of Crack Growth in Creep-Brittle Materials"

Georgia Institute of Technology, Atlanta, Georgia

MS in Mechanical Engineering, 3/90, GPA 3.60/4.00

Advisor - Dr. Holly Rushmeier (Yale University)

MS thesis: "An Analysis and Modification of Shao's Radiosity Method for Computer Graphics Image Synthesis"

Louisiana Tech University, Ruston, Louisiana

BS in Mechanical Engineering, 5/88, GPA 3.79/4.00

HONORS AND AWARDS

Leadership Award, Development of College of Engineering and Science Strategic Education Plan, 2012

Outstanding Faculty Advisor, College of Engineering and Science, 2004, 2009, 2010

College of Engineering and Science Outstanding Teaching Award, Louisiana Tech University, 2009

F. Jay Taylor Undergraduate Teaching Award, Louisiana Tech University, 2006

Louisiana Tech University Engineering and Science Foundation Award for Dedication and Service, 2005

Graduate Student Advising Award, College of Engineering and Science, Louisiana Tech University, 2004

Innovative Product Development Team Award, Louisiana Tech University, 2003

Virgil Orr Undergraduate Junior Faculty Award, Louisiana Tech University, 2001

Sigma Xi Researcher of the Year at Louisiana Tech University, 2000

Teaching, Research and Service Award, Engineering and Science, Louisiana Tech University, 1999

Pipe Mechanics Research Teamwork Award, Engineering and Science, Louisiana Tech University, 1999

The Monie A. Ferst Sigma Xi Research Award - Outstanding Master's Thesis, Georgia Tech, 1990

UNIVERSITY EXPERIENCE

Louisiana Tech University, Ruston, Louisiana

Director of Project Based Learning; Director of Industrial Engineering & Instrumentation and Control Systems Engineering Technology; 7/2017 – present

Provide administrative oversight of all functions of three academic programs, including promoting research, scheduling courses, assisting with accreditation reporting, hiring faculty, improving facilities, and managing spending. Managing the expansion of project-focused learning experiences to upper level engineering courses.

Director of Civil and Mechanical Engineering & Construction Engineering Technology; 7/2015 - 6/2017; Interim Director 7/2013-6/2015

Provide administrative oversight of all functions of three academic programs, including promoting research, scheduling courses, assisting with accreditation reporting, hiring faculty, improving facilities, and managing spending.

Living with the Lab Leader, 1/2012 - Present

Louisiana Tech's first-year engineering experience provides relevant, project-focused education for over 500 students each year. Our six semester-hour, three-course sequence, called "Living with the Lab," boosts experiential learning through student ownership of inexpensive laboratory equipment. I manage the laboratories, supervise student workers, handle curriculum assessment, order supplies, design and implement projects, develop course materials, and maintain the website for the curriculum: www.livingwiththelab.com. Two other universities are implementing their own versions of Living with the Lab, and I interact with those universities.

Program Chair, 9/2006 – 11/2012

Oversaw academic issues for the Mechanical Engineering Program, including student petitions, course scheduling, assessment, and curriculum revisions.

Assistant Professor, 8/95 – 8/01 and Associate Professor 9/01 – Present

Courses Taught:

ENGR 120 - Engineering Problem Solving I	MEEN 215 - Engineering Material Laboratory
ENGR 121 - Engineering Problem Solving II	MEEN 321 - Manufacturing Processes
ENGR 122 - Engineering Problem Solving III	MEEN 350 and 351 - Computer-Aided Modeling
ENGR 220 - Statics and Strength of Materials	MEEN 361 - Advanced Mechanics of Materials
EM 203 - Dynamics	MEEN 371 - Dynamic Systems
EM 311 - Mechanics of Materials	MEEN 382 - Basic Measurements
MEMT 201 - Engineering Materials	MEEN 469 - Prevention of Mechanical Failure
MEMT 508 - Finite Element Analysis	MEEN 486 - Mechanical Engineering Laboratory
MEMT 563 - Theory of Elasticity	MEEN 497 - Finite Element Analysis for Engineers
MEMT 577 - Advanced Strength of Materials	UNIV 100 - Orientation and Study Skills
MEEN 202 - Sophomore Seminar	

Georgia Institute of Technology, Atlanta, Georgia

Instructor, 9/94 - 12/94

Responsible for a junior level course entitled "Mechanical Behavior of Materials" which emphasized the prediction of yielding, fracture, and fatigue in solids.

Graduate Teaching Assistant, 9/92 - 12/93

Assisted in teaching a senior level course entitled "Mechanical Systems Laboratory" where I was involved in the setup and maintenance of equipment, the design of projects, grading, and lecturing (four quarters). I also graded homework for a senior level course entitled "Manufacturing Engineering and Technology" (one quarter).

RESEARCH EXPERIENCE

Louisiana Tech University, Ruston, Louisiana

Assistant Professor, 8/95 - 8/01 and Associate Professor 9/01 - Present

Co-Principal Investigator for the National Science Foundation grant entitled "Sophomore Fast-Forward: A Summer Bridge Program to Support Retention in Engineering," 07/16-06/21, \$999,234.

Co-Principal Investigator for the Trinity Products grant entitled "Experimental Evaluation of Pipe Locking Mechanism Manufactured by Trinity Products," 10/2016-8/2017, \$15,250.

Co-Principal Investigator for the Southern Plains Transportation Center grant entitled "Technology-Rich Transportation Engineering Projects in Education," 06/14 – 06/16, \$131,627.

Co-Principal Investigator for the National Science Foundation grant entitled "STEM-Discovery," 02/14 – 01/19, \$708,415.

Co-Principal Investigator for the Charles Machine Works grant entitled "Development of Crossbore Detector Sensor for HDD Applications," 01/13 – 10/13, \$85,024.

Principal Investigator for the National Academy of Engineering grant entitled "EFAACL - LA Tech Engineering Faculty as Academic Change Leaders," 10/09 - 12/09, \$2,500.

Co-Principal Investigator for the Louisiana Board of Regents Support Fund project entitled "Enhancement of Undergraduate Materials Testing," 6/09 - 5/10, \$63,776.

Co-Principal Investigator to the NASA project entitled "NASA-Threads," 5/09 - 4/11, \$1,482,592.

Co-Principal Investigator for the Louisiana Oil Spill Prevention R&D Program project entitled "Electrochemical Oil Spill Prevention," 5/07 - 12/09, \$37,000.

Co-Principal Investigator for the Insituform Technologies project entitled "CFD of Flow Impact of Service Taps," 3/07 - 6/07, \$8,291.

Principal Investigator for the National Science Foundation project entitled "Living WITH the Lab," 8/06 - 7/09, \$497,917.

Co-Principal Investigator for the Gas Technology Institute project entitled "Enhancing Trenchless Service Installations through Keyholes: Phase III," 9/06 - 6/07, \$44,820.

Principal Investigator for a Plastics Pipe Institute project entitled "Evaluation of a Commercial Laser Profiling System for Post-Installation Measurement of Storm Sewer and Drainage Pipe," 8/06 - 12/06, \$15,917.

Co-Principal Investigator for the Gas Technology Institute project entitled "Enhancing Trenchless Service Installations through Keyholes: Technology Review, Screening and Preliminary Evaluation of Technologies and Techniques," 8/04 - 8/05, \$59,359.

Co-Principal Investigator for the Louisiana Board of Regents Support Fund project entitled "Trenchless Technology Education and Research Laboratory," 7/04 - 6/05, \$91,724.

Co-Principal Investigator for the American Water Works Association Research Foundation project entitled "Use of Robot for Remaking Connections after Pipe Rehabilitation Bench Testing Program," 8/04 - 5/05, \$43,874.

Principal Investigator for the Insituform Technologies project entitled "Observation of Annular Space Flow Testing," 5/04 - 7/04, \$15,363.

Co-Principal Investigator for the Louisiana Board of Regents Support Fund project entitled "Enhancing Manufacturing Education with Hands-on Rapid Prototyping Technologies," 7/03 - 6/04, \$54,250.

Principal Investigator for the Gas Technology Institute project entitled "Fabrication and Testing of Pipe Liners for the Gas Industry," 8/02 - 7/03, \$51,992.

Principal Investigator for the Center of Entrepreneurship and Information Technology project entitled "3D Laser Measurement and Digital Image Mapping for Pipeline Inspection," 11/02 - 6/03, \$34,500.

Co-Principal Investigator for the Center of Entrepreneurship and Information Technology project entitled "Creative Problem Solving Experience in the Freshman Engineering Curriculum," 11/02 - 6/03, \$13,500.

Principal Investigator for the Gas Technology Institute project entitled "Fabrication and Testing of Pipe Linings for the Gas Industry," 8/02 - 7/03, \$51,992.

Principal Investigator for the National Science Foundation project entitled "Modeling and Accelerated Testing of Cured-In-Place Plastic Sewer Rehabilitation Liners," 9/98 - 9/2001, \$273,724.

Principal Investigator for the Louisiana Education Quality Support Fund project for Fellows of Excellence in Engineering Education entitled "Development of a First Course in Engineering Mechanics," 6/98 - 5/2000, \$23,068.

Principal Investigator for a project sponsored by Advanced Polymer Technologies in Monroe, Louisiana entitled "Mechanical Testing of Polymers," 5/98 - 4/2000, \$1,633. Principal Investigator for a project sponsored by Chemtech in Monroe, Louisiana entitled "Development of a System for Bonding Rubber Gaskets to Headlamp Assemblies," 9/97 - 11/97, \$5,802.

Principal Investigator for a project sponsored by Lively, Robert, and Associates in Monroe, Louisiana entitled "Strain Measurement for Particle Board Prepress," 7/97 - 8/97, \$4,326.

Other Investigator for a Department of Defense URISP project entitled "The Development of a Center for Advanced Mold/Mask Processes and Applications for the Miniaturization Technologies," 6/96 - 6/2001, \$1,994,500.

Co-Principal Investigator for a project sponsored by the Instructional Innovation Committee at Louisiana Tech University entitled "Creation of Internet-Based Course Materials," Summer 1997, \$1,100. Assumed the role of Principal Investigator for the Louisiana Education Quality Support Fund project entitled "Enhancement of the Material Testing Lab for Determining the Mechanical Properties of Plastics," 6/97 - 12/98, \$166,828.

Assumed the role of Principal Investigator for the Louisiana Education Quality Support Fund project entitled "Development of an Analytical Procedure for the Design of Cured-In-Place Plastic Pipe Liners," 6/95 - 6/2000, \$134,000.

Assumed the role of Principal Investigator for a project sponsored by Insituform Technologies entitled "Development of a Liner Deformation Measuring System," expires 12/98, \$13,247.

Assumed the role of Principal Investigator for a project sponsored by Insituform Technologies entitled "Experimental Program for Evaluating Insituform CIPP Pipe Liners Installed in Host Pipes with Initial Imprefections," expires 12/98, \$19,357.

Assumed the role of Principal Investigator for a project sponsored by Insituform Technologies entitled "Replacement and Retesting of CIPP Pipe Liners," 5/97 - 6/2000, \$58,870.

Georgia Institute of Technology, Atlanta, Georgia

Graduate Research Assistant, 9/91 - 8/95

Performed analytical and computational research in the area of time-dependent fracture mechanics including: (1) development and implementation of a finite element nodal-release algorithm to model crack extension in creep-brittle materials, (2) development of an interactive finite element post-processor to simulate the evolution of field quantities during crack extension, and (3) investigation of the influence of creep deformation (in the wake and near the tip of a growing crack) on the load-line deflection of a cracked body.

Performed a three-dimensional finite element analysis of an underwater vessel to address concerns of fatigue failure at drilled holes. Work funded by the U.S. Navy Project PRACTICAL (one quarter).

Graduate Research Assistant, 9/88 - 3/90

Performed research in radiation heat transfer and computer graphics in the area of realistic image synthesis including: (1) formulation and implementation of several radiosity algorithms produce realistic images, and (2) investigation of numerical techniques to model the reflection of visible light from non-Lambertian surfaces in complex three-dimensional environments.

INDUSTRIAL EXPERIENCE

International Paper - Process Technology Group, Mobile, Alabama

Process Engineer, 6/90 - 9/91

Provided consulting services for the pulp and paper industry in the area of finishing and converting. Responsible for the preparation of feasibility studies for proposed manufacturing changes and evaluation of existing manufacturing operations to improve profitability.

Louisiana Tech Energy Analysis and Diagnostic Center, Ruston, Louisiana

Coordinator 6/87 - 8/88

Conducted energy audits and prepared energy conservation reports for local industries.

AREAS OF INTEREST

Engineering Education

Coupling fundamental topics with applications using student-owned hardware and software platforms.

- integrating robotics and other technology-based applications in high school STEM curricula
- integrating robotics, measurement and control in first-year engineering courses
- implementing teamwork, service requirements, professionalism, and global issues in first-year engineering courses
- using a student-owned measurement platform in a junior-level “basic measurements” course
- integrating SolidWorks simulation capabilities in a junior-level “advanced mechanics of materials” course

Experimental, computational and analytical modeling of cured-in-place plastic (CIPP) liners used for pipeline rehabilitation, with particular emphasis on improving methods to predict creep-induced buckling of these liners due to external groundwater pressure.

Analytical and numerical investigation of the driving forces for high-temperature fracture in creep-brittle materials.

Visualization methods for engineering, including generation of realistic computer graphics images based on the principles of radiation heat transfer and implementation of procedures to graphically examine the evolution of field quantities (e.g., stress or temperature) as a process occurs. Visual inspection and assessment of underground utilities.

PUBLICATIONS

Campos, U.A. and Hall, D.E., "Simplified Lamé's Equations to Determine Contact Pressure and Hoop Stress in Thin-walled Press-fits," *Thin Walled Structures*, 138 (2019) 199-207.

Evans, K., Apter-Desselles, M., Hall, D. and Orr, M., "S-STEM Summer Scholarship for a Sophomore Bridge: Year 1 in Review," NSF Grantee's Poster Session, 2018 ASEE Annual Conference & Exposition, Salt Lake City, UT, June 2018.

Campos, U., Hall, D., Matthews, S., Morgan, C., Alam, S. and Baghi, H., "Overview of the Geometric Parameters of a Press-Fit Interlocking Mechanism: Experimental and FEA Analysis of Steel Pipe Joint," American Society of Civil Engineers Pipelines 2018 Conference, Toronto, Canada, July 2018.

Campos, U., Hall, D., Alam, S., Matthews, J. and Morgan, C., "Evaluation of Interlocking Joint Technology Used on Auger Boring Pipe Casings," Evaluation of Interlocking Joint Technology Used on Auger Boring Pipe Casings," North American Society for Trenchless Technology, No-Dig Conference & Exposition, Palm Springs, California, March 2018.

Menkulasi, F., Baghi, H., Hall, D., Farzana, N., "Rehabilitation of Deteriorated Timber Piles using Fiber Reinforced Polymer Composites", 39th IABSE Symposium – Engineering the Future, September 21-23 2017, Vancouver, Canada.

Rucks, M., Orr, M. and Hall, D., "Social Consciousness in Engineering Students: An Analysis of Freshmen Design Project Abstracts," ASEE 123rd Annual Conference & Exposition in New Orleans, June 2016.

Hall, D. "Living with the Lab: Application-focused Education for Engineering and the Physical Sciences," *The Future of Education*, Edition 5, Florence, Italy, June 2015.

Swafford, C., Orr, M. Hall, D. "Building Confidence Through Hands-on Activities," ASEE GSW Conference, New Orleans in April 2014.

Crittenden, K., Hall, D., Tims, H., "2D Paper Trusses as a Mechanism for Teaching K12 Fundamental STEM Topics," *Proceedings of the American Society for Engineering Education*, Atlanta, GA, 2013.

Crittenden, K., Tims, H., Corbett, H., Hall, D., Swanbom, M., "Work in Progress - Work in Progress - Using a "Cigar Box" Guitar to Teach Waves and Sound in a High School Physics Program," *Proceedings of the Frontiers in Education*, Rapid City, South Dakota, 2011.

Tims, H., Corbett, K., Hall, D., Turner, G., Harbour, D., "Work in Progress - Application of the Boe-Bot in Teaching K12 Electricity Fundamentals," *Proceedings of the Frontiers in Education*, Rapid City, South Dakota, 2011.

Tims, H., Corbett, K., Turner, G., Hall, D., "Technology Enabled Projects for High School Physics," *Proceedings of the American Society for Engineering Education*, Vancouver, British Columbia, Canada, 2011.

Swanbom, M., Hall, D., Tims, H., "Oh, G! High School Students Discover Gravitational Acceleration Using Ubiquitous Technology," Proceedings of the American Society for Engineering Education, Vancouver, British Columbia, Canada, 2011.

Hall, D., Swanbom, M., Tims, H., "Work In Progress: 2D Paper Trusses as a Mechanism for Teaching K12 Fundamental STEM Topics," Proceedings of the Frontiers in Education, Arlington, Virginia, 2010.

Tims, H., Corbett, K., Turner, G., Hall, D., "Poster, NASA-Threads: a hands-on context based approach to a high school STEM course," Proceedings of the American Society of Engineering Education, Louisville, Kentucky, 2010.

Crittenden, K., Hall, D., Brackin, P., "Living with the Lab: Sustainable Lab Experiences for Freshman Engineering Students," American Society for Engineering Education Annual Conference and Exposition, *Best Paper Award, Division of Experimentation and Laboratory Oriented Studies*, 2010.

Easley, J., Hall, D., Beard, N., Fardsalehi, G., Wallace, N., Swanbom, M., "A Student-Run Help Desk to Facilitate a Robotics-Based Course Sequence," American Society for Engineering Education Annual Conference and Exposition, June 2010.

Corbett, K., Watson, M., Prather, C., Swanbom, M., Hall, D., "Mentoring and Training of Ph.D. Students in the STEM Academic Enterprise: Tips for Doctoral Students and the Overall Effects of Stem Students," American Society for Engineering Education Gulf-Southwest Annual Conference, McNeese State University, 2010.

Reed, A., Creekbaum, T., Elliott, M., Hall, D. E., Harbour, D., "Utilizing Robotics to Facilitate Project-Based Learning: A Student Perspective," Computers in Education Journal, XVIII(1), 11 pages, 2009.

Hall, D. E., Barker, J. M., Nelson, J. D., "Living with the Lab: Update on the Second Year of Full Implementation for Over 400 First-Year Engineering Students," American Society for Engineering Education Annual Conference and Exposition, 2009.

Cronk, S., Hall, D. E., Nelson, J. D., Brackin, P. "Facilitating Lifelong Learning Skills through a First Year Engineering Curriculum," American Society for Engineering Education Annual Conference and Exposition, 2009.

Crittenden, K. B., Hall, D. E., Barker, J. M., Brackin, P., "First-Year Design Experience: Putting Together the Big Picture through Innovative Product Design," American Society for Engineering Education Annual Conference and Exposition, 2009.

Hall, D. E., Cronk, S. R., Brackin, P. D., Barker, J. M., Crittenden, K. B., "Living with the Lab: A Curriculum to Prepare Freshman Students to Meet the Attributes of The Engineer of 2020," INVITED PAPER, Republished from the 2008 American Society for Engineering Education Annual Conference and Exposition. EDGD 63rd Midyear Conference, 2009.

Hall, D. E., Hegab, H. E., Nelson, J. D., "Living WITH the Lab – A Freshman Curriculum to Boost Hands-on Learning, Student Confidence and Innovation," *Frontiers in Education Conference*; Saratoga Springs, New York, 2008.

Hegab, H. E., Hall, D. E., "Microfabrication of a Temperature Sensor by Freshman Engineering Students," *Frontiers in Education Conference*; Saratoga Springs, New York, 2008.

Reed, A., Creekbaum, T. M., Matthew, E. D., Hall, D. E., Harbour, D., "Centrifugal Pump Design, Fabrication and Characterization: A Project-Driven Freshman Experience," *American Society for Engineering Education Annual Conference and Exposition*, 2008.

Hall, D. E., Cronk, S. R., Brackin, P. D., Barker, J. M., Crittenden, K. B. , "Living with the Lab: A Curriculum to Prepare Freshman Studets to Meet the Attributes of The Engineer of 2020," *American Society for Engineering Education Annual Conference and Exposition, Best Paper Award, 2nd Place, Freshman Program Division*, 2008.

Swanbom, M. E., Hall, D. E., Crittenden, K. B., "Utilizing Robotics to Facilitate Project-Based Learning: A Student Perspective," *American Society for Engineering Education Annual Conference and Exposition*, 2008.

Hall, D. E., Allouche, E. N., Swanbom, M. E., Puno, F. M., "Development of a "Smart" Impact Mole to Support Keyhole Construction," *North American Society for Trenchless Technology: 2008 No-Dig Conference & Exposition*, 2008.

Hegab, H. E., Hall, D. E., "Increasing Experiential Learning in Freshman Engineering through a Microfabrication Project," *IMECE* 2007.

Hall, D., Barker, M., "Living with the Lab – Boosting Experiential Learning and Creativity in 1st Year Engineering Students," *Intelligent Automation and Soft Computing*, 13 (1), 3-18, 2007.

Madhavaraman, S., Hall, D. E., Sterling, R. L., Tatini, L., Swanbom, M., Thompson, J. (2006). "Bench Testing of Ideas for Reconnection of Service Laterals after Water Main Rehabilitation," *Proceedings of NO-DIG 2006, NASTT, Arlington VA, March 2006*.

Zhao, W., Nassar, R. and Hall, D.E., "Design and Reliability of Pipeline Rehabilitation Liners," *Trenchless Technology Research as part of Tunnelling and Underground Space Technology*, 20 (2005) 203-212. Hall, D and Matthews, J., "Fluid Migration in the Annular Space of Rehabilitated Pipelines: A Comparison of Insituform's Inverted and ILS Products," *Trenchless Technology Report*, August 2004, 39 pages.

Barker, M. and Hall, D., "Teaching Innovative Product Development Skills to Freshmen Engineering Students," *Proceedings of the 2004 American Society for Engineering Education Annual Conference and Exposition*, Salt Lake City, June 2004, 10 pages.

Hegab, H., Hall, D., Pan, J., Swanbom, M. and Dettmer, A., "Three-Dimensional Wireframe Models of Pipelines Using a Computer Vision Inspection System," Proceedings NO-DIG 2004, NASTT, New Orleans, March 21-24, 2004, 8 pages.

Zhao, W. and Hall, D., "3D Modeling of Pipe Liners with Thickness Variations," Proceedings NO-DIG 2004, NASTT, New Orleans, March 21-24, 2004, 10 pages.

Jordan, W., Parameshwaraiah, V. and Hall, D., "Long-Term Material Characterization of a Cured-In-Place Pipe (CIPP) Material," Proceedings of the 10th International Conference on Composites/Nano Engineering, New Orleans, Louisiana, July 2003, pp. 285-286.

Hall, D and Crittenden, K., "Design, Fabrication and Testing of Wooden Trusses for Undergraduate Mechanics," Proceedings of the 2003 American Society for Engineering Education Annual Conference and Exposition, Nashville, Tennessee, June, 2003, 24 pages.

Zhao, W., Nassar, R. and Hall, D., "Incorporating Reliability into the Design of Pipeline Rehabilitation Liners," Proceedings of the International No-Dig 2003, Las Vegas, Nevada, April 2003.

Leangsuksun, C., Corley, M. and Hall, D., "Enabling Information Technologies for Innovative Product Design," Proceedings of the Conference for Information Technology Curriculum, Society for Information Technology Education, Rochester, New York, 2002.

Kapasi, S. and Hall, D., "Monitoring Deflections of Pipe Liners Under External Water Pressure During Liner Buckling Experiments," Proceedings of the North American NO-DIG 2002, NASTT, Montreal, Canada, April 28-30, 2002, 13 pages.

Zhu, M. and Hall, D.E., "Creep Induced Contact and Stress Evolution in Thin-Walled Pipe Liners," Thin Walled Structures, 39 (2001) 939-959.

Zhao, Q., Nassar, R. and Hall, D.E., "Numerical Simulation of Creep-Induced Buckling of Thin Walled Pipe Liners," Journal of Pressure Vessel Technology, Vol. 123, August 2001, pp. 373-380.

Hall, D., Hadala, P., and Roberts, F., "Laboratory Exercises for Statics and Mechanics of Materials on a Shoestring," Proceedings of the 2000 American Society for Engineering Education Annual Conference and Exposition, St. Louis, Missouri, June 2000, 24 pages.

Hall, D.E. and Zhu, M., "Recent Findings and Ongoing Liner Buckling Research at the Trenchless Technology Center," Proceedings of the North American No Dig 2000, April 2000, Anaheim, California, pp. 77-84.

Saxena, A., Hall, D.E. and McDowell, D.L., "Assessment of Deflection Rate Partitioning for Analyzing Creep Crack Growth Data," Engineering Fracture Mechanics, 62 1 (1999) 111-122.

Hall, D.E., and Jordan, W.M., "Fabrication and Testing of Micro-Embossed Polycarbonate Composites," Proceedings of the Fourth International Conference on Composites Engineering, Las Vegas, Nevada, July 1997.

Hall, D.E., McDowell, D.L. and Saxena, A., "Crack Tip Parameters for Creep-Brittle Crack Growth," *Fatigue and Fracture of Engineering Materials and Structures*, Vol 21, 1998, pp. 387-401.

Jordan, W.M. and Hall, D.E., "Development of Strong Lightweight Polymeric Plates using Micromachining," *Proceedings of the Third International Conference on Composites Engineering*, New Orleans, Louisiana, July 1996.

Hamilton, B.C., Hall, D.E., Saxena, A. and McDowell, D.L., "Creep Crack Growth Behavior of Aluminum Alloy 2519: Part I -- Experimental Analysis," *ASTM STP 1297 - Elevated Temperature Effects on Fatigue and Fracture*, 1997, pp. 3-18.

Hall, D.E., Hamilton, B.C., McDowell, D.L. and Saxena, A., "Creep Crack Growth Behavior of Aluminum Alloy 2519: Part II -- Numerical Analysis," *ASTM STP 1297 - Elevated Temperature Effects on Fatigue and Fracture*, 1997, pp. 19-36.

Hall, D.E., McDowell, D.L. and Saxena, A., "Some Aspects of Crack Growth in Creep Brittle Materials," *International Symposium for Inelastic Deformation, Damage and Life Analysis*, Honolulu, Hawaii, July 30-August 3, 1995.

Hall, D.E., McDowell, D.L. and Saxena, A., "Numerical Analysis of Crack Growth in Creep-Brittle Aluminum Alloy 8009," *1995 NSF Design, Manufacturing and Industrial Grantees Meeting*, Institute for Mechanics and Materials, La Jolla, California, January 4-6, 1995.

Hall, D.E. and Rushmeier, H.E., "An Improved Explicit Radiosity Method for Calculating Non-Lambertian Reflections," *The Visual Computer (International Journal of Computer Graphics)*, Vol. 9, No. 5, March 1993, pp. 278-288.

Rushmeier, H.E., Baum, D.R. and Hall, D.E., "Accelerating the Hemi-Cube Algorithm for Calculating Radiation Form Factors," *ASME Journal of Heat Transfer*, Vol. 113, No. 4, November 1991, pp. 1044-1047.

Hall, D.E. and Lowther, J.D., "Application of an Expert System to Thermal Insulation Problems," *Proceedings of the Third National Conference on Microcomputer Applications in Energy*, Tucson, Arizona, November 1988, pp. 345-350.

GRADUATE STUDENTS

Total Number of Students Supervised = 21

Graduated 8 Ph.D. students

Urso Campos, Allie DeLeo, Qing Cai, Andy Dettmer (Pure Technologies), Wei Zhao (Ultraliner), Shanyun Wang, Kelly Crittenden (Louisiana Tech), Yang Gao, Meihuan Nancy Fulk (American Electric Power), Qiang Zhao (Mercer University)

Graduated 10 M.S. students

Jian Zhao, Lamont Lackman (Frymaster), Rebeka Seemann, Avinash Aruon, Moreshwar Dhole, Annamalai Pugalumperumal, Chenthil Rajan, Sankaranarayanan Madhavaraman, Jayaprakash Salagundi, Dae Yi Jung

UNIVERSITY AND PROFESSIONAL SERVICE

Living with the Lab Director

About one third of my time at work is spent facilitating the first year engineering program at Louisiana Tech University which includes ENGR 120, 121 and 122. This service function impacts over 700 students each year and includes the following items:

- Creating most of the course content for ENGR 120, 121 and 122. Instead of using a textbook, all content is available for free download on www.livingwiththelab.com. I am also the webmaster for this site.
- Ordering all parts and supplies for the first year experience. This involves purchasing approximately \$160,000 of supplies each year to facilitate projects.
- Overseeing the preparation of kits for student projects.
- Managing the two laboratories where the first year courses are taught.
- Calling weekly meetings of approximately 10 faculty members who teach the first year courses.
- Distributing sensors and other hardware to all first year engineering teams as they complete their smart product designs. An average of 4.8 parts is checked out to each design team, and approximately 100 teams are served each year. Teams that have difficulty implementing their projects often return for technical assistance.

Other University and Professional Service Activities

- Student Technology Fee Board Faculty Representative, 2013 – present
- Engineering and Science Foundation, Faculty Representative, 2009 – 2013
- Engineering and Science Association, Faculty Advisor, 2001 – 2014
- American Society for Engineering Education, Paper Reviewer, 2009 – present

COMMUNITY SERVICE

I have led or assisted students in leading a number of community service projects in and around the City of Ruston. Most of the projects involve installing commercial playground equipment.



Installed Playground Equipment at Memorial Park with the Engineering and Science Association (2003)



Reworked Interior of Greenwood Recreation Center with the Engineering and Science Association (2004)



Relocated Play System to Greenwood Park with the Engineering and Science Association (2005)



Erected Play System at Cypress Springs with the Engineering and Science Association (2007)



Erected Play System at Lincoln Parish Park with LA Tech and Community Volunteers (2007)



Erected Play System at Cook Park with the Engineering and Science Association (2008)



Erected Play System at Lincoln Parish Park with LA Tech and Community Volunteers (2008)



Erected Play System at Duncan Park with the Engineering and Science Association (2009)



Erected Play System at Glenview Elementary with LA Tech Volunteers (2011)



Erected Playground at Greenwood Park with Construction Engineering Technology Students (2015)



Moved a Play System across the Road at Mayfield Park with Construction Engineering Technology Students and Bulldogs Without Borders (2016)

Other community service activities are listed below:

- Led the fabrication of a sandbox at the Lincoln Parish Early Childhood Center
- Helped organize a trail clearing project at Lincoln Parish Park (23 students) – March 2011
- Organized a trail clearing project at Lincoln Parish Park (18 students) – January 2011
- Served as Bulldog Aquatics Swim Club Board Member – September 2008 through August 2010
- Organized a work day at Lincoln Parish Park (19 students) to repair eroded trails – March 2010
- Coached First Lego League – 2003, 2004 and 2006; Louisiana State Overall Champions in 2006