

Hubert Seth Hall, Ph.D.

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CURRENT POSITION

Texas Christian University

Fort Worth, TX

Associate Professor of Professional Practice, Dept. of Engineering

Aug. 2022 – Present

- ENGR 20603 – Solid Mechanics I – Fall 2022 Semester
Textbook: Hibbeler, R.C. *Mechanics of Materials, Tenth Edition*. Hoboken, Pearson, 2015.
Sophomore level engineering course with twenty-three students. Taught in-person at the William E. and Jean Jones Tucker Technology Center on the TCU campus.
- ENGR 30861 – Mechanical Systems Lab I – Spring 2023 Semester
Junior level engineering lab course covering Solid Mechanics topics.
- ENGR 40861 – Mechanical Systems Lab II – Spring 2023 Semester
Senior level engineering lab course covering Structural Dynamics topics.
- Planned Fall 2023 Courses: ENGR 20603 – Solid Mechanics I and ENGR 40763 – Introduction to Structural Dynamics
- Developing research focus areas of Acoustic Impedance measurements and Granular-fill Damping concepts for undergraduate research and grant proposals.

EDUCATION

The Catholic University of America

Washington, DC

Doctor of Philosophy, Mechanical Engineering

Jan. 2017

3.95/4.0 gpa

Dissertation, “Exploration into the use of numerical modeling to assist the two-microphone transfer function free field test method”, advisor Dr. Joseph Vignola

Coursework completed: (Concentration in Acoustics and Vibration)

Introduction to Acoustics

Intermediate Acoustics

Advanced Acoustics

Special Topics: Structural Dynamics and Vibration

Structural Acoustics

Acoustic Imaging

Digital Signal Processing Techniques

Mathematical Analysis for Graduate Students

Computational Methods for Graduate Students

Non-linear Dynamics and Chaos

Honors: SMART Scholar, 2011-2013

North Carolina State University

Raleigh, NC

Master of Science, Mechanical Engineering

Minor: Mathematics

May 2002

4.0/4.25 gpa

Thesis, "Exploration into the validity of transient statistical energy analysis", advisor Dr. Richard Keltie

Coursework completed: (Concentration in Acoustics and Vibration)

Acoustic Radiation

Introduction to Vibrations

Advanced Mathematics for Engineers I

Advanced Mathematics for Engineers II

Statistical Energy Analysis

Noise Control

Linear Algebra

Finite Element Analysis

Thesis Research I and II

Honors: Dean's Fellow, 2000

Morehead State University

Morehead, KY

Bachelor of Science, Physics and Mathematics (Double Major)

May 2000

3.95/4.0 gpa, Summa Cum Laude

Senior Project, "A SETI search of near extra-solar planets using the Morehead Radio Telescope"

Honors: Outstanding Physics Student 2000, Outstanding Mathematics Student 2000, Outstanding Pre-Engineering Student 1999, Regional Honors Scholarship 1996-2000

Letcher High School

Letcher, KY

4.0/4.0 gpa, Valedictorian of Class

June 1996

Honors: Kentucky Governor's Scholar, 1995

PRIOR EXPERIENCE

Lockheed Martin Missiles and Fire Control Division

Grand Prairie, TX

Research Engineer Staff, Environmental Test Lab

Aug. 2019 – Sept. 2022

- Support engineer for all structural dynamics testing for Environmental Test Lab (ETL).
- Served as Task Lead and Subject Matter Expert for Experimental Modal Testing
- Member of Subject Matter Expert Technical Excellence Program (STEP) at LM-MFC.
- Focused on documenting technical processes, structural measurements, and data analysis.
- Authored Test Reports for Ground Vibration Testing efforts.
- Test Director for PrSM, ARRW, ER-GMLRS, and OpFires ground vibration tests
- Expertise in structural dynamics experimental techniques. Topics of note include instrumentation, data acquisition, and modal analysis using Siemens/LMS Simcenter Testlab software.

- Experience executing control loop based shaker table measurements with Bruel & Kjaer LDS and Unholtz-Dickie systems using Siemens/LMS Random, Sine, and Shock Control software.
- Structural Shock Test experience using Siemens/LMS Simcenter Testlab software
- Configuration and analysis of field remote vibration data loggers (EnDaq Slam Stick, Lansmont SaverX) for ETL programs
- Served as Lockheed Martin Purchase Card holder. Coordinated purchase of lab test equipment and supplies.
- Served under the direction of ETL manager, Mr. Bret Burkett and Thermal Mechanical Test Lab (TMTL) manager, Mr. Michael Kircher.

Texas Christian University

Fort Worth, TX

Adjunct Professor, Dept. of Engineering

Aug. 2021 – Dec. 2021

- ENGR 40763 – Introduction to Structural Dynamics – Fall 2021 Semester
Textbook: Inman, Daniel. *Engineering Vibration, Fourth Edition*. Upper Saddle River, Pearson, 2013.
Senior level elective engineering course with seven students. Taught in-person at the William E. and Jean Jones Tucker Technology Center on the TCU campus.

Naval Surface Warfare Center Carderock Division

West Bethesda, MD

Research Engineer, Code 7310 – Systems Development Branch

Nov. 2017 – July 2019

- Served in role of Test and Evaluation (T&E) Lead of Shaker Lab Facility for Code 7310 Systems Development Branch.
- Served as team member of VSM2 and USS ZUMWALT Projects. Focus was on technical report writing, shipboard measurements, and analysis.
- Served under the direction of Branch Head, Mr. Richard Ryan (2017-2019).

Research Engineer, Code 7220 - Structural Acoustics Branch

June 2002 – Nov. 2017

- Served as Technical Expert in test design for Code 7220 Structural Acoustics research.
- Provided technical and programmatic leadership in a variety of sponsored testing. A majority of tests and programs were affiliated with the large measurement systems at the Acoustic Research Detachment (ARD), Bayview, ID. These structural acoustic test systems include the Intermediate Scale Measurement System (ISMS) and the Large Scale Vehicle -2 ranges. The applicant was intimately involved with the early test development and design of the COLUMBIA CLASS efforts that occurred at the ARD (both ISMS and LSV-2 tests). These types of tests typically have data acquisition channel counts of greater than 1000 and overall budgets of appx. \$2M. This experience in developing large-scale structural acoustic research programs would translate well to other industries (aerospace, gas & oil, etc.)
- Provided lead technical support to all Code 7220 involved ISMS-based tests from October 2002 to December 2015 (Overboard Discharge, Dolly Varden, SEAJET, Lab Array, Duct Liner, Task 5). These programs were in support of ship signature reducing research for the USS VIRGINIA and USS COLUMBIA CLASSES.

- Provided system engineering and total program management for the acquisition of a replacement propulsor for the LSV-2 model from Oct. 2010 to Oct. 2011. LSV-2 is a 1/3-scale, fully-autonomous, model of the USS VIRGINIA. The previous propulsor dated to the construction of the model and did not benefit from the technical advancements made since. This position required assessing cost and performance for ships integration and design, providing recommendations on cost estimates for ship systems, and evaluating the economic and industrial impacts of program cost estimates. This position demonstrated the capability of working with a wide range of industrial (Rolls Royce Naval Marine), academic (Penn State- Applied Research Lab), and government (ARD, NSWCCD Code 5080) organizations.
- From Oct. 2008 to Dec. 2010 served as the program manager of the USS LOS ANGELES CLASS forward areas acoustic treatment reduction program, a multi-year, \$700k-\$800k budget program, funded by NAVSEA 073R. This position required periodic briefing of the leadership of NAVSEA 073R. Additional requirements were providing accurate financial tracking and projections. Technical and programmatic briefs were presented to Commander Douglas and Commander Vlattas, directing officers of NAVSEA 073R at the time. This position provided the applicant with the unique experience of briefing the highest offices of NAVSEA 073R.
- Participated in several multi-organizational research efforts with General Dynamics Electric Boat, Northrup Grumman Newport News, and other large DoD Contractor organizations.
- Served under the direction of Branch Heads Dr. Matthew Craun (2002-2007), Mr. Bill Martin (2007-2015), and Ms. Diedre Gilmer (2015-2017)

The Catholic University of America

Washington, DC

Instructor, Dept. of Mechanical Engineering

Aug. 2017 – Dec. 2017

- ME 560 – Introduction to Acoustics – Fall 2017 Semester

Textbook: Kinsler, Lawrence E., et al. *Fundamentals of Acoustics, Fourth Edition*. Hoboken, Wiley, 2000.

Graduate level elective mechanical engineering course with five students. Taught in-person at the Night Vision and Electronic Sensors Directorate at Fort Belvoir.

North Carolina State University

Raleigh, NC

Research Assistant, 20 hours/ week

Aug. 2000 – May 2002

- Under direction of Dr. Richard Keltie
- Thesis research involving transient statistical energy analysis
- Sponsored by the National Science Foundation
- Work tasks included experimental testing using an HP 35660A 2-Channel Dynamic Signal Analyzer and data analysis using Matlab, MS Excel, and AutoSEA.

The Ohio State University

Columbus, OH

Research Assistant, 40 hours/ week

June 1999 – Aug. 1999

- Under direction of Dr. Len Brillson

- Research Experience for Undergraduates Program sponsored by the National Science Foundation
- Work tasks included experimental Electrical Engineering test techniques and some LabView programming.

Hazard Community College

Hazard, KY

Mathematics/Chemistry Tutor, 20 hours/ week

June 1998 – Aug. 1998

- Provided individual and group tutoring to college-aged students in the subjects of College Algebra, Calculus, and Chemistry.

CONFERENCE PUBLICATIONS

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “A correction method for the two-microphone transfer function technique in the free field using numerical modeling”, Proceedings of the 46th International Congress and Exposition on Noise Control Engineering (INTER-NOISE 2017), August 2017.

INTERNATIONAL CONFERENCE PRESENTATIONS

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “A correction method for the two-microphone transfer function technique in the free field using numerical modeling”, 46th International Congress and Exposition on Noise Control Engineering (INTER-NOISE 2017), August 28, 2017, Hong Kong

NATIONAL CONFERENCE PRESENTATIONS

Accepted - Hall, H.S., and Larsen, C. “Modal testing on a limited budget: Analysis of instrumented hammer alternatives for impact testing”, 184th Meeting of the Acoustical Society of America, May 11, 2023, Chicago, IL.

Hall, H.S., Dlubac, J.J., and Kim, M. “Experimental design for the accurate measurement of ultra-low damping of simple structures”, 177th Meeting of the Acoustical Society of America, May 15, 2019, Louisville, KY.

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “A correction method for the two-microphone transfer function technique in the free field using numerical modeling”, 173rd Meeting of the Acoustical Society of America, June 28, 2017, Boston, MA.

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “Analysis of the error sources of the two-microphone transfer function method for measuring absorption coefficient in the free field using numerical modeling”, 171st Meeting of the Acoustical Society of America, May 24, 2016, Salt Lake City, UT.

Best Student Presentation – 2nd Place, Engineering Acoustics

Hall, H.S., Vignola, J.F., Judge, J.A., Turo, D., and Ryan, T. “An improved two-microphone transfer function method for measuring oblique absorption coefficient in the free field using numerical modeling”, 169th Meeting of the Acoustical Society of America, May 21, 2015, Pittsburgh, PA.

Best Student Presentation – 2nd Place, Engineering Acoustics

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “Exploration into the sources of error in the two-microphone transfer function impedance tube method”, 168th Meeting of the Acoustical Society of America, Oct. 29, 2014, Indianapolis, IN.

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “An iterative approach to measurement of oblique acoustic absorption coefficient in three-dimensions”, 167th Meeting of the Acoustical Society of America, May 9, 2014, Providence, RI.

Hall, H.S., Vignola, J.F., Judge, J.A., Glean, A., and Ryan, T. “Effects of acousto-optic diffraction in the acoustic frequency range on the laser Doppler vibrometry method in air”, 164th Meeting of the Acoustical Society of America, Oct. 25, 2012, Kansas City, MO.

Gregory, J.W., Keltie, R.F., and Hall, H.S. “Experimental Statistical Energy Analysis in the Time Domain”, 142nd Meeting of the Acoustical Society of America, Dec. 4, 2001, Fort Lauderdale, FL.
Best Student Presentation – 1st Place, Structural Acoustics

LOCAL CONFERENCE PRESENTATIONS

Hall, H.S., Dlubac, J.J., and Kim, M. “Experimental design for the accurate measurement of ultra-low damping of simple structures”, 13th Mini-Conference on Acoustics, Washington, DC Chapter of the Acoustical Society of America, May 2, 2019, Washington, DC.

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “Analysis of the error sources of the two-microphone transfer function method for measuring absorption coefficient in the free field using numerical modeling”, 7th Mini-Conference on Acoustics, Washington, DC Chapter of the Acoustical Society of America, May 5, 2016, Washington, DC.

Hall, H.S., Vignola, J.F., Judge, J.A., Turo, D., and Ryan, T. “An improved two-microphone transfer function method for measuring oblique absorption coefficient in the free field using numerical modeling”, 5th Mini-Conference on Acoustics, Washington, DC Chapter of the Acoustical Society of America, Apr. 30, 2015, College Park, MD.

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “Exploration into the sources of error in the two-microphone transfer function impedance tube method”, 4th Mini-Conference on Acoustics, Washington, DC Chapter of the Acoustical Society of America, Oct. 9, 2014, College Park, MD.
Best Student Presentation – 3rd Place

Hall, H.S., Vignola, J.F., Judge, J.A., and Turo, D. “An iterative approach to measurement of oblique acoustic absorption coefficient in three-dimensions”, 3rd Mini-Conference on Acoustics, Washington, DC Chapter of the Acoustical Society of America, Apr. 17, 2014, Washington, DC.

Hall, H.S., Gregory, J.W., and Keltie, R.F. “An analysis of enveloping techniques for decaying exponential time data”, Regional Conference on Acoustics, North Carolina Chapter of the Acoustical Society of America, Oct. 17, 2001, Boone, NC.

Hall, H.S. “Design and implementation of a photoluminescence experiment”, Annual Meeting of the Kentucky Section of the Mathematical Association of America, Apr. 1, 2000, Richmond, KY.

JOURNAL REVIEW

The Journal of the Acoustical Society of America

PROFESSIONAL MEMBERSHIPS

Member, Acoustical Society of America, 2010-present

Member, Society of Experimental Mechanics, 2018-present

Member, Washington, DC Chapter of the Acoustical Society of America, 2010-2019

President, Washington, DC Chapter of the Acoustical Society of America, 1/2016- 1/2017

Member, Kappa Sigma Fraternity

Honorary Kentucky Colonel, 2017-present

CERTIFICATIONS

DAWIA Systems Planning, Research, Development & Engineering-Systems Engineering (SE)-
Level III Certified, Defense Acquisition University, June 2006

SOFTWARE EXPERIENCE

Siemens/LMS Simcenter TestLab, Matlab, COMSOL Multiphysics, LabView, Test for IDEAs,
IMAT+Modal, Autodesk Inventor, Abaqus CAE, MS Office, LaTeX

REFERENCES

References provided upon request

US Citizen – Current Classified Security Clearance