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Daniel A. Russell

EDUCATION

Ph.D. Acoustics 1995 The Pennsylvania State University

The Theory of Fuzzy Structures and Its Application to Waves in Plates and Shells. Mid frequency analy of the effects of a statistical distribution of fuzzy attachments on the vibration of plates and shells, ar the related radiation and scattering of sound from cylindrical shells and plates with fuzzy attachment Contributed to the Pierce-Sparrow-Russell model of fuzzy structures.

M.S. Applied Physics 1991 Northern Illinois University

Residual Shock Spectrum of Piano Hammers: An Experimental Study of Hammer Felt Nonlinearity and Energy Transfer Efficiency. Investigation of the nonlinear behavior of piano hammer felt using residual shock spectrum and mapping the frequency content of the shock spectra to explain the frequency content of resulting struck string spectra.

B.S. Physics 1988 Bradley University

B.Mus. Piano Performance 1988 Bradley University

ACADEMIC POSITIONS HELD

Teaching Professor of Acoustics & Distance Education Coordinator **Since 2011**

Graduate Program in Acoustics, ***Pennsylvania State University***, *University Park, PA*

Developing and teaching graduate courses in acoustics, sound and vibration, and noise control to both resident and distance education graduate students pursuing masters and doctoral degrees in acoustics. Overseeing, marketing and managing the distance education component of acoustics instruction, including oversight of the M.Eng. in Acoustics online degree program. Conducting research on the acoustics and vibration of sports equipment.

Associate Professor of Applied Physics (Acoustics) **1999-2011**

Assistant Professor of Applied Physics (Acoustics) **1995-1999**

Physics Dept, ***Kettering University***, *Flint, MI*

Developed and taught several upper-level undergraduate elective courses in acoustics and vibration including lecture and laboratory components. Developed and taught senior level advanced laboratory course in acoustics. Developed and oversaw academic minor in acoustics. Developed, equipped, and managed acoustics laboratory for faculty and student research projects. Mentored undergraduate students on research projects and undergraduate theses in acoustics. Conducted research on the acoustics and vibration of sports equipment (baseball bats, hockey sticks, rackets) and musical instruments. Also taught introductory and mid-level core lecture and laboratory courses toward physics degree (mechanics, electricity & magnetism, physics of waves, computational physics, theoretical mechanics).

Teaching Assistant, *Pennsylvania State University, State College, PA* **Spring 1995**

Developed lecture material for and taught one third of ACS 402, the undergraduate course in acoustics.

Physics instructor, *Bradley University, Peoria, IL* **Spring 1991**

Taught both the mechanics and electricity lecture components of the two-term introductory calculus-based physics sequence.

Teaching Assistant, *Northern Illinois University, DeKalb, IL* **1989-1990**

Taught the mechanics and electricity laboratory components of the two-term introductory non-calculus based physics course sequence.

ACOUSTICS TEACHING AT PENN STATE *(2011 TO PRESENT)*

GRADUATE COURSES DEVELOPED AND TAUGHT AT PENN STATE (2011 – PRESENT)

ACS/PHYS-404, Introduction to Acoustics (3 credits)
Physics of oscillation and wave motion, frequency spectrum analysis, sound pressure levels, sound wave propagation in air and water, models of sound sources (monopoles, dipoles, quadrupoles, line arrays), standing waves and mode shapes in (string, membranes, pipes), acoustics of large and small rooms, noise and vibration measurements, human hearing and psychoacoustics, loudspeaker design and performance, and other engineering applications. Taught 2 times to a total of 36 undergraduate students.

ACS-501, Elements of Acoustics and Vibration (3 credits)
This is the vibration half of the two-course core fundamentals in acoustics sequence for first year graduate students, covering 1-DOF oscillators, impedance, 2-DOF and multi-DOF oscillator systems, longitudinal waves in solids, effects of boundary conditions and variations in material, vibration of strings with various boundary conditions, rectangular and circular membranes, flexural bending in beams and plates. Taught 8 times to a total of 117 resident and 200 distance graduate students.

ACS-502, Elements of Waves in Fluids (3 credits)
This is the sound half of the two-course core fundamentals in acoustics sequence for first year graduate students, covering thermodynamic properties of fluids; the derivation of the linear acoustic wave equation; lumped element models; reflection and transmission; plane, spherical, and cylindrical waves; models of sound sources (monopoles, dipoles, quadrupoles, arrays, baffled piston); attenuation and absorption; plane waves in waveguides, standing waves in pipes, acoustic filters. Taught 6 times to a total of 80 resident and 130 distance graduate students.

ACS-515, Acoustics in Fluid Media (3 credits)
This is the advanced theoretical fluid acoustics course, one of the core courses required of all acoustics graduate students. Topics include sources of sound: superposition of simple courses, free space Green's functions, dipoles and quadrupoles, multi-pole expansion, radiation of sound, Kirchhoff-Helmholtz integral theorem, Rayleigh integral, radiation from cylinders and spheres, scattering from cylinders and spheres, diffraction, sound sources in ducts, cavities, and rooms. Taught 6 times to a total of 86 resident and 92 distance graduate students.

ACS-519, Sound-Structure Interaction (3 credits)
Vibroacoustic behavior of plate and shell structures surrounded by a fluid: flexural waves in beams, plates, and cylindrical shells; forced response, resonance, impedance, and mobility; sound radiation from vibrating structures; wavenumber transforms and the Rayleigh Integral; structural vibration induced by impinging sound waves; sound transmission loss through panels; coupled behavior of structures and enclosed acoustic volumes; Statistical Energy Analysis. Taught 3 time to a total of 26 resident and 45 distance graduate students.

ACS-537, Noise Control Engineering (3 credits)
Source-path-receiver model, human hearing and psychoacoustics, human response to noise and vibration, sound quality metrics and criteria for quantifying noise, acoustic standards related to noise and vibration control, instrumentation for measuring and analyzing noise and vibration, noise sources (distributed sources, impact sources, flow noise), absorption (materials, measurement, placement), control of sound in large and small rooms, partitions and barriers, mufflers, and vibration control techniques. Taught 5 times to a total of 62 resident and 160 distance graduate students.

ACS-555, Acoustics of Musical Instruments (3 credits)
An advanced exploration of aero-acoustics and vibro-acoustics applications to musical instruments. Musical intervals, acoustic impedance models for pipes and horns, nonlinear vibration of strings, acoustic radiation from structures, mechanisms of sound production by stringed instruments (plucked, struck, and bowed), percussion (drums, marimba), brass winds (lip reed, cylindrical bore, conical bore), woodwinds (flutes, single-reed, double reed). Taught 4 times to a total of 45 resident and 65 distance graduate students.

ACS-894, M.Eng. Capstone Experience (3 credits)
Culminating capstone experience for students pursuing the M.Eng. in Acoustics degree. Student projects involve experimental measurements, computational modeling, and/or signal analysis of data, culminating in a 10-minute oral presentation and a scholarly paper formatted for a technical journal. Taught 1 time to a total of 2 resident and 22 distance graduate students.

ACOUSTICS TEACHING AT KETTERING UNIVERSITY *(1995 TO 2011)*

ACOUSTICS COURSES DEVELOPED AND TAUGHT AT KETTERING UNIVERSITY (1995 – 1998)

ME-530/PHYS-580, Acoustics, Noise, and Vibration (3 lecture credits, 1 lab credit)
This course brought acoustics back to Kettering University after a 12-year absence. Developed lecture material and handouts covering derivation of wave equation for sound, radiation from sound sources (monopoles, dipoles, quadrupoles, baffled piston), microphones and sound level meters, intensity and sound power, human hearing, room acoustics and sound absorption, transmission loss in pipes and filters, 1-dof and 2-dof vibration, waves in bars and plates. Developed 10 laboratory experiments including source directivity, FFT analysis, sound intensity, reverberation time, impedance tube, acoustic filters, and modal analysis. Taught 5 times to a total of 95 students.

ACOUSTICS COURSES DEVELOPED AND TAUGHT AT KETTERING UNIVERSITY (1998 – 2001)

Popularity of courses in acoustics led to the development of two new courses, with in-depth study of acoustics topics.

PHYS-480, Fundamentals of Acoustics (3 lecture credits, 1 lab credit)
Modeled after an introductory graduate level course at Penn State, this course introduces students to sound waves in air. Developed lecture material and handouts covering wave phenomena, sound pressure levels, human

hearing, frequency analysis, derivation of the acoustic wave equation, plane waves, spherical and cylindrical waves, intensity and impedance, radiation from sound sources (monopoles, dipoles, quadrupoles, baffled piston), room acoustics, sound absorption, transmission lines, acoustic filters. Developed laboratory experiments including measurements of sound speed, sound levels, human hearing, signal analysis and manipulation, FFT analysis, directivity, room acoustics, absorption and impedance tube, acoustic filters. Taught 6 times to a total of 66 students.

PHYS-580, Applied Structural Acoustics (3 lecture credits, 1 lab credit)
Modeled after an introductory graduate level course at Penn State, this course introduces students to oscillation, damped and forced response, base excitation and transmissibility, mechanical impedance, circuit analogies, loud-speaker design and analysis, vibration of strings and membranes, torsional and bending waves in bars, effects of boundary conditions, waves in solids. Developed laboratory experiments including Chladni patterns, Theile-Small parameters for loudspeakers, plucked and struck strings, mechanical impedance, experimental modal analysis. Taught 3 times to a total of 21 students.

ACOUSTICS COURSES DEVELOPED AND TAUGHT AT KETTERING UNIVERSITY (2001 – 2007)

In 2001, Kettering University underwent a complete overhaul of its entire curriculum changing credit allocations, contact hours, and topical content in all degree programs. A new academic minor in acoustics was developed.

PHYS-382, Acoustics I: Sounds and Sources (4 lecture credits)
Developed and revised lecture content and handouts covering oscillation, damped and forced response of mechanical and acoustic oscillators, wave phenomena, sound levels, frequency analysis, human hearing, derivation of acoustic wave equation, plane waves, spherical and cylindrical waves, radiation from sound sources (monopole, dipole, quadrupole, linear arrays, baffled piston), radiation impedance, acoustics in large and small rooms, waveguides, end corrections, acoustic impedance and transmission lines, thermoacoustic refrigerators. Wrote 6 draft chapters for an acoustics textbook, used for this course. Taught 9 times to a total of 264 students.

PHYS-482, Acoustics II: Sound and Vibration (4 lecture credits)
Developed and revised lecture content and handouts covering damped and forced oscillation, nonlinear oscillation, transmissibility and vibration isolation, mechanical impedance and circuit analogies, loudspeaker design and frequency response, coupled 2-dof oscillation, dynamic absorbers, vibrating string with boundary conditions, plucked and struck string, rectangular and circular membranes, longitudinal and torsional waves in solids, flexural bending waves (derivation of equation of motion and application of boundary conditions), hoop modes in cylinders, transmission of sound through walls. Developed 9 mini-laboratory experiments to coincide with weekly lecture topics. Taught 8 times to a total of 81 students.

PHYS-484, Acoustical Measurements (4 laboratory credits)
Combined and revised laboratory experiments into a full-blown laboratory course covering topics in sound waves in air and structural vibration. Students performed 7 required experiments and an extended experimental project (room acoustics, modal analysis, response of a musical instrument, binaural hearing, etc.). Taught 2 times to a total of 14 students.

ACOUSTICS COURSES DEVELOPED AND TAUGHT AT KETTERING UNIVERSITY (2007 – 2010)

In 2007, the applied physics and engineering physics degree programs underwent significant curriculum revision including a complete redesign of the optics and acoustics minors to reflect needs of students with industrial co-op employers.

PHYS-302, Vibration, Sound and Light (4 lecture credits)
Developed new lecture course in waves with differential equations. Topics include oscillation in mechanical, electrical and acoustic systems, damping and resonance, wave motion, dispersive media, Fourier synthesis, mechanical waves, derivation of wave equation for sound waves and waves on strings, boundary conditions and standing waves, waveguide modes and evanescent waves, Doppler effect and waves in 3D, electromagnetic waves in coaxial cable, wave equation for EM waves, EM waves in dielectric materials and conductors, interference and diffraction. Taught 6 times to a total of 74 students.

PHYS-388, Acoustics in the Human Environment (4 lecture credits)
Assisted colleague Dan Ludwigsen in the development of a new science elective course aimed at industrial applications of acoustics that Kettering students might encounter at their co-op jobs or everyday life. Computer simulations (using Audacity, Raven, MATLAB) explore recording and manipulating audio signals physiology and psychology of hearing, fundamentals of signal analysis, sound quality as a means of relating acoustic metrics to perception of performance, and the acoustics of rooms, listening spaces, and outdoor environments. Group projects encourage students to take the role of a consultant, learn by case studies and provide solutions to client problems. Taught 2 times to a total of 17 students.

PHYS-485, Acoustic Testing and Modeling (4 laboratory credits)
Developed new advanced laboratory course utilizing a three-fold approach to investigating an acoustic problem including theoretical models, computational models (COMSOL Multiphysics) and experimental results (STAR Modal). Two five-week modules explore an air-borne sound problem and a structural vibration problem. Each module begins with essential laboratory techniques, development of theoretical fundamentals and computational tutorials. Each module culminates in an investigation of a complex phenomenon, such as the vector sound intensity around a tuning fork, or the structural vibration of a baseball bat or tennis racket. Experimental results are used to refine finite element computer models both expand on approximate theoretical models. Much of the student work is done in teams, but a substantial part of the course grade comes from rubric-based evaluation of mandatory laboratory notebooks. Taught 5 times to a total of 28 students.

PHYSICS TEACHING AT KETTERING UNIVERSITY *(1995 TO 2011)*

PHYSICS COURSES TAUGHT AT KETTERING UNIVERSITY FROM 1995 TROUGH 2001

PHYS-110, Mechanics (3 lecture credits) Taught 3 times to 181 students
PHYS-111, Newtonian Mechanics Laboratory (1 Laboratory credit)
PHYS-220, Electricity & Magnetism (3 lecture credits) Taught 12 times to 420 students
PHYS-221, Electricity & Magnetism Laboratory (1 Laboratory credit) Taught 2 times to 38 students
PHYS-230, Waves (3 Laboratory credit) Taught 4 times to 160 students
PHYS-231, Waves Lab (1 Laboratory credit) Taught 2 times to 46 students

PHYSICS COURSES TAUGHT AT KETTERING UNIVERSITY FROM 2002 TROUGH 2009

PHYS-114, Newtonian Mechanics (4 lecture credits) Taught 10 times to 402 students
PHYS-115, Newtonian Mechanics Laboratory (1 Laboratory credit) Taught 11 times to 230 students
PHYS-224, Newtonian Mechanics (4 lecture credits) Taught 13 times to 482 students
PHYS-225, Newtonian Mechanics Laboratory (1 Laboratory credit) Taught 9 times to 161 students
PHYS-235, Computers in Physics (3 Lecture Credits) Taught 2 times to 17 students
PHYS-412, Theoretical Mechanics (4 lecture credits) Taught 3 times to 28 students
PHYS-498, Senior Research (4 Laboratory Credits) Taught 1 time to 3 students

EDUCATIONAL WWW SITES (ANIMATIONS, VIDEOS & ARTICLES)

Acoustics and Vibration Animations http://www.acs.psu.edu/drussell/demos.html

60+ webpages with animations illustrating vibration and wave phenomena. Animations created with *Mathematica* to show physically correct acoustic processes are accompanied by explanatory text.
Current site receives between 6,000-10,000 visits per month.
Original site (www.kettering.edu/~drussell/demos.html) had over 2 million visits between 2001-2011.

THIS ACOUSTICS ANIMATIONS WEBSITE HAS BEEN REVIEWED IN THE FOLLOWING PUBLICATIONS:

Ear and Hearing, **31** (4), p. 585-586 (2010).
The Physics Teacher, **43** (1) p. 57 (2005) with correction in *Phys. Teach.,* **43** (3) p. 190 (2005).
Physics Today, **56** (5), p. 29 (2003).
Science, **293**, p. 1563 (August 31, 2001)
Sound & Communications, **21** (2), p. 18 (2000).

THIS ACOUSTICS ANIMATIONS WEBSITE HAS ALSO RECEIVED THE FOLLOWING AWARDS:

2002 Science-Web Award (http://www.science-web-award.com/)
5-star peer-review rating from MERLOT (http://www.merlot.org)
5-star rating by Schoolzone (http://www.schoolzone.co.uk)
Yahoo! Pick of the Week for 8-27-2001

Physics and Acoustics of Baseball and Softball Bats http://www.acs.psu.edu/drussell/bats.html

25+ articles summarizing the physics of the bat-ball collision and the vibration and acoustic signatures of baseball and softball bats.

YouTube Channel – Acoustics Demos http://www.youtube.com/drdanku

80+ videos showcasing demonstrations of acoustics and vibration phenomena. Channel has 3250 subscribers and 1.54 million views since 2007.

PUBLICATIONS

PAPERS PUBLISHED IN PEER-REVIEWED JOURNALS (STUDENT NAMES UNDERLINED)

D.A. Russell, "Empty soft-drink cans and mass-loaded rods: Analogous problems from acoustic and mechanical domains," *J. Acoust. Soc. Am.,* **160**(1), 61-70 (2026). doi.org/10.1121/10.0044232
D.A. Russell, "An educational opportunity: Acoustics in an empty room," *J. Acoust. Soc. Am.,* **160**(1), 126-134 (2026). doi.org/10.1121/10.0044242
D.A. Russell and P.S. Wilson, "Introduction to the special issue on education in acoustics," *J. Acoust. Soc. Am.*, **152**(5) 3102-3106 (2022). doi.org/10.1121/10.0015273
D.A. Russell, "Acoustics of ping-pong: Vibroacoustic analysis of table tennis rackets and balls," *J. Sports Sci.*, **36**(23) 2644-2652 (2018); doi.org/0.1080/02640414.2018.1462578.
D.A. Russell, J. Junell, and D.O. Ludwigsen, "Vector acoustic intensity around a tuning fork," *Am. J. Phys.*, **81**(2), 99-103 (2013). doi.org/10.1119/1.4769784
D.A. Russell, and D.O. Ludwigsen, "Acoustic testing and modeling: An advanced undergraduate laboratory," *J. Acoust. Soc. Am.*, **131**(3), 2515-2524 (2012). doi.org/10.1121/1.3677241

A.M. Nathan, J. J. Crisco, R.M. Greenwald, D.A. Russell, and L.V. Smith, "A Comparative Study of Baseball Bat Performance," *Sports Eng*., **13**, 153-162 (2011).

A.M. Nathan, L.V. Smith, W.L. Faber, and D.A. Russell, "Corked bats, juiced balls, and humidors: The physics of cheating in baseball," *Am. J. Phys*., **79**(6), 575-580, (2011). doi.org/10.1119/1.3554642

D.A. Russell, "Swing Weight of Softball Bats," *Phys. Teach.,* **48(**10), 471-474 (2010).

D.A. Russell, "Basketballs as spherical acoustic cavities," *Am. J. Phys.*, **78**(6), 549-554 (2010). doi.org/10.1119/1.3290176

D.A. Russell, D.E. Parker, and Russell S. Hughes, "Analysis of standing sound waves using holographic interferometry," *Am. J. Phys.*, **77 (**8), 678-682 (2009). doi.org/10.1119/1.3147683

D.A. Russell and N.P. Weibull, "Table-top thermoacoustic refrigerator for demonstrations," *Am. J. Phys.*, **70** (12), 1231-1233 (2002). doi.org/10.1119/1.1485720

D.A. Russell, "On the sound field radiated by a tuning fork," *Am. J. Phys.*, **68**(12), 1139-1145 (2000). doi.org/10.1119/1.1286661

D.A. Russell, J.P. Titlow, Y.J. Bemmen, "Acoustic monopoles, dipoles, and quadrupoles: An experiment revisited," *Am. J. Phys.,* **67**(8), 660-664 (1999). doi.org/10.1119/1.19349

D.A. Russell, T.D. Rossing, "Testing piano hammer nonlinearity using residual shock spectra," *Acustica—acta acustica*, **84**(5), 967-975 (1998).

D.A. Russell, V.W. Sparrow, "Backscattering from a baffled finite plate strip with fuzzy attachments," *J. Acoust. Soc. Am*., **98** (3), 1527-1533 (1995).

A.D. Pierce, V.W. Sparrow, D.A. Russell, "Fundamental Structural-Acoustic Idealizations for Structures with Fuzzy Internals," *J. Vib. Acoust.*, **117**, 339-348 (1995).

V.W. Sparrow, D.A. Russell, J.L. Rochat, "Implementation of discrete fuzzy structure models in *Mathematica*," *Int. J. Numer. Methods Eng.,* **37** (17), 3005-3014 (1994).

T.D. Rossing, D.A. Russell, and D.E. Brown, "On the Acoustics of Tuning Forks," *Am. J. Phys.,* **60** (7), 620-626 (1992). doi.org/10.1119/1.17116

T.D. Rossing and D.A. Russell, "Laboratory observation of elastic waves in solids," *Am. J. Phys.*, **58** (12), 1153-1162 (1990). doi.org/10.1119/1.16245

PAPERS PUBLISHED IN CONFERENCE PROCEEDINGS

D.A. Russell and Katie Krainc, "Vibroacoustic Comparisons of Ash and Composite hurleys," *Engineering of Sport 16,* International Sports Engineering Association Conference, 1-4 June 2026, Washington State University. doi.org/10.7273/000008169

A. Nathan, L. Smith, and D. Russell, "Studies of the Torpedo Bat," *Engineering of Sport 16,* International Sports Engineering Association Conference, 1-4 June 2026, Washington State University. doi.org/10.7273/000008216

D.A. Russell, "The Penn State M.Eng. degree in acoustics: Four decades of acoustics education at a distance," *Proc. Mtgs. Acoust.*, **56**, 025002 (2026). doi.org/10.1121/2.0002171

D.A. Russell, "Acoustic rockets: A modern demonstration of the 1878 acoustic repulsion apparatus by Dvorak and Mayer," *Proc. Mtgs. Acoust.*, **42**, 025003 (2025). doi.org/10.1121/2.0002103

D.A. Russell, "Helping students learn to read mathematical acoustic equations as descriptive sentences," *Proc. Mtgs. Acoust.*, **54**, 025002 (2024). doi.org/10.1121/2.0002042

D.A. Russell, "Positive aspects of teaching online during COVID-19: Zoom backgrounds, Manny Cam, and increased student engagement," *Proc. Mtgs. Acoust.*, **43**, 025001, (2021). doi.org/10.1121/2.0001446

D.A. Russell and D.O Ludwigsen, "Apparatus for demonstrating evanescent waves in acoustic waveguides," *Proc. Mtgs. Acoust.*, **21,** 025001, (2014/2019); doi.org/10.1121/2.0001038

D.A. Russell, "Interactive (adjustable) plots and animations as teaching and learning tools," *Proc. Mtgs. Acoust.*, **33**, 025001 (2018); doi.org/10.1121/2.0000808.

D.A. Russell, "The Rossing Factor: How I benefited from being Tom Rossing's student," *Proc. Mtgs. Acoust.*, **30**, 035005 (2017). doi.org/10.1121/2.0001444

D.A. Russell, V.W. Sparrow, and S.A. Hambric, "Engaging distance education students in online graduate level courses in acoustics, noise, and vibration," *Proceedings of InterNoise13*, Innsbruck Austria, Sept. 15-18, 2013. p. 6350-6358

D.A. Russell, "Creating interactive acoustics animations using *Mathematica's* Computable Document Format," *Proc. Mtgs. Acoust*, **19** 025006 (2013).

D.A. Russell, "Flexural vibration and the perception of sting in hand-held sports implements," *Proceedings of InterNoise 2012,* August 19-22, New York City, NY (2012). p. 1215

D.A. Russell, "Bending Modes, Damping, and the Perception of Sting in Baseball Bats," *Engineering of Sport 6*, *Vol.1 Developments for Sports*, pp. 11-16 (International Sports Engineering Association, 2006).

L.V. Smith, C. Cruz, A.M. Nathan, and D.A. Russell, "How bat modifications can affect their response," in *Proceedings of the Asia-Pacific Congress on Sports Technology – APCST 2005,* September 12-14, Tokyo Institute of Technology, Tokyo, Japan (2005)

A.M. Nathan, D.A. Russell, and L.V. Smith, "The physics of the trampoline effect in baseball and softball bats," *Engineering of Sport 5,* Vol. 2, pp. 38-44 (International Sports Engineering Association, 2004).

D.A. Russell, "Hoop frequency as a predictor of performance for softball bats," *Engineering of Sport 5,* Vol. 2, pp. 641-647 (International Sports Engineering Association, 2004).

ARTICLES PUBLISHED IN PROFESSIONAL MAGAZINES

K. Riegel and D.A. Russell, "Resonating with Learning: The Technical Specialty Group on Education in Acoustics," *Acoustics Today,* **21**(1), 81-83 (2025). https://doi.org/10.1121/AT.2025.21.1.81

D.A. Russell, "The Tuning Fork: An Amazing Acoustic Apparatus," *Acoustics Today,* **16**(2), 48-55 (2020). doi.org/10.1121/AT.2020.16.2.48

D.A. Russell, "Acoustics and Vibration of Baseball and Softball Bats," *Acoustics Today,* **13**(4), 35-42 (2017). This article was reprinted for the Spring 2020 International Year of Sound Special Issue.

D.A. Russell, "Nondestructive Testing Detects Altered Baseball Bats," *the NDT Technician,* **11**(4), 1-5 (2012).

PRESENTATIONS

INVITED PRESENTATIONS BEFORE PROFESSIONAL SOCIETIES WITH PRINTED ABSTRACTS (STUDENT NAMES UNDERLINED)

D.A. Russell, "On the joys of teaching acoustics to graduate students," 2025 *Rossing Prize Lecture*, paper 3pED1, 190th meeting of the Acoustical Society of America, Philadelphia, PA, May 11-15, 2026.

D.A. Russell, "Fuzzy structures, lengthy footnotes, this thing, that thing, and the guy who married Evelyn Balfour: How Allan Pierce influenced my academic career," paper 2pPA4, 190th meeting of the Acoustical Society of America, Philadelphia, PA, May 11-15, 2026.

D.A. Russell, "The folly of thinking: `This will be a quick, simple experiment," paper 4pSA2, 190th meeting of the Acoustical Society of America, Philadelphia, PA, May 11-15, 2026.

D.A. Russell, "Learning to read an acoustics equation as a descriptive sentence," paper 4pED6, 186th meeting of the Acoustical Society of America, Ottawa, Canada, May 13-17, 2024. *J. Acoust. Soc. Am.,* **155**(3), Pt.2, A313 (2024).

D.A. Russell, "Educational uses of a microflown p-u probe," paper 2pED5, 186th meeting of the Acoustical Society of America, Ottawa, Canada, May 13-17, 2024. *J. Acoust. Soc. Am.,* **155**(3), Pt.2, A155 (2024).

D.A. Russell, "Acoustics Demonstration Extravaganza" 184th meeting of the Acoustical Society of America, Chicago, IL, May 8-12, 2023. *J. Acoust. Soc. Am.,* **153**(3), Pt.2, A114 (2023). This was a 2-hour demonstration show. Recording is available at URL: (coming soon)

D.A. Russell, "When is a Pepsi® can more than just a beverage container? When it is the inspiration for an acoustics homework problem!" paper 3aPAb4, 183rd meeting of the Acoustical Society of America, Nashville, TN, Dec. 5-9, 2022. *J. Acoust. Soc. Am.,* **152**(4), Pt.2, A167 (2022).

D.A. Russell, "A potpourri of homework and test problems inspired by published research and/or classroom demonstrations," paper 3aPAb7, 183rd meeting of the Acoustical Society of America, Nashville, TN, Dec. 5-9, 2022. *J. Acoust. Soc. Am.,* **152**(4), Pt.2, A168 (2022).

D.A. Russell, "Teaching a graduate course on the acoustics of musical instruments over Zoom from my house during COVID-19," paper 2aMU4, 182nd meeting of the Acoustical Society of America, Denver, CO, May 23-27, 2022. *J. Acoust. Soc. Am.,* **151**(4), Pt.2, A81 (2022).

D.A. Russell and V.W. Sparrow, "Asymptotic behavior of the added damping effect of a fuzzy substructure and the importance of modal overlap," paper 4aSA2, 181st meeting of the Acoustical Society of America, Seattle, WA, Nov.29-Dec.3, 2021.

D.A. Russell, "An acoustic resonator rocket: Reviving Dvorak's 1878 acoustic repulsion apparatus," paper 3aEDb3, 179th meeting of the Acoustical Society of America – Acoustics Virtually Everywhere, Dec. 7-11, (2020). http://https://www.youtube.com/watch?v=TQ1_B1Wo03s

D.A. Russell, "Mentoring with intent, even when you aren't a student's research advisor," paper 2aEDa8, 178th meeting of the Acoustical Society of America, San Diego, CA, December 2-6, *J. Acoust. Soc. Am.,* **146**(4), Pt.2, 2819 (2019).

D.A. Russell, "In search of the elusive perfect textbook," paper 4pEDa1, 178th meeting of the Acoustical Society of America, San Diego, CA, December 2-6, *J. Acoust. Soc. Am.,* **146**(4), Pt.2, 3038 (2019).

D.A. Russell, "Take me out to the ballgame: the acoustics of the softball bat piano," paper 3aMU4, 176th meeting of the Acoustical Society of America, Victoria, BC, Canada, November 5-8, *J. Acoust. Soc. Am.,* **144**(3), Pt.2, 1827 (2018).

D.A. Russell, "The Rossing factor: How I benefited from being his student," paper 3aMU7 at Acoustics '17, Acoustical Society of America & European Acoustics Association, Boston, MA, June 26-30, *J. Acoust. Sco. Am.,* **141**(5), Pt.2, 3684 (2017).

D.A. Russell, "Reading, writing, and arithmetic: Encouraging students to read textbooks and take organized notes," paper 5pED4 at Acoustics '17, Acoustical Society of America & European Acoustics Association, Boston, MA, June 26-30, *J. Acoust. Soc. Am.,* **141**(5), Pt.2, 4019 (2017).

P.A. Kerrian and D.A. Russell, "The problem of the noisy golf club," Invited paper 2pSAa4 at 171st meeting of the Acoustical Society of America, Salt Lake City, UT, May 23-27, *J. Acoust. Soc. Am.,* **139**(4), Pt.2, 2077 (2016). [1st place Best Student Paper for Structural Acoustics and Vibration]

D.A. Russell, "Things I learned while teaching a graduate level course on the acoustics of musical instruments," Invited paper 3aMU3 at 171st meeting of the Acoustical Society of America, Salt Lake City, UT, May 23-27, *J. Acoust. Soc. Am.,* **139**(4), Pt.2, 2096 (2016).

D.A. Russell, "Guitar pickups and the plucked string," Invited paper 4pSA6 for 169th meeting of the Acoustical Society of America, Pittsburgh, PA, May 18-22, *J. Acoust. Sco. Am.,* **137**(4), Pt.2, 2412 (2015).

D.A. Russell, "Animations illustrating the reflection of longitudinal wave pulses," Invited paper 1aED3 for 167th meeting of Acoustical Society of America, Providence, RI, May 5-9, *J. Acoust. Soc. Am.,* **135**(4) Pt.2, 2158 (2014).

D.A. Russell, "Apparatus for demonstrating evanescent waves in acoustic waveguides," Invited paper 2pPA1 for 167th meeting of Acoustical Society of America, Providence, RI, May 5-9, *J. Acoust. Soc. Am.,* **135**(4) Pt.2, 2249 (2014).

D.A. Russell, "Vibrational assessment of wood, composite, and plastic hurleys," Invited paper 3pSA1 for 167th meeting of Acoustical Society of America, Providence, RI, May 5-9, *J. Acoust. Soc. Am.,* **135**(4) Pt.2, 2314 (2014).

D.A. Russell, "Animations for communicating the science of underwater sound," Invited paper 5aAB3 for 167th meeting of Acoustical Society of America, Providence, RI, May 5-9, *J. Acoust. Soc. Am.,* **135**(4) Pt.2, 2404 (2014).

D. A. Russell and V.W. Sparrow, "25 years of distance education in acoustics," Invited paper 2aED8 for 164th meeting of the Acoustical Society of America, Kansas City, MO, Oct. 22-26, *J. Acoust. Soc. Am.,* **132** (3) Pt. 2., 1923 (2012).

D.O. Ludwigsen and D. A. Russell, "Three approaches to understanding sound radiation from a tuning fork," Invited paper for 162nd meeting of the Acoustical Society of America, San Diego, CA, Oct. 31 – Nov. 4, 2011. Paper 2aEDa2 for special session: Education in Acoustics, Tools for Teaching Advanced Acoustics I. *J. Acoust. Soc. Am.,* **130**(4) Pt.2, 2361 (2011).

D. A. Russell, "Sweet spot of a hollow baseball or softball bat," Invited paper for the 148th Meeting of the Acoustical Society of America, November 15-19, 2004, San Diego, CA. Paper 4aSA in special session: Structural Acoustics and Vibration: Vibration of Sports Equipment. *J. Acoust. Soc. Am.,* **116** (4) Pt. 2, 2602 (2004).

D. A. Russell, "Acoustics and vibration animations: A surprisingly successful website," Invited paper for the 146th Meeting of the Acoustical Society of America, November 10-14, 2003, Austin, TX. Paper 1pED1 in special session: Education in Acoustics and Musical Acoustics Neat Acoustics Websites and Software for Teaching Acoustics. *J. Acoust. Soc. Am.,* **114** (4) Pt. 2, 2308 (2003).

D. A. Russell, "Integration of a full co-op job experience (and direct job placement) with an applied physics curriculum." Invited paper for American Physical Society March Meeting 2002, March 18-22, Indianapolis, IN. Paper D7-3 in special session on Educating Physicists for Industrial Careers: Bachelor's to Ph.D. (2002)

D. Russell, "Animations for teaching more advanced acoustics topics," 138th meeting of Acoustical Society of America, Columbus, OH, November 1-5, 1999. *J. Acoust. Soc. Am.,* **106** (4) Pt. 2, 2197 (1999).

D. Russell, "Implementing a 'Just-In-Time' Approach to Engineering Physics Courses," AAPT Summer Meeting, Lincoln, NE, August 3-8, 1998.

V. Sparrow and D. Russell, "Animations created in *Mathematica* for Acoustics Education," 16th International Congress on Acoustics and 135th meeting of the Acoustical Society of America, Seattle, WA, June 20-26, 1998. *J. Acoust. Soc. Am.,* **103** (5) Pt. 2, 1454 (1998).

D. Russell, V. W. Sparrow, C. Soize, "A mathematical formulation for modeling the type I fuzzy parameters for a continuous line fuzzy attachment," *J. Acoust. Soc. Am.,* **95** (5) Pt. 2, S2846 (1994).

CONTRIBUTED PRESENTATIONS BEFORE PROFESSIONAL SOCIETIES – WITH PRINTED ABSTRACTS (STUDENT NAMES UNDERLINED)

D.A. Russell, "The influence of diameter profile on the mode shapes and frequencies of baseball bats," paper 3aNS9, 190th meeting of the Acoustical Society of America, Philadelphia, PA, May 11-15, 2026.

J. Langlois and D.A. Russell, "Understanding the vibrational behavior of Olympic barbells under realistic loads," paper 3aNS8, 190th meeting of the Acoustical Society of America, Philadelphia, PA, May 11-15, 2026.

D.A. Russell, "A Master's degree in acoustics online: The acoustics distance education program at Penn State," paper 2aED5, 188th meeting of the Acoustical Society of America & ICA2025, New Orleans, LA, May 19-23, 2025. *J. Acoust. Soc. Am.,* **157**(4), Pt. 2, A111 (2025).

D.A. Russell, "Syllabus – More than just a piece of paper with course rules," paper 3pED4, 187th meeting of the Acoustical Society of America, Virtual Meeting, Nov. 19-21, 2024.

D.A. Russell, "Understanding pickleball noise at the source: The vibroacoustics of the pickleball paddle and ball" paper 5aNS7, 186th meeting of the Acoustical Society of America, Ottawa, Canada, May 13-17, 2024. *J. Acoust. Soc. Am.,* **155**(3), Pt. 2, A348 (2024).

N.J. Parker and D.A. Russell, "Early development of a set of interactive tools for undergraduate acoustics education," paper 4pED8, 186th meeting of the Acoustical Society of America, Ottawa, Canada, May 13-17, 2024. *J. Acoust. Soc. Am.,* **155**(3), Pt.2, A313 (2024).

D.A. Russell, "Lord Rayleigh versus Chladni and KFC Sanders: Who is correct about tuning forks?" paper 3aSA4, 186th meeting of the Acoustical Society of America, Ottawa, Canada, May 13-17, 2024. *J. Acoust. Soc. Am.,* **155**(3), Pt. 2, A221 (2024).

J.C. Simon and D.A. Russell, "Penn State acoustic wave kits (PAWKits)," paper 5aED6, 184th meeting of the Acoustical Society of America, Chicago, IL, May 8-12, 2023.

D.A. Russell, "Using impedance to explore resonance in mechanical, acoustical, and electrical analog systems," paper 4pED7, 181st meeting of the Acoustical Society of America, Seattle, WA, Nov. 29-Dec. 3, 2021.

J. Simon and D. Russell, "Penn State Acoustic Wave (PAW) Kits: Development of `at-home' hands-on activities for first-year graduate level acoustics courses," paper 1aED5, 181st meeting of the Acoustical Society of America, Seattle, WA, Nov. 29-Dec. 3, 2021.

D.A. Russell, "Aspects of teaching online during COVID-19 that I want to retain when I return to a `normal' classroom environment"," paper 1pED5, 180th meeting of the Acoustical Society of America, "Acoustics-in-Focus", June 8-10, 2021.

D.A. Russell, "The problem of parallax when using high speed cameras for measurement," paper 1aSAb3, 176th meeting of the Acoustical Society of America, Victoria, BC, Canada, November 5-8, *J. Acoust. So. Am.,* **144**(3), Pt.2, 1682 (2018).

D.A. Russell, "Vibroacoustic analysis of table tennis rackets and balls," paper 5aSAb4 at Acoustics '17, Acoustical Society of America & European Acoustics Association, Boston, MA, June 26-30, *J. Acoust. So. Am.,* **141**(5), Pt.2, 3979 (2017).

K.Vayur and D. A. Russell, "Vibrational analysis of hollow and foam-filled graphite tennis rackets," paper 3aSA11, 169th meeting of the Acoustical Society of America, Pittsburgh, PA, May 18-22, *J. Acoust. Soc. Am.,* **137** (4) Pt. 2, 2325 (2015). [1st place Best Student Paper for Structural Acoustics and Vibration]

C.A. Taylor and D. A. Russell, "Acoustic characteristics of a guitar," paper 3pMU1, 169th meeting of the Acoustical Society of America, Pittsburgh, PA, May 18-22, *J. Acoust. Soc. Am.,* **137** (4) Pt. 2, 2338 (2015). [1st place Best Student Paper for Musical Acoustics]

D.A. Russell, V.W. Sparrow, and Stephen A. Hambric, "Engaging distance education students in online graduate level courses in acoustics, noise and vibration," InterNoise 2013, 15-18 Sept., Innsbruck, Austria (2013).

D. A. Russell, "Vibration damping mechanisms for the reduction of sting in baseball bats," paper 1aSA5, 164th meeting of the Acoustical Society of America, Kansas City, MO, Oct. 22-26, *J. Acoust. Soc. Am.,* **132** (3) Pt. 2, 1893 (2012).

D. A. Russell, "Teaching graduate level acoustics courses to a blended enrollment of resident and distance education students," paper 2aED10, 164th meeting of the Acoustical Society of America, Kansas City, MO, Oct. 22-26, *J. Acoust. Soc. Am.,* **132** (3) Pt. 2, 1923 (2012).

L.J. Hunt and D. A. Russell, "Vibrational characteristics of wood, aluminum, and composite hockey sticks," 162nd meeting of the Acoustical Society of America, San Diego, CA, Oct. 31 – Nov. 4, 2011, *J. Acoust. Soc. Am.,* **130**(4) Pt.2, 2429 (2011).

L.J. Hunt and D. A. Russell, "Vibrational assessment of ice hockey goalie sticks," 162nd meeting of the Acoustical Society of America, San Diego, CA, Oct. 31 – Nov. 4, 2011, *J. Acoust. Soc. Am.,* **130**(4) Pt.2, 2327 (2011).

D. Russell, W. Haveman, W. Broden, N. P. Weibull, and P. Pedersen, "Effect of body shape on the vibration of electric guitars," 145th meeting of the Acoustical Society of America, Nashville, TN, April 28 - May 2, 2003, *J. Acoust. Soc. Am.*, **113**(4) Pt 2., 2316, (2003).

D. Russell and W. Haveman, "Acoustic and modal analysis of an African djembe drum," 140th meeting of the Acoustical Society of America, Newport Beach, CA, December 4-8, 2000, *J. Acoust. Soc. Am.*, **108**(5) Pt 2., 2591, (2000).

D. Russell, "Musical instruments of antiquity as illustrated in *The Adventures of Asterix the Gaul*," 140th meeting of the Acoustical Society of America, Newport Beach, CA, December 4-8, 2000, *J. Acoust. Soc. Am.*, **108**(5) Pt 2., 2618, (2000).

D. Russell, "Comparing the vibrational behavior of wood and aluminum baseball bats," 138th meeting of Acoustical Society of America, Columbus, OH, November 1-5, 1999. *J. Acoust. Soc. Am.,* **106** (4) Pt. 2, 2292 (1999).

D. Russell, "New experiments on an old NeXT computer," 138th meeting of the Acoustical Society of America, Columbus, OH, November 1-5, 1999. *J. Acoust. Soc. Am.,* **106** (4) Pt. 2, 2140 (1999).

R. Hughes, D. Russell, and D. Parker, "Holographic analysis of standing waves in a resonance tube," 133rd meeting of the Acoustical Society of America, State College, PA, June 16-20, 1997. *J. Acoust. Soc. Am.,* **101**(5) Pt. 2, 3033 (1997).

D. Russell, "Making Waves on the World Wide Web," Fall 1996 meeting of the Ohio Section, American Physical Society, Athens, OH, Nov. 1-2, 1996.

D. Russell and T. Cameron, "Laboratory Instruction in Acoustics and Vibration," ASEE Annual Meeting, June 23-26, 1996, Washington DC, session 2526.

D. Russell and T. Cameron, "Coupling Computer Simulation and Experiment," ASEE Annual Meeting, June 23-26, 1996, Washington DC, session 3226.

D. Russell and V. W. Sparrow "An asymptotic analysis of the added damping effect of a distribution of fuzzy attachments with steady state excitation," 129th meeting of the Acoustical Society of America, Washington DC, May 30 - June 3, 1995. *J. Acoust. Soc. Am*., **97** (5) Pt. 2, 3414 (1995). [*winner of best student paper award*].

D. Russell and V. W. Sparrow, "Coupling Between Flexural and Membrane Wave Types due to Multi-degree of Freedom and Rotational Fuzzy Attachments," 129th meeting of the Acoustical Society of America, Washington DC, May 30 - June 3, 1995. *J. Acoust. Soc. Am*., **97** (5) Pt. 2, 3415 (1995).

D. Russell, J. L. Rochat, A. D. Pierce, and V. W. Sparrow, "Scattering from a finite width panel with attached internal resonances in an infinite baffle," 125th meeting of the Acoustical Society of

America, Ottawa, Canada, May 17-21, 1993. *J. Acoust. Soc. Am*., **93** (4) Pt. 2, S2412 (1993).

T. Rossing and D.A. Russell, "Simple demonstrations with tuning forks," 124th meeting of the Acoustical Society of America, New Orleans, LA, Oct. 31–Nov. 4, 1992. *J. Acoust. Soc. Am*., **92**(4) Pt. 2, 2401 (1992)

D. Russell and V. W. Sparrow, "Acoustic scattering from a fluid loaded plate with an attached structural fuzzy," 123rd meeting of the Acoustical Society of America, Salt Lake City, UT, May 11-15, 1992. *J. Acoust. Soc. Am*., **91**(4) Pt. 2, S2440 (1992).

D. Russell and T. D. Rossing, "Shock spectra of piano hammers," 120th meeting of the Acoustical Society of America, San Diego, CA, Nov. 26-30, 1990. *J. Acoust. Soc. Am*., **88**, Suppl. 1, S186 (1990)

D. Russell and R.R. Korte, "Demonstrating modes of vibration in bars and plates with simple apparatus," 119th meeting of the Acoustical Society of America, State College, PA, May 21-25, 1990. *J. Acoust. Soc. Am*., **87** Suppl. 1, S33 (1990).

OTHER PRESENTATIONS BEFORE PROFESSIONAL SOCIETIES

D. Russell, "Indirect methods of assessing bat performance," invited presentation before the Sporting Goods & Manufacturers Association Baseball & Softball Council Fall Meeting, Dallas, TX, September 29 - October 1, (2005).

D. Russell, "Correlation between hoop frequency and performance," invited presentation before the Sporting Goods & Manufacturers Association Baseball & Softball Council Fall Meeting, Dallas, TX, October 1-3, (2004).

D. Russell, "Progress report on hoop frequency and a portable pendulum test," presented at the annual meeting of the Baseball/Softball Equipment Subcommittee F08.26 of the ASTM, Salt Lake City, UT, May 18-20, (2004).

D. Russell, "Tuning a bat to optimize the trampoline effect," presented at Sporting Goods & Manufacturers Association Baseball & Softball Fall Meeting, Dallas, TX, Oct. 2-4, (2003).

D. Russell, "Making Waves on the World Wide Web," paper CF-7 presented at the Fall meeting of the Ohio Section of the American Physical Society, Athens OH, November 1-2 (1996).

GUEST LECTURES, KEYNOTE ADDRESSES, INVITED SEMINARS

D. Russell, “Swing, Sting, and Ping: The Physics of Hand-Held Sports Equipment,” 2024 Robert and Janice Loss Science Lecture Series. St. John Fisher University, Rochester, NY. March 19, 2024.

D. Russell, “Swing, Sting, and Ping: How Sound and Vibration Influence Perceived Performance of Hand-held Sports Equipment,” ASA Webinar Series (online), June 22, 2023. 300 registered.

D. Russell, “SWING, STING, & PING: Acoustics and Vibration assessment of perception of performance and feel for sports implements.” May 11, 2022. Invited seminar for 25 engineers at PING Golf Inc.

D. Russell, “Swing, Sting, and Ping: Physics (Acoustics and Vibration) of Hand-Held Sports Equipment,” Thomas P. Johnson Distinguished Visiting Scholar Lecture, Rollins College, Winter Park, FL, October 20, 2020. 65 students and faculty in attendance.

D. Russell, “Recent Trends in Materials and Designs for the Reduction of Vibration and Noise in Hand-Held Sports Equipment,” National Academy of Engineering Workshop “Advances in Noise Control Engineering,” October 19-20, 2021. (virtual)

D. Russell, “Acoustics of Ping-Pong,” Society of Physics Student National Seminar Series (virtual). 45 attendees, 500 views. https://www.youtube.com/watch?v=ekalYkdrwI8 (September 24, 2020).

D. Russell, “Physics (Acoustics and Vibration) of Hand-Held Sports Equipment,” Brigham Young University Physics Colloquium, BYU Physics and Astronomy Dept., Provo, UT (September 21, 2019). 95 in attendance.

D. Russell, “Making Acoustics and Vibration Concepts Accessible Through the Use of Animations,” SAE International 2019, Society of Automotive Engineers, Grand Rapids, MI, Keynote Address (June 13, 2019). 1000+ in attendance.

D. Russell, “Animations as educational tools for understanding the acoustics of musical instruments,” CIRMMT Distinguished Lecture Series, Centre for Interdisciplinary Research in Music Media and Technology, Schulich School of Music, McGill University, Montreal, Quebec, Canada. (March 21, 2019). 85 in attendance, Invited. Recording posted to CIRMMT YouTube

channel: https://www.youtube.com/watch?v=nl2q_g_Mors (1003 views as of 9/6/2025).

D. Russell, "Teaching a Graduate Level Course on the Acoustics of Musical Instruments," CIRMMT Workshop on Education in Acoustics, Centre for Interdisciplinary Research in Music Media and Technology, Schulich School of Music, McGill University, Montreal, Quebec, Canada, (March 21, 2019). 40 in attendance.

D. Russell, "Structural Acoustics of Sports Equipment," Lecturer for the 2014 ASA School *Living in the Acoustic Environment*, Providence, RI, May 3-4, 2014.

GRANTS AND PROPOSALS

Easton Baseball – Vibration Assessment of Baseball Bats for Feel and Indirect Performance	$30,000	2019
Ritual Hockey – Vibration Assessment of Field Hockey Sticks	$5,000	2019
Nike Golf – Acoustics of Golf Clubs (D.A. Russell and E. Handley)	$18,000	2015 – 2016
Penn State College of Engineering Instructional Research Equipment Grant	$24.950	2015
Sporting Goods Manufacturers Association – Indirect Methods of Testing Softball Bats	$25,000	2005 – 2009
Gibson Guitars — "Proposal to Gibson Musical Instruments for Developing an Acoustics Laboratory at GMI Engineering & Management Institute," (funding includes donated software, musical instruments, and $36,000 non-recurring retainer)	$58,500	1998
GMI Research Initiative / Improvement grant – "Experimental methods for determining the mass-frequency distribution of a fuzzy substructure"	$5,000	1997
NSF (ILI-IP) – D. A. Russell and T. M. Cameron, "Applied Physics Acoustics Laboratory," proposal #DUE-9751029 (**not funded**)	$32,571	1996

CONSULTING

Modal Analysis and Softball Bat Testing for Easton Sports	$3000	2010
Modal Analysis of Baseball Bats for RX Sports	$850	2010
Vibration Analysis of Field Hockey Sticks – STX Field	$1,950	2009
Vibration Analysis of Baseball & Softball Bats for PowerMetal Inc.	$2,150	2007
Vibration Analysis of Baseball/Softball Bats for various bat companies: Nike, Reebok, Easton, Worth, DeMarini, Miken, Louisville Slugger, Mattingly Baseball, R2L Sports	$13,000	2004 – 2009
Analysis and Optimization of Harmonic Damper for Marucci Bats	$9,500	2004 – 2010
Modal Analysis of Baseball/Softball Bats for CE Composites	$7,500	2002 – 2003
Modal analysis of golf club shafts for Gallaway Golf	$2,000	1997

AWARDS & HONORS

Acoustical Society of America – **Rossing Prize in Acoustics Education** – 2025

Penn State Engineering Alumni Society **Outstanding Teaching Award** – 2022

Acoustical Society of America Student **Council David Blackstock Mentor Award** – 2017

Rodes Professor Award – *Kettering University* – 2007
Educational Scholar Award – *Kettering University Center of Excellence for Teaching and Learning* – 2001
Outstanding Teacher of the Year – *Kettering University Alumni Association* – 2000
Faculty Member of the Year Award – *ΦΔΘ Fraternity*, *Kettering University* – 1996

ASA Structural Acoustics and Vibration Best Student Paper Award – 1995
Eugen J. Skudrzyk Memorial Award, *Pennsylvania State University* – 1995
Kenneth T. Simowitz Memorial Citation, *Pennsylvania State University* – 1995
Acoustical Society of America Fellowship, *Physical Acoustics Summer School* – 1994
College of Engineering Dean's Fellowship, *Pennsylvania State University* – 1991-1994

A.I.P. Summer Internship Program Finalist – 1989

Bradley University Phi Kappa Phi Academic Hall of Fame (1 of 5 inductees) – 1988-89
Outstanding Senior in Physics, *Bradley University* – 1988-89
Ising Physics Scholarship, *Bradley University* - 1987
Sigma Pi Sigma Physics honor society, *Bradley University* – 1987
Phi Kappa Phi honor society, *Bradley University* – 1986

AWARDS WON BY STUDENTS I HAVE ADVISED

Peter Kerrian – Best Student Paper Award, 1st place, Structural Acoustics and Vibration, ASA 171, Salt Lake City, (2016)
Kritika Vayur – Best Student Paper Award, 1st place, Structural Acoustics and Vibration, ASA 169, Pittsburgh, (2015)
Corey Taylor – Best Student Paper Award, 1st place, Musical Acoustics, ASA 169, Pittsburgh (2015)

PROFESSIONAL SOCIETY MEMBERSHIP AND SERVICE

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

Acoustical Society of America (ASA)	1990 – present
American Association of Physics Teachers (AAPT)	1997 – present
Institute for Noise Control Engineering (INCE)	2012 – present
American Society of Testing Materials (ASTM International)	2005 - 2010
American Society of Engineering Education (ASEE)	2001 – 2004, 2023 – present
Sigma Xi, Scientific Research Society	1991 – 2005
Society of Physics Students (Kettering University Faculty Advisor)	1987 -– 2011

COMMITTEE MEMBERSHIP AND SERVICE

Acoustical Society of America (ASA) Committee on Education in Acoustics	1997 – present
Chair, ASA Administrative Committee on Education in Acoustics	2018 – 2024
During my tenure as chair, the Education in Acoustics Committee was elevated from an administrative committee to a Technical Specialty Group, enroute to becoming a full Technical Committee	
ASA Musical Acoustics Technical Committee	2000 – present
ASA Structural Acoustics and Vibration Technical Committee	2012 – present
ASA Physical Acoustics Technical Committee	2021 – present
ASA Web Advisory Committee	2017 – 2019
ASA Ad-Hoc Committee on Online Education	2000 – 2006
ASA Selection Committee for Rossing Prize in Acoustics Education	2004 – 2008
Chair of Selection Committee for Rossing Prize in Acoustics Education	2019 – 2024
ASA representative to AIP Liaison Committee on Education	2020 – 2023
USA Baseball – Bat Advisory Committee	2008 – 2015
ASTM Subcommittee F.08.26 Baseball and Softball Equipmen	2005 – 2010

REVIEWER / EDITOR FOR JOURNALS

Guest Associate Editor: JASA Special Issue: Education in Acoustics (40 papers)	2021 – 2022
Occasional reviewer for *Am. J. Phys.,* and *J. Acoust. Soc. Am.*	2008 – present
Associate Editor (Education) for Proceedings of Meetings on Acoustics (POMA)	2019 – 2022

SPECIAL SESSIONS ORGANIZED — ACOUSTICAL SOCIETY OF AMERICA.

ASA 188, New Orleans, May 19-23, 2025 – Session 2pED, "Acoustics Around the World—Part 1: Education Programs at Universities"
ASA 187, Virtual, Nov. 19-21, 2024 – Session 3pED, "Where Do You Get Your Inspiration?"
ASA 186, Ottawa, May 13-17, 2024 – Session 2pED, "A Potpourri of Classical and Unusual Materials and Demonstrations"
ASA 186, Ottawa, May 13-17, 2024 – Session 3aSA, "My Favorite Homework Problems in Structural Acoustics and Vibration"
ASA 186, Ottawa, May 13-17, 2024 – Session 4pED, "Teaching Acoustics With (or Without) Math"
ASA 186, Ottawa, May 13-17, 2024 – Session 5aNS, "Pickleball Noise"
ASA 184, Chicago, May 8-12, 2023 – Session 2aPAb, "Acoustics Demonstration Extravaganza"

ASA 184, Chicago, May 8-12, 2023 – Session 2pED, "Assessment of Acoustics Education"
ASA 184, Chicago, May 8-12, 2023 – Session 5aED, "Resources for Teaching Waves in a Physics Class"
ASA 183, Nashville, Dec. 5-9, 2022 – Session 3aPAb, "My Favorite Homework Problems (Based on Measurements, Demonstrations, or Experimental Data).
ASA 183, Nashville, Dec. 5-9, 2022 – Session 4pED, "Connecting Industry and Education (Part 2)"
ASA 182, Denver, May 23-27, 2022 – Session 2p#D, "Connecting Industry and Education (Part 1)"
ASA 181, Seattle, Nov. 28-Dec. 3, 2021 – Session 1aED, "Returning to Teaching Acoustics In-Person in the Post-COVID Era"
ASA 181, Seattle, Nov. 28-Dec. 3, 2021– session 4pED, "Preview of the next JASA Special Issue on Education in Acoustics"
ASA 180, Acoustics in Focus, June 8-20, 2021 – session 1pED, "Reflections on Teaching Acoustics During a Pandemic"
ASA 179, Acoustics Virtually Everywhere, Dec. 7-11, 2020 – session 1pED, "Acoustics Demonstrations for Classroom Use"
ASA 178, San Diego, November 2-5, 2019 – session 2aEDa, "Mentoring Graduate and Undergraduate Students"
ASA 178, San Diego, November 2-5, 2019 – session 4pEDa, "Selecting a Textbook for Teaching an Acoustics Course"
ASA 177, Louisville, KY, May 13-17, 2019 – session 3pNS, "Noise at Sporting Events and Sports Venues"
Acoustics '17, Boston, MA, June 26-30, 2017 – session 5pED, "Teaching Tips for New (or Not So New) Acoustics Faculty Members"
Acoustics '17, Boston, MA, June 26-30, 2017 – session 3aMU, "Session in Honor of Thomas D. Rossing
Acoustics '17, Boston, MA, June 26-30, 2017 – session 5aSAb, "Acoustics and Vibration of Sports and Sports Equipment"
ASA 169, Pittsburgh, PA, May 18-22, 2015 – session 3aED, "Preparing Graduate Students for Careers in Acoustics"
ASA 169, Pittsburgh, PA, May 18-22, 2015 – session 4pSA, "Demonstrations of Structural Acoustics and Vibration"
ASA 138, Columbus, OH, November 1-5, 1999 – session ED, Undergraduate Laboratory Experiments

STUDENT THESES ADVISED & COMMITTEE MEMBERSHIP

PH.D. STUDENTS ADVISED (PENN STATE, 2011-PRESENT)

Ph.D. Advisor for Noah Parker, "Pedagogical Assessment of Web-based Interactive Tools for Undergraduate Acoustics," The Pennsylvania State University, (2023-present)

Ph.D. committee chair and co-advisor for Edward Zechmann, "Characterization of impulsive noise sources using kurtosis corrected sound power and relating the sound power to the risk of hearing impairment," The Pennsylvania State University, (2014-2019)

Ph.D. committee chair and co-adviser for Whitney L. Coyle, "Study of the acoustical properties of the clarinet in order to characterize the ease of playing," Ph.D. The Pennsylvania State University, (2012-2016). Dr. Coyle is currently a tenured Associate Professor of Physics at Rollins College.

M.S. AND M.ENG. STUDENTS ADVISED (PENN STATE, 2011-PRESENT)

James Obermaier, "Vibro-acoustic analysis of the influence of table tennis paddle shape," The Pennsylvania State Univeristy, (2026-2027)

Noah Parker, "Pedagogically Informed Development of Web-based Interactive Tools for Undergraduate Acoustics Education," The Pennsylvania State University (2023-2026)

Kathryn Krainc, "Vibrational Analysis of Ash and Composite Hurleys," M.S. The Pennsylvania State University (2019-2020)

Andrew Kinzie, "Acoustic Characterization of Penn State Recording Studio A, Above and Below the Schroeder Frequency," M.S. The Pennsylvania State University (2016-2017)

Peter A. Kerrian, "Acoustic and Vibrational Analysis of Golf Club Drivers," M.S. The Pennsylvania State University (2015-2016)

Corey Taylor, “Experimental Analysis of an Acoustic Guitar,” M.Eng., The Pennsylvania State University (2013-2015)

Kritika Vayur, “Vibrational Analysis of Hollow and Foam-Filled Graphite Tennis Rackets” M.Eng., The Pennsylvania State University (2013-2015)

PH.D. DISSERTATION COMMITTEE MEMBER (PENN STATE, 2011-PRESENT)

Aimee Ramfjord, “Investigation of Resilient Boundary Conditions for Floor/Ceiling Assemblies,” D.Eng., The Pennsylvania State University (2026-present)

Joshua Langlois, “Acoustic Detection of Vital Signs in Water,” Ph.D., The Pennsylvania State University (2025-present)

Kourtney Libenow, “Development and uncertainty quantification of multiple surrogate models for structural vibration,” Ph.D., The Pennsylvania State University (2024-present)

Zachary Jones, “Resultant and Distributed Unsteady Force Reconstruction using Force Gages and Accelerometers” Ph.D., The Pennsylvania State University (2021-2024)

Jason Sammut, “Shock Profile Replication of Medium Weight Shock (MWS) Testing for Simulation and Improved Design Capabilities,” Ph.D., The Pennsylvania State University, (2020-2022)

James Chatterley, “The Use of Pulse Waves to Increase Carbon Nanotube Thin-Film Thermophone Efficiency,” Ph.D., The Pennsylvania State University, (2016-2022)

Yoo Xiong, “Acoustic Black Hole Systems,” Ph.D., The Pennsylvania State University, (2019-2021)

Mathew Neal, “A Spherical Microphone and Compact Loudspeaker Array Measurement Database for the Study of Concert Hall Preference,” Ph.D., The Pennsylvania State University, (2016-2019)

Martin Lawless, “Emotional Response to Room Acoustics through f-MRI,” Ph.D., The Pennsylvania State University, (2015-2018)

Tae Kwang Yoo, “Field Testing and Numerical Investigation of Streetscape Vehicular Anti-Ram Barrier under Vehicular Impact using FEM and Coupled FEM=SPH Simulations,” Ph.D., The Pennsylvania State University, (2005-2018).

David Dick, “Listener Envelopment in Concert Halls,” Ph.D., The Pennsylvania State University, (2014-2017)

William B. Giannetti, “A Nonlinear Dynamic Impact Analysis of a Composite Hyper-Viscoelastic Sphere,” Ph.D., University of Massachusetts – Lowell, (2010-2019)

Jai Long Cao, “Vibration Control in Cricket Bats Using Piezoelectric-based Smart Materials,” Ph.D., School of Aerospace, Mechanical and Manufacturing Engineering, RMIT University, Melbourne, Australia, (August 2006) [External Examiner for Ph.D. Thesis]

Fatmir Gutaj, “The Sensitivity of Bat Performance Characteristics to Geometric and Material Variations,” Ph.D., School of Aerospace, Mechanical and Manufacturing Engineering, RMIT University, Melbourne, Australia, (May 2005) [External Examiner for Ph.D. Thesis]

M.S. THESIS COMMITTEE MEMBER (2010-PRESENT)

Ying Fu, “Approximation and optimization of Foster network for acoustic propagation in a thermoviscous cylindrical tube,” M.S., The Pennsylvania State University, (2022-2026)

Olivia Van Fleet, “Development of Acoustic Sensing Methods for Quality Assessment of Additively Manufactured AlSi10Mg Parts,” M.S., The Pennsylvania State University, (2026)

Andy Chen, M.S., “Loudspeaker Frequency Response Modulation via Time-Varying Impedance,” M.S., The Pennsylvania State University (2024-2025)

Megan Orzolek, “Investigating Lubricated Friction Forces with a Singing Wineglass,” M.S., The Pennsylvania State University (2024)

Emma Shaw, “Using High-Fidelity Weather Data to Improve Impedance and Absorption Adjustment Values in Airport Noise Level Predictions,” M.S., The Pennsylvania State University (2023)

Max Pagnucco, “Modeling Acoustical Horns as a Cascade of Conical Transmission Line Segments Terminated with a Spherical Radiator,” M.S., The Pennsylvania State University (2022)

Keagan Downey, “Development of Secondary Source Array and Testing Facilities for Performing Large Volume Active Noise Cancelling Measurements,” M.S., The Pennsylvania State University (2020)

Cristina Ochoa, “Three-Channel Correlation Analysis in MEMs and Electret Microphones,” M.S., The Pennsylvania State University, (2020)

Gary Rhoades, “Measuring Plate Vibration Using Deflectometry: The Advantages and Limitations of Add-On Reflective Material,” M.S., The Pennsylvania State University, (2020).

Sumeet Gawali, “Effects of Perturbations on the Reverberant Sound Field of a Room,” M.S., The Pennsylvania State University, (2019)

John Cunsolo, “Noise Transmission from a Small, Hermitic, Reciprocating, Refrigerant Compressor,” M.S., The Pennsylvania State University, (2018)

Andrew Doyle, “Measurement and Analysis of Impedance in Loudspeakers Due to Eddy Currents,” M.S., The Pennsylvania State University, (2018)

Lane Miller, “Analysis of Sound Field Matching with Sparse Transducer Arrays,” M.S., The Pennsylvania State University, (2018)

Veronica Koh, “Design Improvements of an Underwater Low Frequency Projector Based on Clarinet Acoustics,” M.S., The Pennsylvania State University, (2017)

Kevin Patterson, “Acoustics Detection of Failure Modes of the ARL Tactical Flow Meter,” M.S., The Pennsylvania State University, (2017)

Joshua Palmer, “Quantifying Sonic Boom Metric Variability,” M.S., The Pennsylvania State University, (2017)

Manasi Biwalkar, “Single Event Comparison of Predicted and Measured Sound at Vancouver International Airport,” M.S., The Pennsylvania State University, (2017)

Matthew Neal, “Investigating the Sense of Listener Envelopment in Concert Halls,” M.S., The Pennsylvania State University, (2015)

Andrew Aquaviva, “Developing an Underwater Low-Frequency Projector Using Musical Instrument Schema,” M.S., The Pennsylvania State University, (2014)

Aneesh Kudekar, “Acoustic Reflection Coefficient: A Forward and Inverse Scattering Model for Ice and Bed Topography,” M.S., The Pennsylvania State University, (2014).

Troy Taylor, “Terrain Classification for Condition Based Maintenance,” M.S., The Pennsylvania State University, (2014).

Paul Bauch, “Traditional and Angle-Dependent Characterization of Penn State’s Panel Transmission Loss Suite,” M.S., The Pennsylvania State University, (2013).

Benjamin Russo, “Thermal Noise in Condenser Microphone Back Volumes,” M.S., The Pennsylvania State University, (2013).

Whitney L. Coyle, “Using the Green’s Function Parabolic Equation Method to Predict Sound Propagation Outdoors in the Presence of Weather and Complex Terrain,” M.S., The Pennsylvania State University, (2012).

Andrew Sutton, “Using Modal Analysis to Investigate the Bat-Ball Performance of Baseball Bats,” M.S., University of Massachusetts – Lowell, (2010)

Matt Broe, “Assessment of Accelerated Break-In Techniques and the Performance of Baseball Bats,” M.S., University of Massachusetts – Lowell, (2010)

M.ENG. CAPSTONE PAPER ADVISOR (PENN STATE, 2011-2025)

Mark Eckerson, “Characterizing the independent source descriptors of a small mechanical air-pump using experimental methods and their application to noise control,” (2026)

Leon Dixon, “Design and Testing of a Wood Marimba Type Golf Putter,” (2026)

Mohammed Alshehri, “The Impact of Different Core Shapes and Dimensions on Guitar String Inharmonicity,” (2025)

David Gillespie, “Comparison of Various Cajon Models,” (2023)

Karen Yelland, “Understanding the Behaviors of Blade Pass from a Blower Wheel in an Automative HVAC, (2023)

Andrew Miccoli, “Elucidation of Machine Learning and Neural Networks in Diagnostic Ultrasound,” (2024)

Benjamin Grigg, “Measurement of Acoustic Pressure and Particle Velocity of Spherical Sources in Near and Far Field - An Analysis of Proximity Effect,” (2024)

Benjamin Walker, “Application of Waveguide Theory in the Design and Characterization of Oblate Spheroidal Waveguides” (2024)

Michael Cristina, “Developing an Economical Method to Characterize Acoustically Induced

Component Vibration" (2023)

Kyle, Cunningham, "Ported Guitar Speaker Cabinet Design for Extended Low Frequency Response." (2022).

Lyala Marshall, "Audio-Based Lossy Compression of Power Line Signals." (2022).

Matthew Pieczko, "Modal Analysis of a Floor Tom Drum." (2022).

Zachary Tuyls, "Design and Comparison of a Multi Chamber Perforate Tube Muffler," (2022)

David Berol, "Acoustics Applications in Voice-Assisted Testing," (2021)

Christopher Cyr, "Combined Heat and Power: A Community Noise Case Study." (2020)

Gregory Dennis. "Converting a Warehouse into a Concert Hall: A Review of the Existing Acoustic Environment." (2020)

George Ochi, "Bench-Scale Experimental Design and Testing Of Novel 3d-Printed Volumetric Diffusers For The Attenuation Of Blast Noise." (2020)

Ann-Marie Hirsch, "Noise Source Identification for Large Industrial Equipment." (2020)

Andrew Polte, Developing a Process to Test Buzz, Squeak, and Rattle Noises from Heavy Truck Seats," (2019)

Timothy Regan, "Note and Key Detection in Musical Data Using the Constant Q Transform and Pitch Class Profiles," (2019)

Huoy Thyng Yow, "Speech Intelligibility Optimization of a Portable Two-Way Radio at Noise Environment," (2019)

Seth Tomlinson, S., "A Comparison of SDOF Damping Estimation Methods from Frequency Response Functions," (2019)

John Anton, "Transfer Matrix Method for Predicting Sound Transmission Loss of Layered Foam Materials," (2018)

Brian Baddorf, "Airborne (Pattern) Noise in Tires: Noise Generation Mechanisms and a Survey of Prediction Methods and Techniques," (2018)

Seth Bard, "Recommendations for Instituting a Hearing Conservation Program in a Data Center Environment," (2018)

Nicholas Daddario, "An Investigation into the Viability of a Perceptual Based Distortion Algorithm in Loudspeaker Manufacturing," (2018)

Katie Ferguson, "Free-Field Characterization of Hemi-Anechoic Chamber," (2018)

Christopher Hoying, "Hotel Demising Wall TL with and without Acoustic Sealant," (2018)

John Kosco, "Effects of Noise on Human Health and it Relationship to Regulations within Cities, States, and Countries," (2018)

Matthew Parsons, "Acoustic Design of a Basement Level Recording Studio Control Room," (2018)

Richard Morrison, "Room Acoustics of Home Recording Studios: A Case Study," (2018)

Thomas Burns, "Measurement of Viscoelastic Material Properties through Finite Element Optimization," (2017)

Brian Johnson, "An Investigation of a Noise Source Generated by a Residential Boiler," (2017)

Fleming, C., "Applications of a Microflown System." (2017).

Kevin Boujikian, "Reverberation Times and SPL Values at the World's Top Soccer/Football Stadiums." (2017).

Nichole Cuff, "Physics and Acoustics of Pipe Organs." (2016).

Rene Van Ervan, "Structural Acoustics Analysis of a Firestone Air-mount." (2016).

Sergei Samorezov, "Engineering perspective on concussions in sports: Developing prototype of a head impact dosimeter." (2016).

Raymond Rutkowski, "Two-microphone method for measuring acoustic impedance." (2015).

Mike Rudolph, "Ultrasonic signals for distributed sensor location." (2015).

Jackie Wu, "Face Sheet Blockage Factors and the Effect on Normal Acoustic Impedance of Single-Degree-of-Freedom Nacelle Lining," (2014)

Evelyn Breznik, "Vehicle Interior Noise Simulation," (2012)

Gim-Pei Ng, "Acoustics Echo Path Study," (2012)

William Murphy, "Damage Risk Criteria for Impulsive Noise," (2012)

UNDERGRADUATE B.S. THESIS SUPERVISION (PENN STATE, 2011-PRESENT)

Robert Suder, "Experimental modal analysis on baseball bats: how damping rates affect a bat's overall feel," B.S. Schreyer's Honors Thesis, (2018)

UNDERGRADUATE B.S. THESIS SUPERVISION (KETTERING UNIVERSITY, 1995 – 2011)

Kettering University requires undergraduate students to complete a thesis on a topic of interest to the student's co-op employer. The Kettering faculty and the employer advisor mentor the student together. Though most of the work is usually done at the employer's facility, the Kettering faculty member usually contributes expertise, visits the industrial facility, and coaches the writing.

Linda Hunt, "Modal Analysis as a Tool to Determine Response to Quantify Flex Profile and Global Stiffness in Hockey Sticks," Warrior Hockey, Chula Vista, CA. (2011)
Jeremy Baker, "The Indestructible Guitar and Its Practical Application," Gibson Montana Division, Boseman, MT (2010)
Anthony Blondell, "Development of More Advanced Resonance Testing Methodology for Automotive Assemblies," Dura Automotive Systems, Rochester Hills, MI (2010)
Stephen Mohan, "Predicting Vehicle Transfer Case NVH Response Through Dynamometer Testing," Borg-Warner, Auburn Hills, MI (2010)
Herman Orgeron, "Arbitrary Geometry Beamforming Microphone Array," FBI, Quantico, VA (2009)
Scott Hooper, "Virtual Car Sound for Engine Noise," LMS North America, Troy, MI (2009)
Jeremy Foss, "Design Study to Reduce Noise in an Automatic Transmission Shifter Assembly," Dura Automotive Systems, Rochester Hills, MI (2008)
Christopher Ocedek, "Electric Motor Variability Analysis," Eaton Corp., Galesburg, MI (2008)
Pierre Phou, "Automation of the HVAC Acoustic Testing Process," Valeo, Auburn Hills, MI (2008).
Matthew Martens, "Method of Reproducing the Effects of a Firearm Pressure Wave on a Speaker," Bose Corp., Framingham, MA (2007)
Lidia Forgaciu, "Can You Hear Me Now? The Development of a Sound Quality Standard for a Power Seat," Magna-Seating, Troy, MI (2006)
Jeremy Bemis, "Absorption Coefficients: Design and Simulation of Test Equipment," Cascade Engineering, Grand Rapids, MI (2006)
Bryan Wazbinski, "Brake Pad Properties and their Influence upon the Noise Performance of Automotive Brake Systems," Robert Bosch Corp., Farmington Hills, MI
Weber, Rachel, "Automation of Sound Transmission Measurement Process," LEAR Corporation, Southfield, MI
Jared Perez, "Relating Sound Transmission Loss in Flat Steel to that in a Contoured Automotive Dash," Cascade Engineering, Grand Rapids, MI.
Benjamin H. Hodge, IV, "Incorporating Load Sensing into an Electric Parking Brake System," DURA Automotive, Rochester Hills, MI
Faunel Ban, "Application of Sound Quality Metrics to Dynamic Vehicle Interior Acoustic Measurements," Lear Corporation, Southfield, MI
Thomas VandenBerg, "Design & Implementation of a Nondestructive Weld Analysis, Delphi Automotive, Coopersville, MI
Andrew Babian, "Analysis of the Use of Ultrasound for Leak Detection in the Vehicle Production Process," General Motors Truck Group, Dayton, OH
Nathan Dau, "Analysis of Resonant Frequencies of the 500 Switch to Determine Reliability of Switch Firing," First Technology, Grand Blanc, MI
Blong Xiong, "Evaluation of Laminated Dash Concept in Automotive NVH Applications," Lear Corp., Dearborn,
Paul Pedersen, "Design of an Acoustic Predictive Process for Air Intake of the Twin Cam 88 Engine," Harley-Davidson Motor Company, Milwakee, MI
Michael Sczezniak, "Mirror Vibration: Correlating Objective Data with Visual Perception," Britax Vision Systems, Marysville, MI
Pontus Weibull,"Characterization of the effects of Aerosols on M.O.A.D.S," Michigan Aerospace Croporation, Ann Arbor, MI
Sujay Dave,"Developement and validation of noise and vibration test system for transmission assembly line," GM Powertrain Division, Warren, MI
James LeSarge, "Analysis of the noise produced by package conveyor," Mannesmann Dematic Rapistan Systems, Grand Rapids, MI
Kenneth Grulich, "Predicting the Acoustic Design Performance of Weatherstrips Based on Design Parameters," BTR Sealing Systems, NAD, Madison Heights, MI
Helen Xu, "SEA Analysis of Automobile Interior," Lear Corporation, Plymouth, MI
Jeremy Husic, "Dynamic Analysis of a Super PlugTM Door Module During a Door Slam," **[Master's Committee Member]**
Marianne E. Wittmer, "Investigation and evaluation of the signature analysis system for use in detecting faulty seals in the 4T65-E transmission," GM Powertrain Division, Warren, MI. (Co-advisor: R. Bolander)
Chad Taylor, "Acoustic Analysis of a Truck Air Induction System and Coupling to the Vehicle Structure," GM TG, Pontiac MI. (Co-advisor: T. Cameron)
Bradley Ring, "The Use of Vector Intensity Technology to Identify Exhaust Structure-Borne Noise characteristics," AP Parts Company, Toledo, OH. (Co-advisor: T. Cameron)

SERVICE AND CITIZENSHIP

UNIVERSITY & DEPARTMENT

Penn State Acoustics Ph.D. Qualifying Exam Committee Chair (2013-2020)	2011–2023
Penn State Graduate Program in Acoustics Admissions Committee Chair (2015-present)	2011–present
Penn State Graduate Program in Acoustics Curriculum Committee Chair (2019-2023)	2019–present
Penn State College of Engineering Non-Tenure Track Faculty Promotion Committee - Chair (2018, 2024)	2018–2019, 2024–2025
Faculty Advisor, PSU Student Chapter Acoustical Society of America	2012–present
Faculty Advisor, Society of Physics Students and ΣΠΣ honor society	1996–2011
Kettering University Faculty Senate – senator for 6 years	2000–2006
Kettering University Promotion, Tenure and Ethics Committee	2008–2011
Faculty Host for Discover Kettering (lab tours for prospective students)	1995–2011