CURRICULUM VITAE

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BACKGROUND

BIOGRAPHICAL SUMMARY

Professor Stephen Ekwaro-Osire is a full professor of mechanical engineering at Texas Tech University (TTU) and a licensed professional engineer in the State of Texas. He is a Fellow of the American Society of Mechanical Engineers. He is also a Fellow of the Society of Design and Process Science. He is a Fulbright Scholar alumnus. He has over ten years of experience in educational leadership at TTU. Among others, he has served as the interim chair of the Department of Mechanical Engineering, the interim chair of the Department of Industrial, Manufacturing & Systems Engineering, and the associate dean of research and graduate programs in the Whitacre College of Engineering. While at TTU, he has held honorary professorships at four universities in four countries. He has published 72 refereed archival papers in scientific journals, 136 refereed papers in conference proceedings, 14 book chapters, and two books. He has also delivered 37 invited talks in seven countries. As a primary advisor, he has supervised and graduated 16 PhD students and 27 MS students, and he is currently supervising three PhD students. Besides serving as a primary advisor, he has additionally served on 78 PhD committees and 57 MS committees. He has mentored and trained seven post-doctoral research associates. Also, as the director of the Product Design & Development Laboratory, he has supervised and mentored 246 undergraduate students. Professor Ekwaro-Osire and his collaborators have secured $8.1 million for their research from state agencies, federal agencies, international funding agencies, and industry. Professor Ekwaro-Osire has 16 years of experience in higher education quality assurance. Of which, for the last eight years he has served as a program evaluator visitor (PEV) for ABET (a global accreditor of college and university programs in applied and natural science, computing, engineering, and engineering technology). His research interests are uncertainty quantification, structural health diagnosis and prognosis, engineering design, and orthopedic biomechanics. He is a founding member of the Society for Design and Process Science, and an active member of the American Society for Engineering Education, the American Society of Biomechanics, and the Society for Experimental Mechanics.

GLOBAL PERSPECTIVE

[11] From 2017-present, Jimma University, Ethiopia, named Professor Ekwaro-Osire to a position as Honorary Full Professor.

[10] In 2017, the University of Bremen, Germany, named him to a position as Guest Full Professor.

[9] In 2007-2008, he was a Fulbright Scholar.

[8] From 2012-present, he visited over 30 international universities to support and promote internationalization efforts across TTU.

[7] From 2012-present, he played an instrumental role in setting up over 10 Memoranda of Understanding with international institutions.

[6] He (and a colleague) had the initial talks on an agreement for research that has resulted in 40 funded joint grants between international universities and TTU.

[5] He delivered 28 invited talks in seven countries (excluding nine talks within the USA).

[4] As a lead principal investigator on an internationally funded grant, he established and administered three master's programs and one PhD program at four international universities. The programs awarded over 200 master's and nine doctoral degrees on completion of the grant.

[3] As a lead principal investigator on an internationally funded grant, he is currently transforming, post-pandemic, an engineering education system towards excellence. The system consists of 13 BS degree programs, enrolls about 12,000 students, and award about 1000 engineering degrees annually.

[2] He designed and carried out study and research experiences in Europe for undergrad and grad students.

[1] Professor Ekwaro-Osire is active in higher education quality assurance worldwide.

EDUCATION

Texas Tech University, USA

PhD Mechanical Engineering, 1993

Dissertation Title: "Nonlinear Beam-Mass Structures under Combined Deterministic and Random Excitation," published in the *Journal of Vibration and Control*, Vol. 1, No. 2, pp. 225–247, May 1995.
(Dissertation Advisor: Professor A. Ertas)

MS Mechanical Engineering, 1989

Thesis Title: "Investigation of Internal Resonance of a Three-Degree-of-Freedom System under Random Excitation."
(Thesis Advisor: Professor A. Ertas)

Osnabrück University of Applied Sciences, Germany

Dipl-Ing Mechanical Engineering, 1985

Thesis Title: "Design and Construction of a Reference Gage for Gas Meters" (in German).
(Thesis Advisors: Professor Dipl-Ing O. Burke, Professor Dr-Ing H. Meyer)

RANK OF FELLOW IN LEARNED SOCIETIES

Fellow American Society of Mechanical Engineers, 2018

"For his contributions to the application of probabilistic analysis in both, energy systems and healthcare, and he has established effective international graduate programs, specifically in Africa."

Fellow Society of Design and Process Science, 2014

"… he has made significant contributions in the areas of (1) transdisciplinary research and convergence, (2) design research and teaching, and (3) educational leadership"

PRACTICE OF ENGINEERING LICENSURE

Professional Engineer, State of Texas, License No. 93063

ACCREDITATION OF UNIVERSITY PROGRAMS

Program Evaluator Visitor, ABET (Global Accreditor of College and University Programs in Applied & Natural Science, Computing, Engineering and Engineering Technology) (8/13–present)

With over eight years of experience with ABET's engineering accreditation commission, Professor Ekwaro-Osire has served as

[2] Program Evaluator for Mechanical Engineering visits

[1] Program Evaluator for international visits

ACADEMIC LEADERSHIP EXPERIENCE

Interim Department Chair (TTU, Department of Mechanical Engineering) (8/18–8/19)

Professor Ekwaro-Osire reported directly to the dean (Dean Al Sacco, Jr) of the Whitacre College of Engineering. The department of mechanical engineering is one of the largest departments at the university. The enrollment in fall 2017 was 1,762. It awarded a total of 389 degrees in December 2017, May 2018, and August 2018. In the past year, department faculty have served as PI/Co-PI on nearly $10 million in externally sponsored research, of which nearly 75% were from federal sources. The Mechanical Engineering BS program is accredited by the Engineering Accreditation Commission of ABET. Professor Ekwaro-Osire co-authored the self-study report for the Mechanical Engineering BS used in the successful accreditation visit of fall 2017. The department also offers the following distance learning degree: MS in mechanical engineering. Professor Ekwaro-Osire has recruited five new faculty (including three underrepresented minorities) into the department. In Fall 2018, he successfully developed the department's strategic plan with input from faculty, staff, and students which aligned with the college's and university's strategic plans.

[8] Providing academic leadership and vision for the department to enhance its quality and reputation

[7] Overseeing the departmental promotion and tenure process

[6] Serving as an advocate to the dean for departmental needs and priorities

[5] Responsible for administration of all programs and budgets of the department

[4] Working with students and faculty to deliver outstanding undergraduate and graduate programs

[3] Fostering research efforts of the highest quality

[2] Mentoring or providing mentors to assist new as well as continuing faculty

[1] Developing and maintaining productive relationships with alumni

Associate Dean of Research and Graduate Programs (TTU, Whitacre College of Engineering) (1/13–6/16)

Professor Ekwaro-Osire reported directly to the dean (Dean Al Sacco, Jr) of the Whitacre College of Engineering. The college of engineering is one of the largest colleges at the university. The student headcount in fall 2018 was 6,125. It awarded a total of 1,247 degrees in December 2017, May 2018, and August 2018. It had about $33 million total research expenditures in 2018. The Bachelor of Science (BS) degree programs in chemical engineering, civil engineering, computer engineering, construction engineering, electrical engineering, industrial engineering, mechanical engineering, and petroleum engineering are accredited by the Engineering Accreditation Commission (EAC) of ABET. The Master of Environmental Engineering is also accredited by the EAC of ABET. The BS degree program in computer science is accredited by the Computing Accreditation Commission of ABET. The college also offers seven distance learning graduate degrees: PhD in systems and engineering management, Master of Engineering, MS in systems and engineering management, software engineering, mechanical engineering, industrial engineering, and civil engineering. During Professor Ekwaro-Osire's tenure as associate dean of research and graduate programs, graduate enrollment increased by 23.2% and total research expenditures increased by 19.2%. The number of graduate degrees awarded increased by 23.0%. The college's online graduate engineering program improved its national ranking from 50 to 20 (*US News & World Report*). Furthermore, the international research collaboration (TTU-FAPESP SPRINT Program) had initial discussions on has resulted in five joint calls for proposals and two workshops.

[9] Managed the tenure and promotion process in the WCOE

[8] Oversight of the 20 graduate programs in the WCOE

[7] Program coordinator of MS Bioengineering program and Master of Engineering program

[6] Establish International research collaborations including dual degrees and joint research programs

[5] Work with the Vice President for Research Office personnel to enhance research in the WCOE

[4] Academic head of WCOE Distance Learning Program

[3] Addressed issues of Centers and Institutes reporting to WCOE

[2] Development of plans to increase the visibility of WCOE research efforts

[1] Work with the dean to establish a culture of safety in the WCOE

Program Coordinator, International Graduate Programs in Civil Engineering (TTU) (12/15–5/20)

Professor Ekwaro-Osire reports directly to the Scientific Director (President) of Jimma Institute of Technology and State Minister in the Ministry of Science and Higher Education, Ethiopia. This partnership involves four Ethiopian universities, namely, (1) Jimma Institute of Technology (cluster lead), (2) Dire Dawa Institute of Technology, (3) Arba Minch Institute of Technology, and (4) Ethiopian Institute of Architecture, Building Construction and City Development. Professor Ekwaro-Osire secured $1.6 million to execute the program.

[4] Established PhD program in civil engineering and MS program sustainable water engineering, transportation engineering, and architectural engineering, including the development of curricula

[3] Recruited US faculty to teach (face-to-face and distance)

[2] Recruited US faculty to advise 20 PhD students

[1] Created international research experience at the University of Bremen, Germany

Acting Department Chair (TTU, Department of Mechanical Engineering) (6/15–8/15)

Professor Ekwaro-Osire reported directly to the dean (Dean Al Sacco, Jr) of the Whitacre College of Engineering. The department of mechanical engineering is one of the largest departments at the university. The enrollment in fall 2017 was 1,762. It awarded a total of 389 degrees in December 2017, May 2018, and August 2018. The Mechanical Engineering BS program is accredited by the Engineering Accreditation Commission of ABET. Professor Ekwaro-Osire co-authored the self-study report for the Mechanical Engineering BS used in the successful accreditation visit of fall 2017. The department also offers the following distance learning degree: MS in mechanical engineering.

[5] Responsible for administration of all programs and budgets of the department

[4] Working with students and faculty to deliver outstanding undergraduate and graduate programs
[3] Fostering research efforts of the highest quality
[2] Mentoring faculty
[1] Developing and maintaining productive relationships with alumni

Honorary Editor (Journal of Integrated Design and Process Science, Society for Design and Process Science) (9/17–present)

Professor Ekwaro-Osire reports to the Editor-in-Chief of the Journal of Integrated Design and Process Science. He actively participates in the journal's enhancement, presence, and standing within the international readership.

[4] Advising on measures of success for the journal
[3] Advising on raising the profile of the journal
[2] Advising on all matters of editorial policy, decisions, and scope
[1] Advising all editors

Senior Advisory Board (Journal of Integrated Design and Process Science, Society for Design and Process Science) (12/14–9/17)

Professor Ekwaro-Osire reported to the Editor-in-Chief of the Journal of Integrated Design and Process Science. He actively participated in the journal's enhancement, presence, and standing within the international readership.

[4] Advising the journal editors-in-chief
[3] Advising the journal publication developer
[2] Advising the journal outreach committee
[1] Advising on the implementation of the journal strategic vision

Interim Department Chair (TTU, Department of Industrial, Manufacturing & Systems Engineering) (1/13–5/13)

Professor Ekwaro-Osire reported directly to the dean (Dean Al Sacco, Jr) of the Whitacre College of Engineering. The enrollment in fall 2017 was 377. It awarded a total of 126 degrees in December 2017, May 2018, and August 2018. The Industrial Engineering BS program is accredited by the Engineering Accreditation Commission of ABET. The department also offers three distance learning graduate degrees: PhD in systems and engineering management, MS in systems and engineering management, and MS in industrial engineering.

[6] Responsible for administration of all programs and budgets of the department
[5] Working with students and faculty to deliver outstanding undergraduate and graduate programs
[4] Working with faculty to grow, in size and quality, the distance learning PhD program
[3] Fostering research efforts of the highest quality
[2] Mentoring and recruiting faculty
[1] Developing and maintaining productive relationships with alumni

Managing Editor (Journal of Integrated Design and Process Science, Society for Design and Process Science) (1/09–12/14)

Professor Ekwaro-Osire reported to the president of the Society for Design and Process Science. He actively participated in the journal enhancement, presence, and standing within the international readership.

[6] Leading the journal management team
[5] Appointing and supervising two journal proof editors
[4] Conducting the final quality check of the proofed papers and contacting the publisher for the online posting
[3] Designing journal templates and journal cover
[2] Maintaining the journal protocols and guidelines
[1] Handling copyright forms and copyright requests

Director of Undergraduate Program (TTU, Department of Mechanical Engineering) (4/09–11/12)

Professor Ekwaro-Osire reported directly to the department chair (Professor J. Chaudhuri). Professor Ekwaro-Osire co-authored the self-study report for the Mechanical Engineering BS used in the successful accreditation visit of fall 2011. He served as acting chair when the chair was on travel. He led study abroad student groups to Jade University

of Applied Sciences in Germany in 2011 and 2012. He served on the US Delegation to Germany to visit educational and research institutions. He developed a new electronic process for managing student flow charts. During Professor Ekwaro-Osire's tenure as the director, the number of BS degrees awarded increased by 11.8%

[6] Mentoring junior faculty and instructors on teaching matters

[5] Managing the undergraduate scholarship budget (*approx. $60,000*)

[4] Managing the curriculum (*e.g., new courses, transfer credits, course assessment*)

[3] Managing teaching matters (*e.g., class assignment, schedule classes, class size*)

[2] Increasing the retention of women and minorities

[1] Managing the webpage content as regards to the undergraduate program

Director, Editorial Board (Journal of Integrated Design and Process Science, Society for Design and Process Science) (1/03–12/06)

Professor Ekwaro-Osire reported to the president of the Society for Design and Process Science. He actively participated in the journal's enhancement, presence, and standing within the international readership.

[6] Contacting publisher for the online posting

[5] Preparing the final camera-ready version of the accepted papers

[4] Checking grammar and vocabulary of English texts of accepted papers

[3] Managing the proofreading process and formatting of accepted papers

[2] Handling copyright forms and copyright requests

[1] Recruiting paper reviewers

Director of Graduate Studies and Graduate Advisor (TTU, Department of Mechanical Engineering) (1/07–5/09)

Professor Ekwaro-Osire reported directly to the department chair (Professor J. Chaudhuri). He co-authored a review report of Mechanical Engineering's Graduate Program in 2008. The department passed the review of its Graduate Program. He increased female grad student enrollment by 40%. He increased the number of funded on-campus visits of prospective graduate students.

[6] Serving as acting chair (*when the chair was on travel*)

[5] Designing a recruitment brochure and recruited students (*e.g., seminars at four Turkish universities*)

[4] Introducing a grad student orientation seminar and admission process for PhD students

[3] Introducing exit interview questionnaire, four-year course schedule, and electronic degree plans

[2] Managing the graduate scholarship budget

[1] Streamlining the department's Mechanical Engineering Seminar series

Director of the Product Design & Development Laboratory (TTU, Department of Mechanical Engineering) (1/01–present)

Professor Ekwaro-Osire published 224 refereed archival papers, refereed conference papers, book chapters, and books. He has also delivered 37 invited talks. As a primary advisor, he has supervised and graduated 43 PhD and MS students, and he is currently supervising three PhD students. Besides serving as a primary advisor, he has additionally served and serving on 135 PhD and MS committees. He has mentored and trained seven post-doctoral research associates. Also, as the director of his Product Design & Development Laboratory, he has supervised and mentored 246 undergraduate students. Professor Ekwaro-Osire and his collaborators have secured $8.1 million for their research from state agencies, federal agencies, international funding agencies, and industry.

[4] Acquiring and managing research funding

[3] Planning and managing projects

[2] Mentoring and supervising undergraduate and graduate students, post-doctoral research associates

[1] Planning and managing the upgrade of hardware and software

PROFESSIONAL EXPERIENCE

ACADEMIC APPOINTMENTS

Texas Tech University, USA

Professor of Mechanical Engineering (9/10–present)

Affiliate Faculty, National Wind Institute (6/07–present)

Faculty Associate, International Center for Arid and Semiarid Land Studies (8/06–1/13)

Associate Professor of Mechanical Engineering (9/04–8/10)

Assistant Professor of Mechanical Engineering (1/98–8/04)

Visiting Lecturer, Department of Mechanical Engineering (1/94–5/94)

Graduate Teaching Assistant, Department of Mechanical Engineering (9/92–8/93, 7/90–5/91, 9/87–5/90)

Graduate Research Assistant, Department of Mechanical Engineering (6/91–8/91, 6/90–6/90, 6/87–8/87)

Jimma University, Ethiopia

Honorary Full Professor of Mechanical Engineering (9/17–present)

University of Bremen, Germany

Guest Full Professor of Production Engineering (6/17–9/17)

ABET (Global Accreditor of College and University Programs in Applied & Natural Science, Computing, Engineering and Engineering Technology), USA

Program Evaluator Visitor (PEV) for the Engineering Accreditation Commission (8/13–present)

Air Force Institute of Technology, USA

Adjunct Associate Professor of Systems Design & Management (6/06–8/10)

Bogazici University, Turkey

Visiting Associate Professor of Mechanical Engineering (8/07–1/08)

Sabbatical

Bogazici University, Turkey (*8/07–1/08*)

Professor Stephen Ekwaro-Osire was a TTU's recipient of the 2007–2008 Fulbright Fellowship. He was chosen with approximately 800 other US Faculty and Professionals to lecture and conduct research in 140 countries around the world. During his sabbatical leave, Professor Ekwaro-Osire was a Fulbright Scholar and held the position of Visiting Associate Professor of Mechanical Engineering at Bogazici University in Istanbul, Turkey. Bogazici University was founded in 1860 as the first American college outside of the USA. Currently, it is Turkey's most prestigious university. While at Bogazici University, he taught a new graduate-level course (Probabilistic Design), served as a member of a dissertation committee, and participated in the dissertation final examination. He presented three papers at the International Global Colloquium on Engineering Education Conference, which was hosted by Bogazici University. He also collaborated with professors at several Turkish universities. Additionally, he presented eight invited seminars at four different universities, namely, Bogazici University, Karadeniz Technical University, Middle East Technical University, and TOBB University of Economics and Technology.

GOVERNMENT APPOINTMENTS

Air Force Research Laboratory - Wright-Patterson Air Force Base, USA

Air Force Summer Faculty Fellow, Structural Materials Life Prediction Division (5/08–7/08)

Department of State, USA

Fulbright Scholar, The J. William Fulbright Foreign Scholarship Board (8/07–1/08)

NASA (National Aeronautics and Space Administration), Glenn Research Center, USA

NASA Faculty Fellow, Life Prediction Branch (6/03–8/03, 6/02–8/02)

INDUSTRY APPOINTMENTS

Weber Aircraft, Inc, USA

Lead Engineer (2/96–1/98)
Design Engineer (2/95–2/96)

Eagle-Picher Industries, Inc, USA

Design Engineer (6/94–11/94)

HONORS AND AWARDS

Research

[9] Elected a Fellow of the American Society of Mechanical Engineers (ASME), 2018
[8] Elected a Fellow of the Society of Design and Process Science (SDPS), 2014
[7] Certificate of Completion of the Fulbright Scholarship Program, US Department of State, 2009
[6] Air Force Summer Faculty Fellow, Air Force Research Laboratory, 2008
[5] Fulbright Scholar, The J. William Fulbright Foreign Scholarship Board, 2007
[4] NASA Faculty Fellow, NASA Glenn Research Center, 2003, 2002
[3] Certificate of Recognition for Contributions to Research at NASA Glenn Research Center, 2003
[2] Recognition for participation in Faculty Academic Contributions Exhibit, TTU, 2012, 2011, 2010, 2008, 2007
[1] New Faculty Award, Texas Tech Ex-Students Association, 2000

Teaching

[6] Raiders Who Rock, TTU, 2020
[5] Most Influential Professor, College of Engineering, 2013
[4] Best Professor Award, Pi Tau Sigma, 2010, 2003, 1999
[3] George T. and Gladys Abell-Hanger Faculty Award, 2009
[2] Dr. Charles L. Burford Faculty Teaching Award, College of Engineering, 2006
[1] Recognition of Meritorious Achievements in Teaching, TTU Teaching Academy, 2001

Professional

[6] Global Vision Lifetime Achievement, TTU, 2020 (nominated)
[5] Community Service Award, Lubbock Community, 2018
[4] Global Vision Award, TTU, 2012, 2011
[3] Texas Tech Academy of Mechanical Engineers, Department of Mechanical Engineering, inducted Apr 2006
[2] TTU Teaching Academy, inducted Oct 2005
[1] Professing Excellence Award, University Student Housing, 2009

Professional Service

[7] Service Award, Mechanical Engineering Department, 2011
[6] Recognized Faculty Member, The Honors Convocation, College of Engineering, 2010, 2006, 2005
[5] Excellence in Leadership Award, Society for Design and Process Science, 2009
[4] Recognition for Enthusiastic Participation in Design Competition, Raytheon, 2007
[3] Most Supportive Faculty/Staff Member, ASME Student Chapter, 2005–2006
[2] Service Award, Society for Design and Process Science, 2003
[1] Outstanding Faculty Advisor Award, Society for Design and Process Science, 2000

MEMBERSHIP IN LEARNED SOCIETIES

[5] American Society for Engineering Education, 2001–present

[4] American Society of Biomechanics, 2012–present

[3] American Society of Mechanical Engineers (*Fellow*), 1990–present

[2] Society for Design and Process Science (*Fellow, Founding Member*), 1995–present

[1] Society for Experimental Mechanics, 2001–present

RESEARCH INTERESTS

Uncertainty quantification, structural health diagnosis and prognosis, engineering design, orthopedic biomechanics

PUBLICATIONS

PROVISIONAL PATENT APPLICATION

[1] An Ocean Wave Energy Conversion System Optimized for Energy Capture and Delivery of Utility Standard Power, Docket No. 1000-3469, 2015

BOOKS

[2] S. Ekwaro-Osire, A.C. Gonçalves, and F.M. Alemayehu, editors, *Probabilistic Prognostics and Health Management of Energy Systems*, Springer, New York, Apr 2017. (ISBN: 978-3-319-55851-6)

[1] A. Ertas, S. Ekwaro-Osire, P. Ding, K.H. Kim, B. Hua, and P. Sheu, editors, *Proceedings of The Eighth World Conference on Integrated Design and Process Technology*, IDPT-Vol. 1, Published by Society for Design and Process Science, Jun 2005.

BOOK CHAPTERS

(corresponding author denoted by *, student and post-doc denoted by *italics*)

[14] *O. Gecgel*, S. Ekwaro-Osire*, *J.P. Dias*, *A. Nispel*, F.M. Alemayehu, and A. Serwadda, "Machine Learning in Crack Size Estimation of a Spur Gear Pair Using Simulated Vibration Data," in *Proceedings of the 10th International Conference on Rotor Dynamics – IFToMM. Mechanisms and Machine Science, Volume 61*, (Editors: K.L. Cavalca, H.I. Weber), Springer, Cham, Switzerland, Chapter 13, pp. 175-190, 2019. (ISBN: 978-3-319-99267-9)

[13] *H.B. Endeshaw*, S. Ekwaro-Osire*, F.M. Alemayehu, and *J.P. Dias*, "The Remaining Useful Life of Gears with Inherent Uncertainties," in *VDI-Berichte 2294, Volume 2,* (Editor: VDI Wissensforum GmbH), VDI Verlag GmbH, Düsseldorf, Germany, Chapter 96, pp. 1063–1072, 2017. (ISBN: 978-3-18-092294-2)

[12] S. Ekwaro-Osire*, *H.B. Endeshaw*, F.M. Alemayehu, and *O. Gecgel*, "Probabilistic Model-Based Prognostics Using Meshfree Modeling," in *Probabilistic Prognostics and Health Management of Energy Systems,* (Editors: S. Ekwaro-Osire, A.C. Gonçalves, F.M. Alemayehu), Springer, New York, Chapter 5, Apr 2017. (ISBN: 978-3-319-55851-6)

[11] F.M. Alemayehu* and S. Ekwaro-Osire, "Probabilistic Prognostics and Health Management: A Brief Summary," in *Probabilistic Prognostics and Health Management of Energy Systems*, (Editors: S. Ekwaro-Osire, A.C. Gonçalves, F.M. Alemayehu), Springer, New York, Chapter 1, Apr 2017. (ISBN: 978-3-319-55851-6)

[10] *J.J. González, R. Cruz*, and S. Ekwaro-Osire*, "Design Process Improvement and Implementation as a Design Teaching Tool," in *NWRC Summer Research Institute Proceedings in the Renewable Energy, Turbulence and Medicine,* (Editors: L. Castillo, S. Pol, B. Aksak, A. Ruiz-Columbié), National Wind Resource Center, Lubbock, Texas, Chapter 7, pp. 29–32, 2014. (ISBN: 978-0-9903627-1-5)

[9] *F.M. Alemayehu*, S. Ekwaro-Osire*, and F. Karpat, "Uncertainty Consideration in Multibody Dynamic Analysis of Helical-Gear-Pairs," in *VDI-Berichte 2199, Volume 1,* (Editor: VDI Wissensforum GmbH), VDI Verlag GmbH, Düsseldorf, Germany, Chapter 36, pp. 427–438, 2013. (ISBN: 978-3-18-092199-0)

[8] *J.N. Carbone** and S. Ekwaro-Osire, "A Knowledge Component Framework for Enhancing Transdisciplinary Knowledge Assimilation," in *Transdisciplinarity: Bridging Natural Science, Social*

Science, Humanities, and Engineering, (Editor: A. Ertas), TheATLAS Publishing, Lubbock, USA, Chapter 6, pp. 102–126, 2011. (ISBN: 0-9778129-3-6)

[7] F. Karpat*, S. Ekwaro-Osire, and E. Karpat, "A Virtual Tool for Computer Aided Analysis of Spur Gears with Asymmetric Teeth," in *Applications of MATLAB in Science and Engineering*, (Editor: T. Michałowski), InTech, Rijeka, Croatia, Chapter 18, pp. 371–386, 2011. (ISBN: 978-953-307-708-6)

[6] S. Ekwaro-Osire* and *T.H. Jang*, "Probabilistic Techniques in Bioengineering," in *Biomedical Engineering: Health Care Systems, Technology and Techniques*, (Editors: S.C. Suh, V.P. Gurupur, M.M. Tanik), Springer-Verlag, Berlin, Chapter 15, pp. 203–210, 2011. (ISBN: 978-1-4614-0115-5)

[5] S.M. Hsiang, T. Karakostas, C.-C. Chang, and S. Ekwaro-Osire*, "Coherence of Gait and Mental Workload," in *Biomedical Engineering: Health Care Systems, Technology and Techniques*, (Editors: S.C. Suh, V.P. Gurupur, M.M. Tanik), Springer-Verlag, Berlin, Chapter 17, pp. 229–234, 2011. (ISBN: 978-1-4614-0115-5)

[4] S. Ekwaro-Osire*, *F.M. Alemayehu*, *I. Durukan*, and J.F. Cárdenas-García, "Energy Dissipation in Impact Absorber," in *Optical Measurements, Modeling, and Metrology, Volume 5* (Editor: T. Proulx), Springer-Verlag, New York, Chapter 40, pp. 331–335, 2011. (ISBN: 978-1-4614-0227-5)

[3] S. Ekwaro-Osire*, *T.-H. Jang*, *A. Stroud*, *I. Durukan*, *F.M. Alemayehu*, A. Swift, and J. Chapman, "Gear with Asymmetric Teeth for use in Wind Turbines," in *Experimental Mechanics on Emerging Energy Systems and Materials, Volume 5* (Editor: T. Proulx), Springer-Verlag, New York, Chapter 9, pp. 65–71, 2011. (ISBN: 978-1-4419-9493-6)

[2] S. Ekwaro-Osire*, *I. Durukan*, and *F.M. Alemayehu*, "Experimental and Probabilistic Analysis of Asymmetric Gear Tooth," in *Experimental Mechanics on Emerging Energy Systems and Materials, Volume 5* (Editor: T. Proulx), Springer-Verlag, New York, Chapter 25, pp. 207–212, 2011. (ISBN: 978-1-4419-9493-6)

[1] S. Ekwaro-Osire*, *E. Nieto*, *F. Gungor*, *E. Gumus*, and A. Ertas, "Performance of a Bi-Unit Impact Damper Using Digital Image Processing," in *Vibro-Impact Dynamics of Ocean Systems and Related Problems* (Editors: R.A. Ibrahim, V.I. Babitsky, and M. Okuma), Springer-Verlag, Berlin, Chapter 8, pp. 79–90, 2009. (ISBN: 978-3-642-00628-9)

JOURNAL PUBLICATIONS

(corresponding author denoted by *, student and post-doc denoted by *italics*)

[76] *S. Dabetwar*, S. Ekwaro-Osire*, J.P. Dias, *G.R. Hübner*, C.M. Franchi, and H. Pinheiro, "Mass Imbalance Diagnostics of Wind Turbines using Convolutional Neural Network," *Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*, under review.

[75] *A. Nispel*, S. Ekwaro-Osire*, *J. Yang*, and Y. Zeng, "Upscaling of Offshore Wind Turbine Using Environment-based Design (EBD) Methodology," *Renewable Energy*, under review.

[74] C. Yüce, O. Gecgel, O. Doğan, S. Dabetwar, *O.C. Kalay*, *Y. Yanik*, E. Karpat, F. Karpat, and S. Ekwaro-Osire*, "Prognostics and Health Management of Wind Energy Infrastructure Systems," *Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*, under review.

[73] *E. Asres**, T. Ghebrab, and S. Ekwaro-Osire, "Framework for design of sustainable flexible pavement," *Infrastructures*, under review.

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[1] A. Ertas*, H.J. Carper, *O. Cuvalci*, *S. Ekwaro-Osire*, and W.R. Blackstone, "Experimental Investigation of Galling Resistance in OCTG Connections," *ASME ETCE Offshore and Arctic Operations Symposium Proceedings*, PD-Vol. 29, pp. 15–20, Jan 14–18 1990.

ABSTRACTS WITH PODIUM PRESENTATIONS

(corresponding author denoted by *, student and post-doc denoted by *italics*)

[14] *S. Denard**, S. Mengel, A. Ertas, and S. Ekwaro-Osire, "Development Cycle Risk Modeling," *Proceedings of the 2019 Society for Risk Analysis Conference*, Arlington, Virginia, Dec 8–12, 2019.

[13] S. Ekwaro-Osire*, "Convergence Research and Education," *Proceedings of the International Conference on Sustainable Development of Ethiopia – Resource Sustainability and Infrastructure Improvements*, Jimma, Ethiopia, Mar 11–12, 2019.

[12] S. Ekwaro-Osire*, *C. Felix*, *J.P. Dias*, *R. Cruz-Lozano*, and F.M. Alemayehu, "Using Sketches to Improve Design of Hip Joint Prosthesis," *Proceedings of the 2016 International Conference of Society for Design and Process Science*, Orlando, Florida, Dec 4–6, 2016.

[11] *D. Pham*, F. Alemayehu, S. Ekwaro-Osire*, and *H. Endeshaw*, "Probabilistic Approach to Improve the Prediction Accuracy of Remaining Useful Life," *Proceedings of the ASME 2015 International Mechanical Engineering Congress and Exposition*, Houston, Texas, Nov 13–19, 2015.

[10] *A. Bhuiyan**, N. Chandrashekar, S. Ekwaro-Osire, and J. Hashemi, "A New Look into the Interlock Mechanism in the Tibiofemoral Joint: A Finite Element and Experimental Study," *Proceedings of the 2013 Proceedings of the ASME 2013 International Mechanical Engineering Congress and Exposition*, San Diego, California, Nov 15–21, 2013.

[9] *I. Durukan*, S. Ekwaro-Osire*, and *F.M. Alemayehu*, "Energy Storage System for Wind Turbine," *Proceedings of the ASME 2010 International Mechanical Engineering Congress and Exposition*, Vancouver, British Columbia, Canada, Nov 12–18, 2010.

[8] S. Ekwaro-Osire*, *J. Jones*, J. Hashemi, and M. Khandaker, "Effect on the Fatigue of Cortical Bone," *Proceedings of the ASME 2010 International Mechanical Engineering Congress and Exposition*, Vancouver, British Columbia, Canada, Nov 12–18, 2010.

[7] *A. Stroud* and S. Ekwaro-Osire*, "Techniques of Modeling Ballistic Performance of Systems: A review," *Proceedings of the ASME 2010 International Mechanical Engineering Congress and Exposition*, Vancouver, British Columbia, Canada, Nov 12–18, 2010. (Poster)

[6] J. Hashemi*, *R. Breighner*, *T.H. Jang*, S. Ekwaro-Osire, N. Chandrashekar, and J. Slauterbeck, "The role of unopposed quadriceps force in loading the anterior cruciate ligament during jump landing," *Proceedings of*

the 14th Annual Meeting of the Gait and Clinical Movement Analysis Society (GCMAS), Denver, Colorado, Mar 10–13, 2009.

[5] J. Hashemi*, *R. Breighner*, *T. Jang*, N. Chandrashekar, S. Ekwaro-Osire, and J. Slauterbeck, "The role of unopposed quadriceps force in loading the anterior cruciate ligament during jump landing: In-vitro simulation," *Transactions of the 55th Annual Meeting of the Orthopaedic Research Society*, Las Vegas, Nevada, Feb 22–25, 2009.

[4] *F. Karpat*, S. Ekwaro-Osire*, J. Chapman, and A. Swift, "Wind Power Test Bed," *WINDPOWER 2007 Conference & Exhibition*, Los Angeles, California, Jun 3–6, 2007. (Poster)

[3] *F. Karpat*, S. Ekwaro-Osire*, and J.F. Cárdenas-García, "Photoelastic analysis of an asymmetric gear tooth," *SEM Annual Conference & Exposition*, Springfield, Massachusetts, Jun 3–6, 2007.

[2] J. Hashemi*, N. Chandrashekar, *T. Jang*, *F. Karpat*, M. Osetto, and S. Ekwaro-Osire, "Favorable conditions for non-contact ACL injury during jump-landing an *In-vitro* simulation," *Transactions of the 53rd Annual Meeting of the Orthopaedic Research Society*, San Diego, California, Feb 11–14, 2007.

[1] S. Ekwaro-Osire*, A. Ertas, and O. Cuvalci, "Galling Onset in OCTG Connections," *2005 STLE Annual Conference*, Las Vegas, Nevada, May 15–19, 2005.

MAGAZINES

(corresponding author denoted by *, student and post-doc denoted by *italics*)

[2] S. Ekwaro-Osire* and J.P. Dias, "Safety, Risk and Reliability Engineering: Graduate Programs in the USA," *Safety Engineering and Risk/Reliability Analysis Division Newsletter, ASME*, Vol. 1, June 2018.

[1] S. Ekwaro-Osire* and F. Karpat, "Examining Gear Design for Increased Reliability," *North American Windpower*, Vol. 7, No. 4, pp. 94&96, May 2010.

INVITED TALKS

Plenary Presentation

[2] Uncertainty, Transdisciplinarity, Energy, and International Collaboration Themes, *Probabilistic Prognostics and Health Management of Energy Systems Workshop*, Ilha Solteira, Brazil, Dec 14–15, 2015.

[1] Research Endeavor and Transdisciplinarity, *International Conference of Society for Design and Process Science*, Fort Worth, Texas, Nov 1–5, 2015.

Presentations

[35] Structural Health Diagnosis of Composites Using Deep Neural Networks, *Cataratas Dynamic University (UDC)*, Foz do Iguaçu, Brazil, June 7, 2021.

[34] Convergence Research and Education, *University of Campinas*, Campinas, Brazil, Oct 22, 2019.

[33] Condition Monitoring of Gearbox Components Using Deep Learning with Simulated Vibration Data, *Institute of Fundamental Technological Research, Polish Academy of Sciences*, Warsaw, Poland, Jun 21, 2019.

[32] Research at the Department of Mechanical Engineering, *Institute of Fundamental Technological Research, Polish Academy of Sciences*, Warsaw, Poland, Jun 21, 2019.

[31] Convergence Research and Education, *University of Bremen*, Bremen, Germany, Mar 08, 2019.

[30] Using the Aesthetics and Functionality Dimensions in Segmentation of a Product Sketch, *University of Bremen*, Bremen, Germany, Jun 05, 2018.

[29] Machine Learning in Crack Size Estimation of a Spur Gear Pair Using Simulated Vibration Data, *Ethiopian Institute of Technology - Mekelle*, Mekelle, Ethiopia, Mar 13, 2018.

[28] Convergence Research with Attention to Wind Engineering and Science, *WiSE Wednesday Lecture Series*, Lubbock, Dec 6, 2017.

[27] Future of Convergence: A National Perspective, *International Conference of Society for Design and Process Science*, Birmingham, Nov 8, 2017.

[26] Importance of Ethics in International Research Programs, *The Fourth Annual Global Ethics Day "Public/Private: Ethics and Governance"*, Lubbock, Oct 18, 2017.

[25] Probabilistic Prognostics and Health Management of Energy Systems, *TTU/FAPESP – SPRINT "STEM Across Continents" Workshop and Conference*, Lubbock, Sep 21-22, 2017.

[24] Quantification of Uncertainty in the Communication with Engineering Design Sketches, *Cataratas Dynamic University (UDC)*, Foz do Iguaçu, Brazil, May 31, 2017.

[23] Role of Uncertainty in Engineering and Bio Systems, *The Federal University of Santa Catarina (UFSC)*, Florianópolis, Brazil, May 29, 2017.

[22] New Trends in Probabilistic Prognostics and Health Management, *São Paulo State University (UNESP)*, Ilha Solteira, Brazil, May 25, 2017.

[21] Applications of Prognostics and Health Management of Systems, *Military Institute of Engineering (IME)*, Rio de Janeiro, Brazil, May 23, 2017.

[20] Probabilistic Model-Based Prognostics Using Mesh-Free Modeling, *Rio de Janeiro State University (UERJ)*, Rio de Janeiro, Brazil, May 22, 2017.

[19] Improving Communication in Design through Uncertainty Quantification of Sketches, *University of Bremen*, Bremen, Germany, Jan 25, 2017.

[18] Improving Communication in Design through Uncertainty Quantification of Sketches, *Brunel University*, London, United Kingdom, Jan 23, 2017.

[17] Interdisciplinary Research at Texas Tech University, *Jimma Institute of Technology*, Jimma, Ethiopia, Jul 15, 2016.

[16] Opportunities for Transdisciplinary Research, *São Paulo State University (UNESP)*, Ilha Solteira, Brazil, Dec 15, 2015.

[15] Perspectives on Bioengineering, *São Paulo State University (UNESP)*, Tupã, Brazil, Dec 11, 2015.

[14] On Spur Gears with Asymmetric Teeth, *National Wind Technology Center*, Boulder, Mar 11, 2011.

[13] A Comprehensive Approach for Accounting for Uncertainty in Gearbox Failure of Wind Turbines, *Wind Science & Engineering Wednesday Seminar Series*, Lubbock, Feb 9, 2011.

[12] A Comprehensive Approach for Mitigation and Prediction of Gearbox Failure of Wind Turbines, *FM Global*, Norwood, Jan 28, 2011.

[11] Weakest-Link Approach for Fatigue Limit of Metals, *Air Force Research Laboratory*, Wright-Patterson AFB, Jul 10, 2008.

[10] Statistical Fracture Theory for Mechanical and Biological Structures, *Karadeniz Technical University*, Trabzon, Turkey, Dec 3, 2007.

[9] Grad Study and Post-doctoral Research in the USA, *Karadeniz Technical University*, Trabzon, Turkey, Dec 3, 2007.

[8] Grad Study and Post-doctoral Research in the USA, *Bogazici University*, Istanbul, Turkey, Nov 28, 2007.

[7] Statistical Fracture Theory for Mechanical and Biological Structures, *Bogazici University*, Istanbul, Turkey, Nov 26, 2007.

[6] A Modified Weibull Failure Theory for Engineering and Biological Structures, *Middle East Technical University*, Ankara, Turkey, Nov 5, 2007.

[5] 'Hi y′all?' or Graduate Study in Lubbock, USA, *Middle East Technical University*, Ankara, Turkey, Nov 5, 2007.

[4] A Modified Weibull Failure Theory for Engineering and Biological Structures, *TOBB University of Economics and Technology*, Ankara, Turkey, Nov 6, 2007.

[3] 'Hi y′all?' or Graduate Study in Lubbock, USA, *TOBB University of Economics and Technology*, Ankara, Turkey, Nov 6, 2007.

[2] Probabilistic Approaches in Cervical Spine Research, *Brunel University*, West London, United Kingdom, Aug 2006.

[1] Accounting for High-Stress Gradient by a Modified Weibull Failure Theory, *Air Force Institute of Technology*, Wright-Patterson AFB, Apr 2006.

Workshop and Symposia

[21] The Fourth Annual Global Ethics Day, "Public/Private: Ethics and Governance", Lubbock, TX, Oct 18, 2017.

[20] TTU/FAPESP – SPRINT "STEM Across Continents" Workshop and Conference, Lubbock, TX, Sep 21–22, 2017.

[19] Minisymposium on Probabilistic Prognostics and Health Management of Energy Systems, Ilha Solteira, Brazil, May 25, 2017.

[18] Second Probabilistic Prognostics and Health Management of Energy Systems Workshop (PPHMES 2017), Lubbock, Texas, May 15–16, 2017.

[17] International Workshop on Transportation, Sustainable Water Resources, and Construction, Jimma, Ethiopia, Apr 24–25, 2017.

[16] TTU/FAPESP – SPRINT "STEM Across Continents" Workshop and Conference, Lubbock, TX, Aug 31–Sep 1, 2016.

[15] University Engineering Alliance Engineering Summit: Pursuing Innovation, Preparing Students, Manhattan, KS, Apr 11–12, 2016.

[14] First Probabilistic Prognostics and Health Management of Energy Systems Workshop (PPHMES 2015), Ilha Solteira, Brazil, Dec 14–15, 2015.

[13] Global Education Dialogue: East Africa (Building Nations through Innovation: The Role of Universities), Addis Ababa, Ethiopia, Nov 27, 2015.

[12] Army Research Lab Open Campus Open House, Aberdeen Proving Ground, MD, Nov 3–4, 2015.

[11] Mid-America Engineering Education Leadership Workshop, Chicago, IL, Oct 12, 2015.

[10] GEM 39th Annual Board Meeting and Conference, Boston, MA, Aug 5–7, 2015.

[9] Engineering Research Council Annual Conference, Silver Spring, MD, Mar 9–11, 2015.

[8] Naval Future Force Science and Technology Expo, Washington, DC, Feb 4–5, 2015.

[7] Army Research Lab Open Campus Open House, Silver Spring, MD, Dec 9–10, 2014.

[6] Reforming Electric Energy Systems Curriculum, University of Minnesota, Minneapolis, MN, Oct 4–5, 2014.

[5] The Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) Annual Meeting, Atlanta, GA, Dec 7–10, 2013.

[4] National Engineering Forum, Houston, TX, Nov 12, 2013.

[3] ABET Program Evaluator Training, Baltimore (Linthicum), MD, Aug 3–4, 2013.

[2] Teaching Safety in University Settings: Why it is critical, and How to Implement an Effective Program, The American Institute of Chemical Engineers, San Antonio, TX, Apr 27, 2013.

[1] Engineering Research Council Annual Conference, Washington, DC, Mar 3–5, 2013.

FUNDED RESEARCH

Professor Ekwaro-Osire and his collaborators have secured $8.1 million for their research from state agencies, federal agencies, international funding agencies, and industry.

RESEARCH SUPERVISION

GRADUATE FACULTY MEMBERSHIP

[4] Texas Tech University, USA, 1998–present.

[3] Jimma University, Ethiopia, 2017–present.

[2] Air Force Institute of Technology, USA, 2006–2010.

[1] Bogazici University, Turkey, 2007–2008.

POST-DOCTORAL RESEARCH ASSOCIATES

(*current faculty member at USA or international universities denoted by **)

[7] J.P. Dias*, Ph.D., "Probabilistic Analysis Applied to Engineering Design, Prognostics of Energy Systems, and Biomechanics," Mar 2016–Aug 2019.

[6] T.P. Pereira, Ph.D., "Wind Turbine Wake Modeling Using Uncertainty Quantification," Sep 2018–May 2019.

[5] L.J. Mayer*, Ph.D., "Interdisciplinary Experimental Frameworks," Jan–Jul 2018.

[4] D. Pham, Ph.D., "Uncertainty in Remaining Useful Life Prediction," Jan–Sep 2015.

[3] F.M. Alemayehu*, Ph.D., "Novel Theories in Reliability of Wind Turbine Gear Systems," Aug 2013–Aug 2014.

[2] T.-H. Jang*, Ph.D., "Development of Probabilistic Techniques for Assessing Wind Turbine Failures," Jan 2006–May 2011.

[1] F. Karpat*, Ph.D., "Fundamental Insights of Gear Design and Gear Response to Loading," Jun–Sep 2010, Feb–Dec 2006.

DOCTORAL STUDENTS

PhD Students' Awards and Honors (Students mentored by Professor Ekwaro-Osire)

[10] S. Dabetwar
Third Place, Graduate Student Research Poster Competition, TTU, 2020
First Runner-Up, Graduate Student Research Poster Competition, TTU, 2016

[9] O. Gecgel
Runner-Up for Best Paper Award, IEEE International Conference on Prognostics and Health Management, 2019
Graduate Student Research Support Award, TTU, 2019
First Runner-Up, Graduate Student Research Poster Competition, TTU, 2016

[8] R. Cruz-Lozano
Doctoral Student Fellowship, CONACYT, Mexico, 2013–2017

[7] S.M. Asio
Winner of 2015 IIE SEMS Student Paper Competition, 2015
Finalist Award for SWE Collegiate Poster Competition, 2013

[6] H.B. Endeshaw
Doctoral Dissertation Completion Fellowship, TTU, 2016–2017
Second Place Award, Research Poster Competition, TTU, 2015
New Doctoral Student Fellowship, TTU, 2011

[5] F.M. Alemayehu
Summer Dissertation/Thesis Research Award, TTU, 2012
Helen DeVitt Jones Excellence in Graduate Teaching Award, TTU, 2011
AARA Texas Workforce Scholarship, TWEI, 2011
Recognition for Scholarship of Teaching and Learning, TLTC, 2011
TEACH (Teaching Effectiveness and Career Enhancement) Fellowship, TTU, 2010–2011
AT&T Chancellor's Endowed Fellowship, TTU, 2009–2011
Harrington Grad Engineering School Fellowship, TTU, 2008–2009

[4] A.I. Bhuiyan
Summer Dissertation/Thesis Research Award, TTU, 2012
Helen DeVitt Jones Excellence in Graduate Teaching Award, TTU, 2012
TEACH (Teaching Effectiveness and Career Enhancement) Fellowship, TTU, 2011–2012
Raymond Green FA Scholarship, TTU, 2011–2012
Match T Fuller Scholarship, TTU, 2011–2012
First Place Award, Research Poster Competition, 2011

[3] I. Durukan
Third Place Award, Research Poster Competition, 2011
Second Place Award, Research Poster Competition, 2010
AT&T Chancellor's Endowed Fellowship, TTU, 2009-2011

Harrington Grad Engineering School Fellowship, TTU, 2008–2009

[2] M.P.H. Khandaker
Summer Dissertation/Thesis Research Award, 2007
TEACH (Teaching Effectiveness and Career Enhancement) Fellowship, 2006–2007
First Prize, SANDIA MEMS Design Competition, 2006
First Prize, SANDIA MEMS Design Competition, 2005
Oral presentation Award, ASME GSTC, 2005

[1] J. Sun
Second Place Conference Presentation Award, ASME GSTC, 2002

Doctoral Students Graduated *(In the Department of Mechanical Engineering or otherwise indicated. Current faculty member at US university denoted by *)*

[16] P. Chillakanti, Ph.D., "Evaluation of Platforms for use in Transdisciplinary Research," May 2021.

[15] A.N. Pizarro, Ph.D., "Reliability considerations in Upscaling of Offshore Wind Turbines," May 2021.

[14] S. Dabetwar, Ph.D., "Fatigue Damage Classification and Prognostics of Composites Using Artificial Intelligence Methods for Experimental Data," Dec 2020.

[13] G. Wanki*, Ph.D., "Uncertainties in the Design of Femoral Stem," Dec 2019.

[12] O. Geçgel, Ph.D., "Condition Monitoring of Gearbox Components Using Deep Learning with Simulated Vibration Data," Dec 2019.

[11] H.B. Endeshaw*, Ph.D., "Probabilistic Prognostics of Gears under Variable Loading," Aug 2017.

[10] R. Cruz-Lozano*, Ph.D., "Quantification of Uncertainty in the Communication with Engineering Design Sketches," May 2017.

[9] S.M. Asio, Ph.D., "An Empirical Investigation of Predictors of Perceived Innovation within Engineering Student Design Teams," May 2015. (Department of Industrial, Manufacturing & Systems Engineering) (co-Chair)

[8] F.M. Alemayehu*, Ph.D., "Probabilistic Multibody Dynamic Analysis of Gear Systems for Wind Turbines," Aug 2013.

[7] A.I. Bhuiyan*, Ph.D., "Anterior Cruciate Ligament Response Due to Forces Resulting from Quadriceps Muscle and Ground Reaction," May 2013. (co-Chair)

[6] J.N. Carbone, Ph.D., "A Framework for Enhancing Transdisciplinary Research Knowledge," May 2010.

[5] M.A. Solano, Ph.D., "High-Level Fusion for Intelligence Applications using Recombinant Cognition Synthesis," May 2010.

[4] L.D. Welch, Ph.D., "Seeking Shelter: An Analysis of Patterns and Dynamics in School Lockdown Scenarios," Aug 2009.

[3] M.P.H. Khandaker*, Ph.D., "Accounting for Fracture Toughening Mechanism in the Prediction of Cortical Bone Failure," Aug 2007.

[2] T.-H. Jang*, Ph.D., "Random Field Analysis for Cervical Spine Injury," Dec 2005.

[1] J. Sun, Ph.D., "Optimization Using Sequential Approach for Triangular Tube Structure in Crashworthiness," May 2005.

Doctoral Committees Currently Chairing

[3] C.A.L. Salazar, "Multi-Fidelity and Multi-Scale Uncertainty Quantification in Digital Twin," 2021–present (Scheduled to graduate in May 2026).

[2] Y. Yanik, "Digital Twin applications in Prognostics in Wind Power Plants," 2019–present (Scheduled to graduate in May 2023).

[1] N. Ward, "Using Machine Learning Predict Turbulent Inlet Conditions in Channel Flows," 2018–present (Scheduled to graduate in Dec 2021). (Co-Chair)

Doctoral Committees Served or Serving On *(in the Department of Mechanical Engineering or otherwise indicated)*

[78] J. Cruz, "Hybrid Methods to Predict Injury Risk During Manual Material Handling Tasks," 2021–present. (Doctoral Study)

[77] B. Woolley, "Evolutionary Approach for Hierarchical Scheduling of Real-Time Embedded Multicore Architectures," 2021–present. (Doctoral Study)

[76] R. Rakshit, "Modeling the Phenomenon of Muscular Fatigue in Dynamic Tasks," 2021–present. (Doctoral Study)

[75] O. Famuyiro, "Artificial Intelligence / Machine Learning Driven Team Performance Appraisal for Engineering Project Teams," 2021–present. (Department of Industrial, Manufacturing and Systems Engineering) (Doctoral Study)

[74] S. Talukder, "Comparison Study on Surface and Thermo-Chemical Properties of PFPE lubricants on DLC Film through MD Simulations," 2020–present. (Doctoral Study)

[73] N.M.R. Shah, "Characterization and Analysis of the Characteristics of Ferromagnetic Thin Films," 2020–present. (Doctoral Study)

[72] K.K. Miller, "Analysis of Atmospheric Surface Treatments on Aluminum Nanoparticles," 2020–present. (Doctoral Study)

[71] L. Ford, "A Transdisciplinary Approach to Systems Engineering Methodology for Complex Systems," 2018–present. (Doctoral Study)

[70] A.L. Haile, "Procurement Delivery Method Selection Model for Public Building Construction of Ethiopia," 2017–present. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[69] A.S. Dessisa, "Evaluation of the Performance of Geo Synthetic Reinforced Flexible Pavement," 2017–present. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[68] E.A. Tizazu, "Optimal Integration of Pavement Design for Functional and Structural Sustainability," 2017–present. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[67] M.M. Abdella, "Assessment of Urban Bus Rapid Transit (BRT) Effectiveness in Developing Countries," 2017–present. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[66] S.A. Feyissa, "Application of agent-based modeling to simulate and optimize construction process," 2017–present. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[65] T.W. Mahdi, "Evaluation the Performance and Rheological Properties of PET Modified Asphalt Binder," 2017–present. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[64] D.L. Moran, Ph.D., "A Unique Transdisciplinary Engineering-Based Integration of KJ, Kano, HOQ/QFD, TRIZ, ISM, and DSM and Associated Platform," Aug 2021

[63] S.E. Denard, Ph.D., "Development Cycle Modeling and Risk Analysis," May 2021.

[62] S. Islam, Ph.D., "Identifying Key Parameters in the Formation of Aluminum Iodate Hexahydrate (AIH) on Alumina (Al_2O_3) and Boehmite (AlO(OH)) Nanoparticles," May 2021.

[61] K.R. Bratton, "A Closer Look at Determining Flame Speeds with Imaging Diagnostics," 2019–Dec 2020. (Doctoral Study)

[60] U. Gulbulak, Ph.D., "Parametric Design Investigation on Geometric Orifice Area and Coaptation Area of Polymeric Heart Valves," Dec 2020.

[59] F.S. Asrat, Ph.D., "Effect of Mill-Rejected Granular Cement on Healing Concrete Cracks when Used as a Replacement for Sand," May 2020. (Department of Civil Engineering, Jimma University)

[58] W.K. Hareru, Ph.D., "Engineering Properties and Application of Molasses Modified Bitumen in Hot Mix Asphalt (HMA)" May 2020. (Department of Civil Engineering, Jimma University)

[57] J.J. Muhammed, Ph.D., "Reliability of Settlement Predictions of Embankments on PVD-improved Soft Alluvial Deposits," May 2020. (Department of Civil Engineering, Jimma University)

[56] M.N. Bello, Ph.D., "Altering Surface Chemistry and Mechanical Properties of Aluminum Nanoparticles to Enhance Reactivity," May 2020.

[55] D. Santos, "Probabilistic Structural Health Monitoring," 2019–Jan 2020. (Doctoral Study)

[54] D.T. Melese, Ph.D., "Using Plant Root Systems to Enhance Earth Slope Stability along Highway Corridors in Southwestern Ethiopia," Dec 2019. (Department of Civil Engineering, Jimma University)

[53] D.T. Ahmed, Ph.D., "Multi-Scale, Multi-Season, Multi-Indicator Evaluation of Agricultural Drought Trends in Ethiopia," Dec 2019. (Department of Civil Engineering, Jimma University)

[52] D.T. Tsige, Ph.D., "Comparison and Assessment of Metrological- and Agriculture-Related Drought Characteristics across Ethiopia," Dec 2019. (Department of Civil Engineering, Jimma University)

[51] G.K. Warati, Ph.D., "The Use of Scoria and Marble Powder in the Production of Green Concrete for Sustainable Concrete Structure," Dec 2019. (Department of Civil Engineering, Jimma University)

[50] L.F. Nigussie, Ph.D., "Replacing Sand in Concrete with Recycled Aggregates from Construction and Demolition Waste," Dec 2019. (Department of Civil Engineering, Jimma University)

[49] S.M. Teffera, Ph.D., "Long-Term Trends of Rainfall in the Awash River Basin, Ethiopia," Dec 2019. (Department of Civil Engineering, Jimma University)

[48] M.E. Bisa, "Optimization of multi-purpose reservoir operation with the emphasis of hydropower production in Awash River basin," 2017–2019. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[47] R.T. Shoamoltot, "Planning and Management Strategies for Improving Hydrology Efficiency with Particular Emphasis on Ethiopia," 2017–2019. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[46] T.P. Orkodjo, "Flooding Risk to Infrastructure Under Future Climate Change," 2017–2019. (Department of Civil Engineering, Jimma University) (Doctoral Study)

[45] X. Wang, Ph.D., "Optimized Picard Iteration Methods for Nonlinear Dynamical Systems with Non-Smooth Nonlinearities, and Orbital Mechanics," Aug 2019.

[44] Q. Lu, Ph.D., "Robust Control for a Quadrotor Unmanned Aerial Vehicle in Complex Environments," May 2019.

[43] E.A. Chumacero, Ph.D., "Nonlinear Dynamics of Human Upright Postural Stability on a Balance Board Using an Ankle-Hip Model," May 2019.

[42] M. Xu, Ph.D., "Simulation-Based Assessment for Biomechanical Behavior of Scoliotic Human Thoracolumbar Spine," Dec 2018.

[41] B. Li, Ph.D., "In-Plane and Out-of-Plane Flexible Ring Tire Model Development and Validation," Aug 2018.

[40] B.A. Howard, Ph.D., "Digital Human Posture and Motion Prediction Considering Cognitive Decision Making," Aug 2018.

[39] A. Cloutier, Ph.D., "Grasping Force Optimization Approaches for Common Anthropomorphic Grasps," Aug 2017.

[38] D. Smith, Ph.D., "Replacing the Al2O3 Passivation Shell with on Aluminum Nano-Particles with an Energetic Salt: Aluminum Iodate Hexahydrate (AIH)," Aug 2017.

[37] R. Padhye, Ph.D., "Altering Surface Properties toward Enhanced Reactivity," Aug 2017.

[36] M. He, Ph.D., "Experimental Investigation of Thermal-mechanical Degradation of Carbon Thin Films by Surface Contact," May 2017.

[35] B.R. Clark, Ph.D., "Combustion Characterization of Nano-Particle Reactive Materials Suspended in Polymer Binders for Use in Additive Manufacturing," May 2016.

[34] I. Durukan, "Flywheel Energy Storage Systems to Ride through of Variable Speed Wind Turbine Grid Fault Condition," 2008–2015. (Doctoral Study)

[33] J. McCollum, Ph.D., "Enhancing Aluminum Reactivity by Exploiting Surface Chemistry and Mechanical Properties," Aug 2015.

[32] Z. Lei, Ph.D., "Simulation-Based Assessment for N95 Filtering Facepiece Respirator," Aug 2014.

[31] K.S. Kappagantula, Ph.D., "Combustion Experiments of Aluminum-Fluoropolymer Composites: A Study of Additive Influences," Aug 2014.

[30] B. Ozsoy, Ph.D., "Three-Dimensional Sit-To-Stand Motion Prediction," May 2014.

[29] J. Gragg, Ph.D., "Investigating the Onset of Slip in Gait by Employing Probabilistic Theory and Optimization-Based Motion Prediction," May 2014.

[28] S. Lee, Ph.D., "Thermomechanical Reliability of Thin Carbon Film under High Speed Sliding Contact," May 2014.

[27] O. Mulamba, Ph.D., "Assessing Effects of Oxidizer Characteristics on Composite Reaction Kinetics," Dec 2013.

[26] E.S. Collins, Ph.D., "Ignition Sensitivity of Composite Energetic Materials to Electrostatic Discharge," Aug 2013.

[25] Q. Zou, Ph.D., "Stochastic Optimization-Based Human Posture and Motion Prediction," Dec 2012.

[24] M. Whigham, "The Use of Intelligent Tutoring Systems to Improve Student Learning," 2009–Jan 2012. (Doctoral Study)

[23] M. Azese, "Analysis of Brownian Dynamics and Unsteady Particle-Motion in Viscoelastic Fluids," 2011–Apr 2012. (Doctoral Study)

[22] R. Breighner, Ph.D., "An In-Vitro Study of Joint Geometry and Loading Effects on Anterior Cruciate Ligament Strain and Knee Kinematics," Dec 2011.

[21] A. Stroud, "Synthesis of Energetic Shear Thickening Fluids with Ballistic Initiation Mechanisms," 2009–Mar 2011. (Doctoral Study)

[20] E. Gumus, Ph.D., "Analysis of Vibration Absorbers Using Flexible Multi-Body Dynamics," May 2010.

[19] T.E. Kollman, Ph.D., "Survey and Framework for Transdisciplinary Research Activities," May 2010.

[18] R.L. Landis, Ph.D., "A Common Collection Assessment Framework for Image Screening Experiments," Dec 2009.

[17] B.G. McPeak, Ph.D., "A Transdisciplinary Systems Approach for Defining Tornado Characteristics and Debris Impact Analysis," Dec 2009.

[16] A. Yildirim, Ph.D., "Application of Perron-Frobenius Theorem in Signal Identification and Classification," Dec 2009.

[15] S. Ganguly, Ph.D., "Constraint Based Domain-Aware Information Retrieval System," Aug 2009.

[14] S.G. Gatchel, "Engineering Analysis and Design Assessment of Complex Systems," 2007–2010. (Doctoral Study)

[13] J. Zanoff, "Impact of Constraints to Meeting Reliability Requirements in Product Development," Jul 2007–Jul 2009. (Doctoral Study)

[12] Y. Yılmaz, Ph.D., "Dynamic Analysis of Diesel Engine Crankshaft System using Finite Elements and Multibody System Simulation Programs," Jun 2008. (Department of Mechanical Engineering, Bogazici University, Turkey)

[11] R. Kunnavakkamvinjamur, Ph.D., "High Strain Rate, High Heating Rate, Characterization of Material Behavior," Dec 2007.

[10] J. Kim, Ph.D., "Model Reduction in Nonlinear Structures," May 2007.

[9] B. Gumus, Ph.D., "Axiomatic Product Development Lifecycle," Dec 2005.

[8] Y. Zhang, Ph.D., "3D Simulation of Manual Material Handling Tasks Based on Nonlinear Optimization Method," Aug 2005. (Department of Industrial Engineering)

[7] S. Phonganant, Ph.D., "Reactive Parallel Machine Scheduling Using Hybrid-Intelligence to Minimize Weight Tardiness, Makespan, and Cost of Rescheduling," Aug 2004. (Department of Industrial Engineering)

[6] M. Doganli, Ph.D., "Experimental Study of a Ball-Pendulum and Beam System Under Random and Deterministic Excitation with an Application to Traffic Signal Support Structures," May 2003.

[5] X. Qian, Ph.D., "Environmental Analysis Model for Modular Design of Electromechanical Products," May 2003. (Department of Industrial Engineering)

[4] R.B. Fagan, Ph.D., "A Model for Time Varying Wind Loads on a Low-Rise Structure," May 2001. (Department of Civil Engineering)

[3] W. Rhee, Ph.D., "Linear and Nonlinear Model Reduction in Structural Dynamics with Application to Model Updating," Aug 2000.

[2] W. Wanyama, Ph.D., "Analytical Investigation of the Acoustic Radiation from Linearly-Varying Thin Circular Plates," Aug 2000.

[1] I. Cicek, Ph.D., "Vibration Absorbers for Flexible Structures under Random Excitation: Theory and Experiments," Aug 1999.

Graduate Dean's Representative at Final Examination for the Doctoral Degree

[23] A. Anya, "A Laboratory-Scale Study of Annular Cement Evolution and Integrity in Response to Fluctuating Wellbore Pressure Conditions," Dec 2021. (Department of Petroleum Engineering)

[22] S. Acharya, "Wearable Stretch Sensors at the Human-Computer Interface: Investigating Security Applications and Privacy Threats," Dec 2021. (Department of Computer Science)

[21] S.D. Dehnavi, "Developing Three Robust Control Strategies for Dynamic Voltage Restorer (DVR) for Supporting Renewable Energy Resources Integration," Dec 2021. (Department of Electrical and Computer Engineering)

[20] V. Pugliese, Ph.D., "Effects of Gas Drift Velocity and Dispersed-Phase Distribution Coefficient on Averaged Gas Volume Fraction for Slug Flow of Gas and Viscous-Liquid," May 2021. (Department of Petroleum Engineering)

[19] O. Kolawole, Ph.D., "Integrated Biogeomechanics and Geothermo-mechanics: Applications to Geological CO_2 Storage, Hydrocarbon Recovery, and Enhanced Geothermal Systems," May 2021. (Department of Petroleum Engineering)

[18] J. Tsay, Ph.D., "Power Electronics and High Power Microwaves for Vertical Lift Applications," Dec 2020. (Department of Electrical and Computer Engineering)

[17] O. Odia, Ph.D., "Investigating Neurodegenerative Effects of Environmental Contaminants In Vitro," Dec 2020. (Department of Environmental Toxicology)

[16] M. Wigwe, Ph.D., "Oil and Gas Data Analytics: Application of Spatial, Spatio-temporal, and other Machine Learning Models for a Multi-Basin Unconventional Production Evaluation and Economic Analysis," Dec 2020. (Department of Petroleum Engineering)

[15] M. Keshtzari, Ph.D., "Improving Patient Access, Capacity Planning, and Chemotherapy Nurse Assignment in Oncology Clinics," Aug 2020. (Department of Industrial, Manufacturing, and Systems Engineering)

[14] R. Matovu, Ph.D., "Power Usage, Motion Sensor and Neural Side-Channels on Mobile Devices: Examining Attacks and Countermeasures," May 2020. (Department of Computer Science)

[13] A. Karim, Ph.D., "A Decision Support Framework for Fit for Purpose Assessments in Brackish Groundwater Units," Aug 2018. (Department of Civil, Environmental, and Construction Engineering)

[12] S. Babamohammadi, Ph.D., "Part I: Reconstructing Supercoiled DNA; A Motion Capture Algorithm for Supercoiled DNA. Part II: Experimental and FEA Based Assessment of Damage Mechanism in EPDM Roofing Structures Subjected to Hailstone Impact," Aug 2017. (Department of Mechanical Engineering)

[11] F.A. Figueroa, Ph.D., "Comparative Analysis and States of Preparation for College and University Risk Management Systems," May 2017. (Department of Industrial, Manufacturing, and Systems Engineering)

[10] F.S. Wekesa, Ph.D., "Iron Catalysts as applied in Organic Synthesis: (1) Hydrosilylation of Carbonyl Compounds (2) Aldol-Condensation and Cyclotrimerization of Aldehydes (3) Dimerization of Cycloolefins Towards Synthesis of High Energy-Density Fuels," Dec 2016. (Department of Chemistry and Biochemistry)

[9] S.V. Vegesna, Ph.D., "Frequency Selective Components for Microwave and Terahertz Applications," Dec 2012. (Department of Electrical and Computer Engineering)

[8] A. Purushothaman, Ph.D., "New Understandings on Moisture Vapor Transport of Fibrous Assemblies," Dec 2009. (Department of Environmental Toxicology)

[7] H. Li, Ph.D., "Energy-Saving Based Innovative Product Design Method," Aug 2009. (Department of Industrial Engineering)

[6] T.C. Maku, Ph.D., "The Impact of Human Interaction on Supply Chain Management Practices," Aug 2007. (Department of Industrial Engineering)

[5] F. Wu, Ph.D., "A Cost Effective Imperfect Degradation-Based Maintenance Strategy," Aug 2005. (Department of Industrial Engineering)

[4] W.-H. Park, Ph.D., "Human Posture Control: Preparation Gait to Avoid Slips and Falls," May 2004. (Department of Industrial Engineering)

[3] J. Li, Ph.D., "A Multi-Agent Negotiation Based Decision Framework for Extensible Product Life Cycle," Dec 2003. (Department of Industrial Engineering)

[2] E.E. Lin, Ph.D., "Graph-Matrix-Based Automated Tolerance Analysis and Setup Planning in Computer-Aided Process Planning," Aug 2000. (Department of Industrial Engineering)

[1] M.M. Kose, Ph.D., "Statistical Evaluation of Transfer and Development Length of Low-Relaxation Prestressing Strands in Standard I-Shaped Pretensioned Concrete Beams," May 1999. (Department of Civil Engineering)

MASTER'S STUDENTS

Master's Students' Awards and Honors (Students mentored by Professor Ekwaro-Osire)

[2] H.B. Endeshaw
Master's Fellowship (Graduate School and VP for Research), TTU, 2010

[1] I.C. Desen
First Place Conference Presentation Award, ASME GSTC, 2000

Master's Students Graduated *(in the Department of Mechanical Engineering or otherwise indicated)*

[27] M.T. Meka, "Role of Sensitivity Analysis in a Design Process that Calumniates with Reliability Analysis," MS ME (report), Aug 2021.

[26] N.N. Kulkarni, "Mechanical Testing and Reliability Analysis for 3D Printed Cubic Lattices," Master of Science in Mechanical Engineering (MS ME) (thesis), Dec 2020. (Co-Chair)

[25] M. Ombogo, "Prediction of Wear in the Acetabular Component of Hip Implants," MS ME (thesis), Dec 2020.

[24] C.N. Nwauche, "Diagnostics of Rolling Element Bearing Using Transfer Learning," MS ME (thesis), Dec 2020.

[23] N.E. Nkama, "Probabilistic Analysis of Continuously Variable Transmission to Increase Reliability," MS ME (thesis), May 2015.

[22] D. Juschanin, "Tool Path Computation for Model Fitness Validation," MS ME (report), May 2014.

[21] H.B. Endeshaw, "Probabilistic Modeling of the Rupture of Algae Cells," MS ME (thesis), Aug 2011.

[20] J. Jones, "Volume Effect of Bone Utilizing the Staircase Test Method," MS ME (thesis), Dec 2010.

[19] H.V. Kulkarni, "Using Weakest-Link Approach on the Fatigue Limits of Steels," MS ME (thesis), Dec 2009.

[18] N.W. Smith, "The Influence of Ethanol Conservation on the Fracture Toughness of Bovine Cortical Bone," MS ME (thesis), May 2009.

[17] M. Dhorje, "Using a modified Weibull failure theory for contact loading," MS ME (thesis), Aug 2008.

[16] E. Nieto, "Effectiveness of a Bi-Unit Impact Vibration Absorber Using Image Processing," MS ME (thesis), May 2008.

[15] J.J. Mendias, "Mapping of Creativity in Capstone Design Process," MS ME (thesis), May 2008.

[14] G.S. Lolge, "Analysis of a Notched Bimaterial Using an Inverse Problem Method and a Probabilistic Analysis," MS ME (thesis), Aug 2007.

[13] M.A. Romero, "Identifying and Assessing Effective Mechanisms for Technology Transfer," M.S. Research and Development Management (Air Force Institute of Technology) (thesis), Mar 2007.

[12] K. Gautam, "Modifying the Weibull Failure Theory for High Stress Gradients," MS ME (thesis), Dec 2005.

[11] V. Chakkarapani, "Analysis of Stress Singularity of Adhered Contacts in MEMS," MS ME (thesis), Aug 2004.

[10] G.C. Kamm, "Novel Apparatus for Evaluation of Head and Neck Injury," MS ME (thesis), May 2003.

[9] C. Ozerdim, "Absorption Characteristics of Impact Vibration Absorbers," MS ME (thesis), Dec 2002.

[8] M.P.H. Khandaker, "Probabilistic Modeling of Micro-Electro-Mechanical Systems (MEMS)," MS ME (thesis), Dec 2002.

[7] S.R. Arigela, "Methodology for Analysis of Trailer Design," MS ME (report), Dec 2001.

[6] H. Zhao, "Energy Absorption of Reinforced Thin Tubes," MS ME (report), May 2001.

[5] S. Kamruzzaman, "Energy Absorption of Tubular Structures," MS ME (thesis), Dec 2000.

[4] J. Sun, "Prediction of Energy Absorption of Extruded Tubes," MS ME (thesis), Dec 2000.

[3] I.C. Desen, "Experimental Study on an Impact Vibration Absorber," MS ME (thesis), May 2000.

[2] S. Guha, "Simulation of the '16G Test' for an Aircraft Seat Structure," MS ME (report), May 1999.

[1] M. Zakaria, "On the Optimization of a Spreader," MS ME (report), Aug 1998.

Master's Students Examined *(in the Department of Mechanical Engineering or otherwise indicated)*
(*Comprehensive examination for a student pursuing Coursework Option*)

[11] J. Cobb, MS ME, Aug 2021.
[10] J. Quintana, MS ME, Aug 2021.
[9] B. Pearson, MS ME, May 2021.
[8] J. Ross, MS ME, May 2021.
[7] I. Foster, MS ME, Dec 2020.
[6] I.J. Zhou, MS ME, May 2020.
[5] R.H. Jahid, MS ME, Dec 2019.
[4] M. Hussain, MS ME, Dec 2016.
[3] M. Sharma, Master of Science in Bioengineering, Dec 2015. (Bioengineering Program)
[2] D. Krefter, MS ME, May 2015.
[1] K. Kutch, MS ME, May 2015.

Master's Committees Served or Serving On *(in the Department of Mechanical Engineering or otherwise indicated)*

[57] A. Hines, "Internal Structure Optimization for Fused Filament Fabrication," 2018–present. (Master's Study)
[56] C. Kreger, "Object Store Metadata Overlays: A Multi-Key Encrypted Metadata Database Framework for Encrypted Object Reference, Retrieval, & Analysis," 2018–present. (Master's Study)
[55] H. Agale, "Influence of Material and Structure on the Mechanics of 3D Printed Cellular Lattices," MS ME, Aug 2021.
[54] R. Choudhary, "Investigation of the tribological performance for Ionic Liquid and Graphene Oxide lubricant System," MS ME, Aug 2021.
[53] B. Dankesreiter, "Dynamic Surface Contact Behavior of DLC Doped with Hydrogen and Nitrogen," MS ME, May 2021.
[52] J. Baus, "Optimization-Based Subject-Specific Planar Human Vertical Jumping Prediction," MS ME, May 2021.
[51] M. Summerville, "Finite Element Model Development and Result Comparison for the Human Hand-arm Vibration," MS ME, May 2021.
[50] Y. Jung, "Thermo-Kinetic and Tribological Behaviors of PFPE Lubricants based on Molecular Simulation," MS ME, Aug 2020.
[49] H.S. Adam, "Integration and Optimization of Isotachophoresis on a Programmable Microfluidics Automaton," MS ME, Dec 2019.
[48] Y. Yanik, "Uncertainty Quantification in the Comparison of Structural Criterions of Failure," MS ME, May 2019. (Department of Mechanical Engineering, São Paulo State University, Campus at Ilha Solteira, Brazil)
[47] J.-Y. Lin, "Combustion Properties of MgO for UVA Emission," MS ME, Aug 2017.
[46] S.S. Ahmadisoleymani, "Studying the Performance of American Football Helmet in Absorbing the Energy of Impact Based on Finite Element Method," MS ME, Aug 2016.
[45] D. Thomas, "Microwave Synthesis of Functionally Graded Tricalcium Phosphate for Osseointegration," M.S. Bioengineering, May 2016. (Bioengineering Program)
[44] N.G. Vaz, "Review: Parameters and Heat Transfer Modes Affecting Self-Propagating Flames in Composite Powder Media," MS ME, Dec 2015.
[43] D. Smith, "Effect of Nanofiller Shape on Effective Thermal Conductivity of Fluoropolymer Composites," MS ME, Dec 2015.
[42] P. Maharjan, "Residual Stress Determination using Electronic Speckle-Pattern Interferometry," MS ME, May 2015.
[41] R. George, "Design and Analysis of a Compact Regenerative Motion Rectifying Shock Absorber," MS ME, May 2015.

[40] A. Schmit, "Evaluation of Through-Helmet Energy Transmission during Football Collisions with Respect to Internal Helmet Air Pressure and Proper Fit," MS ME, May 2014.

[39] P. Kumbhar, "Simulation-Based Virtual Driver's Fatigue Prediction and Determination of Optimal Vehicle Seat Dynamic Parameters," MS ME, Aug 2013.

[38] J. Long, "Simulation-Based Assessment for Construction Helmets and Clothing," MS ME, Dec 2012.

[37] T.J. Powelson, "A Study into the Application of Piezoelectrics to Modify Ankle Torques in Active Prosthetic Feet Using Finite Element Analysis," MS ME, Dec 2012.

[36] C. Weir, "Examining Correlations of Electrostatic Discharge Sensitivity and Electrical Conductivity of Composite Energetic Materials," MS ME, Dec 2012.

[35] J.C. Moore, "Small Fatigue Crack Detection Using Phased Array Technology," MS ME, Dec 2012.

[34] D.M. Onay, "Computational Analysis of Dynamic Sliding Contact for Patterned Media using Finite Element Method," MS ME, Dec 2011.

[33] S. Niazi, "Study of Surface Energy and Surface Forces of Heat-Assisted Magnetic Recording Media," MS ME, Dec 2011.

[32] E. Shimek, "Experimental and Computer-Aided Assessment of Damage to Galvanized Steel due to Hail Impact," MS ME, Dec 2011.

[31] A.M. Otkur, "Impact Modeling and Failure Modes of Composite Plywood," MS ME, Dec 2010.

[30] D. Steves, "Characterization of Residual Stresses and Mechanical Performance of Gas Tungsten Arc Welded Aluminum Alloy 6061-T6," MS ME, Dec 2010.

[29] A. Marathe, "Failure Analysis and performance Characterization of Synthetic Rope Fiber," MS ME, Aug 2010.

[28] D.A. Upshaw, "Influence of Drilling Parameters on the Accuracy of Hole-Drilling Residual Stress Measurements," MS ME, May 2011.

[27] C. Cumby, "Utilization of Waste Heat for Pre-Vaporization of Fuel," MS ME, May 2010.

[26] S. Datta, "Reaction Dynamics and Probability Study of Fluoroelastomer Coated Aluminum Particles Seeded in a Monomolecular Droplet," MS ME, May 2010.

[25] J. Gragg, "Toward a New Digital Human Model and Applications," MS ME, May 2010.

[24] K. Patil, "Simulation of a Two-Mode Hybrid Vehicle Using Powertrain System Analysis Toolkit," MS ME, Dec 2009.

[23] J. Jean, "Simulation of a Hydrogen Fueled Hybrid Vehicle Using Powertrain System Analysis Toolkit," MS ME, Aug 2009.

[22] R. Breighner, "The Influence of Quadriceps Muscle Forces and Tibial Plateau Geometry on Anterior Cruciate Ligament Strain during In-vitro Simulated Jump Landing," MS ME, Aug 2009.

[21] G. Fisher, "Biomechanical Properties and Gene Expression Profiles of Human Cervical Intervertebral Discs In Vitro," MS ME, Aug 2009.

[20] H. Kefeni, "Nikon Stepper Photomask Alignment Shutter Position Detection System," MS ME, Aug 2009.

[19] V.V. Palande, "Analytical and Numerical Analysis of Residual Stresses in Cold-Expansion Process," MS ME, 2008–2009.

[18] T. Kerr, "Three-Dimensional Modelling of the Articular Cartilage," MS ME, May 2009.

[17] V. Kaithi, "Design of Space Elevator," MS ME, Dec 2008.

[16] N. Poerner, "An Investigation of Variability among Residual Stress Measurement Techniques and Prediction of Machining Induced Distortion," MS ME, Dec 2007.

[15] E. Gumus, "Equation of Motion of Column-Free Pendulum System," MS ME, Dec 2006.

[14] F. Gungor, "Humanoid Robots," MS ME, Dec 2006.

[13] B. Dikici, "Free Pendulum Vibration Absorber for Flexible Structures," MS ME, Dec 2006.

[12] I. Cumalioglu, "Modeling and Simulation of a High Pressure Hydrogen Storage Tank with Dynamic Wall," MS ME, Dec 2005.

[11] Z.Y. Cehiz, "A Comparison of the k-ε and k-ω Turbulence Models," MS ME, Dec 2004.

[10] R.L. Bennett, "Wavelet Analysis to Determine Fatigue and Corrosion Damage," MS ME, 2002–2003.

[9] R. Kunnavakkamvinjamur, "Stress-Corrosion Fatigue Cracking of Cold Expanded Components," MS ME, May 2002.

[8] E. Oner, "Sound Power Radiation from Circular Plates with Circular Holes," MS ME, Dec 2001.

[7] M.T. Samir, "Acoustic Power Generation from Simply Supported Rectangular Plates with Rectangular Cutouts," MS ME, May 2001.

[6] P.V. Pothapragada, "Application of Accelerated Corrosion Tests to Predict the Service Life of 2024-T3 Aluminum Alloy," MS ME, May 2001.

[5] J.D. Nevill, "Renewable Energy – Biomass Gasification System," MS ME, May 2001.

[4] N. Aplitsiotis, "Measurement of Residual Stresses and Distortion in Rapidly Quenched Components," MS ME, Aug 2000.

[3] M. Doganli, "Sound Power Radiation from Clamped-Clamped Annular Plates," MS ME, Aug 2000.

[2] K. Ngo, "Development of Testing Systems to Analyze Strength of Hormonally Treated Ligaments and Stability of Fixation Devices," MS ME, Aug 2000.

[1] B.D. Obert, "Quantification of Corrosion in 7075-T6 Aluminum Alloy," MS ME, May 2000.

UNDERGRADUATE STUDENTS

Undergraduate Students' Honors (Students mentored by Professor Ekwaro-Osire)

[3] N.K. Attel, R.E. Buck, J.A. Casias, J.W. Dieringer, and J.Z. Howell
Recognition for Participation in Raytheon Strike Weapons University Design Competition, 2010

[2] S.B. Chan, W.G. Crocker, J.D. Elder, K. Kepley, and E.S. VonBerg
Recognition for Participation in Raytheon Strike Weapons University Design Competition, 2007

[1] S. Fraker and J. Jackson
SDPS Best Project Award, 2000

Design and Research Projects Supervised or Currently Supervising

Total = 246 undergraduate students supervised or currently supervising

[84] C.A.L. Salazar, "Dynamic Response of a Wind Turbine Gear System," Jun 2019–Jul 2019. (Universidad del Norte, Colombia).

[83] E. Fuzaro de Almeida, "Experimental Analysis of the Dynamic Response of a Wind Turbine Gear System," Apr 2019–Jul 2019. (São Paulo State University (UNESP), Brazil).

[82] M. Khalil, "Overhauling and Adaptation of a Wind Turbine Gearbox Test Facility," Spring 2019.

[81] C.N. Nwauche, "Python in Machine Learning for Physical Systems," Spring 2019, Spring 2018, Fall 2018.

[80] O. Oduba, "Unique Applications of Sketches in Design," Spring 2019, Fall 2018, Spring 2018, Fall 2017.

[79] D. Kang, "Application of Virtual Reality Simulation on Bone Fracture Analysis," Spring 2018, Fall 2017, Spring 2017, Fall 2016.

[78] A.H. Bukhamseen, B.D. Ellis, M.T. Khalil, J.C. Mendoza, A.M. Ward, and A.M. Williams, "Tent Carrier for Mountain Bike," Spring 2018, Fall 2017.

[77] J.D. Curtis, M.B. El Jeryes Favela, S. Luna, K.C. Opara, A. Perez Lazaga, and C.V. Sharrah, "Human Powered Vehicle," Spring 2018, Fall 2017.

[76] H.J. Cymes, M.F. Kammer, R.D. Lavery, J.R. Murray, H.G. Pritchett, and G. Singh, "Crash Cart for Impact Testing," Spring 2018, Fall 2017.

[75] L.C. Bush, C.A. Griffith, S.M. Juan, and M.B. Pence, "Wheelchair Hoist Device," Spring 2018, Fall 2017.

[74] C.L. Alleman, C.L. Cunningham, C.R. David, P.H. Lima, and S.P. Wood, "Canine Recreational Fetch Device," Spring 2018, Fall 2017.

[73] J.G. Dollins, S.A. Greenwell, and I.J. Zhou, "Attachable Debris Container for Drills," Spring 2018, Fall 2017.

[72] A. Obaya, "Prognostics Using Python and ANSYS," Fall 2017.

[71] T. Colville, L. Korchinsky, V. Martincevic, M. Moreno, C.A. Norris, and T. Perkins, "Ocean Wave Energy Conversion," Spring 2017, Fall 2016.

[70] M. Moura, "Probabilistic Prognostics Framework of Crack Propagation Using Python and FRANC 2D," Sep–Dec 2016. (Military Institute of Engineering (IME), Brazil)

[69] R. do Lago e Silva Coelho, "Experimental Analysis of the Crack Propagation in Rectangular Plates under Fatigue Loadings," Sep–Dec 2016. (Military Institute of Engineering (IME), Brazil)

[68] C.B.C. Felix, "Study of Image Recognition Tools Applied to Engineering Design Process," Sep–Dec 2016. (Military Institute of Engineering (IME), Brazil)

[67] A. de Oliveira Barros, "Application of Python Language on a Crack Propagation Computational Model based on Peridynamics," Aug–Dec 2016. (Military Institute of Engineering (IME), Brazil)

[66] H. Clanahan, H. Fowler, C. Francis, T. Mayer, and D. Phillips, "ATD Acceleration System," Spring 2013, Fall 2012.

[65] B. Britton, S. Gibbons, K. Kutch, P. Lewis, D. Powers, and I. Ramirez, "Medical Staple Gun," Spring 2013, Fall 2012.

[64] D.R. Bell, E.R. Davis, S.P. Furlong, I.T. Grothe, and A. Mattey, "Development of an adjustable and Self-Retaining Surgical Retractor for Breast Surgery," Spring 2012, Fall 2011.

[63] R. Keefer, O.J. Myklebust, and C. Nunez, "Medical Staple Gun for Biodegradable Staples," Fall 2011, Spring 2011.

[62] C. Elmore, S.M. Kelly, and S. Makuta, "Design of Flywheel Energy Storage Device for Wind Turbines," Spring 2011, Fall 2010.

[61] S.W. Burnett, R.J. Erger, and R. Kimberling, "Design Modifications to the 'Kaye Posture Control Reverse Walker'," Fall 2010, Spring 2010. (co-supervisor: Dr. M. Baker)

[60] N.A. Benavides, A.M. Manley, and A.J. Vasquez, "Adult Assistive Rehabilitation Knee Brace," Fall 2010, Spring 2010. (co-supervisor: Dr. M. Baker)

[59] M.E. McKnight, A.M. Schmal, and B.D. Visser, "The Keen Knee: Developing orthotic braces for patients with Cerebral Palsy," Fall 2010, Spring 2010. (co-supervisor: Dr. M. Baker)

[58] J. Cannady, T. Niehues, and C. Wong, "Forward Walker," Fall 2010, Spring 2010. (co-supervisor: Dr. M. Baker)

[57] R.A. Herrick, N. Ogbonnah, and D.K. Peck, "Medical Plastic Staple Gun," Fall 2010, Spring 2010.

[56] M.J. Doran, R.C. McIntyre, B.C. Shaw, and H.W. Weeks, "Self-Retaining Surgical Retractor," Fall 2010, Spring 2010.

[55] N.M. Flusche, J.P. Jurries, and S.D. Suffridge, "Four-Point Rotating Bending Tester," Fall 2010, Spring 2010.

[54] D. Bobalik, C. Gannon, and M. Turner, "Trusses for Telescoping Meteorological Tower," Fall 2010.

[53] T. Gonzales, T. Hannon, J.A. Harris, B. Muzny, and T.P. Reich, "Walking Simulator," Spring 2010, Fall 2009. (co-supervisor: Dr. T.H. Jang)

[52] C.I. Azih, J.M. Lawson, L.E. Lovette, and A.E. McGovern, "Cervical Spine Apparatus," Spring 2010, Fall 2009. (co-supervisor: Dr. T.H. Jang)

[51] K.G. Freidenbloom, S.E. McDonald, R.B. Patterson, and C.C. Valenzuela, "Exercise Device for Crew Exploration Vehicle," Spring 2010, Fall 2009.

[50] E.M. Brannigan, A.J. Clements, C.G. Lauer, and C.G. Rogers, "Evaporation Cooling Tower as Air Conditioning Heat Exchanger Using Gray Water," Spring 2010, Fall 2009. (co-supervisor: Mr. A. Stroud)

[49] N.W. Badke, R. Diaz, J. Hernandez, and R.N. McKean, "Non-Electric Ceiling Fan or Attic Vent," Fall 2009. (co-supervisor: Mr. A. Stroud)

[48] N.K. Attel, R.E. Buck, J.A. Casias, J.W. Dieringer, and J.Z. Howell, "Flying Blanket," Spring 2010, Fall 2009.

[47] K.M. Beck, A.C. Blunt, N.C. Brown, S.H. Carrillo, and D.S. Johnson, "Flywheel Energy Storage," Spring 2010, Fall 2009.

[46] R.A. Barron, R.A. Gilkey, and D.J. Gonzales, "Gear Tester Frame," Fall 2009, Summer 2009.

[45] K.A. Carrillo, K.W. Francis, and T. Pham, "Self-Retaining Retractor for Breast Surgery," Fall 2009, Summer 2009.

[44] K. Bahrt, S. Diaz, M. Leemann, K. Morgan, and D. Sell, "Surgical Staple Gun," Fall 2009, Spring 2009.

[43] B. Hayes, B. Moon, and T. Raley, "Rain Harvesting System," Fall 2008, Spring 2008.

[42] T. Coates, M. Gommel, and C. McDowell, "Design a Water Tower with Solar Powered Billboards," Spring 2008.

[41] K. Bass, M. Kendall, M. Manera, and J. Napier, "Design of a Sports Pager," Spring 2008.

[40] W.T. Hobdy, B.D. Miller, B.D. Schaffner, A.M. Urech, and S.B. Vaughan, "Pneumatic Brake System for Crash Tests," Fall 2007, Spring 2007.

[39] B.W. Dickerson, O.F. Eezzuduemhoi, C.L. Francis, J.L. Peacock, M.A. Robertson, A.B. Schoenhals, and C.J. Zachry, "Mobile Gravel Conveyor System," Spring 2007.

[38] S.B. Chan, W.G. Crocker, J.D. Elder, K. Kepley, and E.S. VonBerg, "Raytheon Missile Airframe Weight Reduction," Spring 2007, Fall 2006.

[37] O.F. Eezzuduemhoi, J.L. Peacock, and M.A. Robertson, "Improving the Reliability of Cutlery Packaging Machine," Fall 2006.

[36] J. Dunn, D.A. Gernand, and T.Q. Hoang, "HVAC for a Camera Obscura," Summer II 2006, Fall 2006.

[35] L. Armstrong, J. McQuery, and A. Popejoy, "'Sip and Puff' Controlled Fishing Rod for Quadriplegics," Spring 2006, Fall 2006.

[34] E.D. Green and Y.C. Woodard, "Design and Construction of a Camera Obscura," Fall 2006, Spring 2006.

[33] S. Datta, "Experimentation for Head and Neck Injury," (Engineering Freshman Research Scholar) Spring 2006.

[32] C. Bennett and J. Ikeogu, "Design and Construction of a Camera Obscura," Spring 2006.

[31] E. Hall, R. Mata, and J. Williams, "Adjustable Brake System for Crash Testing," Spring 2006, Fall 2005.

[30] J. Huff, M.A. Kichura, and E. Sherlock, "Tape and Microfiche Mobile Destroyer," Spring 2006, Fall 2005.

[29] A. Girard, J. Grieco, N. Smith, and D. Sullivan, "Cart for Crash Testing Apparatus," Fall 2005, Spring 2005.

[28] C. Bennett, J. Blanford, and K. Marek, "Reliability of Packaging Machine," Fall 2005, Spring 2005.

[27] F. Morales, "Installation of a Proximity Switch in Packaging Machine," Summer 2005.

[26] S. Ou, "Design and Selection of a Proximity Switch for a Packaging Machine," Spring 2005.

[25] J.L. Blazek, D.P. Hooper, and S.M. Saffioti, "Brake System for Crash Testing Apparatus," Spring 2005, Fall 2004.

[24] S.R. Chollar, M.A. Holmes, J.R. Ormsby, and B.M. Tomanec, "Release Mechanism for Crash Testing Apparatus," Spring 2005, Fall 2004.

[23] H.R. McPherson, M.L. Reagan, R.K. Wernicke, and R.B. Wilson, "Microfiche/Tape Destroyer," Spring 2005, Fall 2004.

[22] R.D. Cappelli and A.S. Ceker, "Redesigning Packaging Machine," Fall 2004.

[21] W.K. Boyd, J.E. Dutton, and C.B. Sawyer, "Anthropomorphic Test Dummy Head/Neck Complex for Crash Testing Apparatus," Fall 2004, Spring 2004.

[20] J.W. Araujo, M.A. Anaya, and S.S. Sultan, "Picnic Packaging System," Spring 2004, Fall 2003.

[19] S.B. Inman, S.H. Owen, and S. Ramachandran, "Gravel Conveyor System," Spring 2004, Fall 2003.

[18] M. Anaya, "Design of Actuator Control System," Fall 2003.

[17] C. Forsman, K. Kopnicky, R. Paulsen, and S. Wagner, "Design and Manufacture of a Dispenser Machine," Spring 2003.

[16] M.A. Flores, "Introduction to Head and Neck Injury Research," (Engineering Freshman Research Scholar) Spring 2003.

[15] P. Keierleber, "Finite Element Analysis of a C5 Cervical Vertebra," Fall 2002.

[14] C. Forsman, "Cross-Sectional Geometry of Railcar Center Sill," Fall 2002.

[13] R. Anderson, C. Forsman, R. Paulsen, and S. Wagner, "Design and Manufacture of a Dispenser Machine," Fall 2002.

[12] M.A. Flores, "Introduction to Vibration Control Research," (Engineering Freshman Research Scholar) Fall 2002.

[11] J.E. Axline, B.O. Egbetola, A.L. Lynes, and B.G. Ndungu, "Automated Packaging Feeder System," Fall 2001, Summer 2001.

[10] S. Williams, "Solid Modeling Techniques for Train Cars," Spring 2001.

[9] A. Hoflich, P. Thornberry, and J. Wharton, "Aircraft Boarding Seat," Fall 2000, Summer 2000.

[8] J.D. Tolk, C. Eakin, and D. Turano, "Pallet Wrapping Machine," Fall 2000, Summer 2000.

[7] S. Fraker and J. Jackson, "Soccer Ball Shooter," Spring 2000. (SDPS Best Project Award)

[6] E. Lopez, J. Torres, and W. Speck, "Development of a Tensile Testing Device," Spring 2000.

[5] D. Webb and M.A. Romero, "Static Test Jig for Aircraft Seats," Fall 1999.

[4] D. Kelly, C. Perkins, J. Markhay, and G.C. Kamm, "Head Impact Component Test Jig," Fall 1999, Summer 1999.

[3] C. McLean, D. Webb, C. McLain, and D. King, "Spreader Test Jig," Fall 1999, Summer 1999.

[2] D. King, "Design Enhancements of the Spreader Test Jig," Fall 1998.

[1] J. Snelson, "Stress Analysis of a Center Spreader," Summer 1998.

TEACHING EXPERIENCE

Graduate Courses Taught

[2] ME 5352 Probabilistic Design
Spring 2021, Fall 2019, Fall 2018, Fall 2017, Fall 2016, Fall 2015, Fall 2014, Spring 2013, Fall 2012, Spring 2011, Fall 2009, Spring 2008, Spring 2007, Fall 2005, Fall 2004

[1] ME 5316 Advanced Vibrations
Spring 2001, Spring 2000

Graduate Courses Taught (at Universities outside of USA)

[2] ME 5352 Probabilistic Design
Fall 2017 (*Taught at Jimma University, Ethiopia*)

[1] ME 58b.01 Special Topics: Probabilistic Design
Fall 2007 (*Taught at Bogazici University, Turkey*)

Undergraduate Courses Taught

[9] ME 2302 Dynamics
Fall 2021, Spring 2021, Fall 2020, Spring 2020

[8] ME 4371 Engineering Design II
Spring 2018, Spring 2007

[7] ME 3365 Introduction to Design.
Summer I 2007, Summer I 2006, Spring 2005, Summer I 2004, Spring 2004

[6] ME 4345 Probabilistic Mechanical Design
Spring 2017, Fall 2013, Spring 2012, Fall 2010, Fall 2008, Fall 2005, Spring 2002

[5] ME 3302 Dynamics
Fall 2011, Spring 2010, Spring 2009, Fall 2008, Summer I 2005, Fall 2003, Fall 2002, Fall 2001

[4] ME 3465 Introduction to Design
Spring 2002, Fall 2000

[3] ME 4370 Engineering Design I
Spring 2018, Fall 2017, Spring 2017, Spring 2010, Fall 2009, Summer II 2009, Spring 2008, Spring 2007, Fall 2006, Spring 2006, Fall 2004, Spring 2004, Summer II 2001, Summer II 2000, Fall 1999

[2] ME 3364 Intro to Mechanical Design
Fall 1999, Fall 1998

[1] ME 3365 Mechanical Component Design
Spring 1999, Spring 1998

Undergraduate Courses Taught (at Universities outside of USA)

[1] ME 3302 Dynamics
Summer II 2012 (*Taught at Jade University of Applied Sciences, Germany*)
Summer II 2011 (*Taught at Jade University of Applied Sciences, Germany*)

New Graduate Courses Developed and Introduced into Curriculum

[2] ME 5361 Engineering Biomechanics (2015)

[1] ME 5352 Probabilistic Design (2004)

New Undergraduate Courses Developed and Introduced into Curriculum

[1] ME 4345 Probabilistic Mechanical Design (2002)

PROFESSIONAL SERVICE

SERVICE TO THE DEPARTMENT

Program Accreditation & Program Review

[9] ABET Committee, 2017–2018.

[8] Co-author of Self-Study Report for the Mechanical Engineering BS (accreditation by ABET), 2017.

[7] Co-author of Self-Study Report for the Mechanical Engineering BS (accreditation by ABET), 2011.

[6] Co-author of review report of Mechanical Engineering's Graduate Program (review by TTU), 2008.

[5] Co-author of Self-Study Report for the Mechanical Engineering BS (accreditation by ABET), 2005.

[4] Chair, ABET Committee, 2009–2012.

[3] Represented the department on the ABET Preparation Team (College of Engineering), 2010–2011.

[2] Outcomes and Assessment Oversight Committee, 2004–2006.

[1] ABET Committee, 2004–2006.

Committees

[21] Member, Design Subject Committee, 2020–present.

[20] Member, Dynamics and Vibrations Subject Committee, 2020–present.

[19] Chair, New Faculty Search Committee, 2017–2018.

[18] Chair, Promotion and Tenure Committee, 2017–2018.

[17] Member, Promotion and Tenure Committee, 2016–2017.

[16] Chair, Scholarship Committee, 2009–2012.

[15] Chair, Undergraduate Laboratory Committee, 2009–2012.

[14] Software License committee, 2010–2012.

[13] Departmental Web Page Committee, 2010–2012.

[12] Strategic Planning Committee, 2009–2011, 2007–2009.

[11] Chair, Open Faculty Search Committee, 2009–2010.

[10] Faculty Workload Committee, 2008.

[9] Curriculum Committee, 2007–2009.

[8] Control Faculty Search Committee, 2007–2008.

[7] Chair, Graduate Affairs Committee, 2007–2009.

[6] Design Faculty Search Committee, 2005–2006.

[5] Faculty undergraduate academic advisor, 2005–2006.

[4] Chairperson Search Committee, 2004.

[3] Lab and Space Committee, 2002–2004.

[2] Undergraduate Affairs Committee, 1999–2002.

[1] Laboratory, Equipment, and Facilities Committee, 1998–2002.

Sponsored Adjunct Faculty

[3] Adjunct Associate Professor O. Cuvalci, Applied Materials, Jun 2009.

[2] Adjunct Professor J. Chapman, Wind Science and Engineering Research Center, TTU, Sep 2009.

[1] Adjunct Associate Professor M. Wachtel, Department of Pathology, TTU Health Science Center, 2008.

Fundamentals of Engineering Exam Review

[2] FE Exam Review Instructor, Dynamics (2/12, 9/11, 9/10, 9/09)

[1] FE Exam Review Instructor, Mechanical Design (9/09, 3/07, 4/06, 10/05)

SERVICE TO THE UNIVERSITY

Councils

[3] eLearning Council (TTU), 2015–2016.

[2] Research Advisory Council (TTU), 2013–2016.

[1] Graduate Council (TTU), 2004–2007.

Program Accreditation

[1] ABET Preparation Team (College of Engineering), 2010–2011

Committees

[23] Teaching Academy Departmental Excellence in Teaching Award Committee (TTU), 6/20–present.

[22] President's Excellence in Commercialization Award Committee (TTU), 2015–6/16.

[21] The Intellectual Property Review Committee (TTU), 2015–6/16.

[20] Committee for Evaluation of an Endowed Professorship in College of Arts and Sciences (TTU), 2015.

[19] Search Committee: Vice President for Research ETF Faculty (TTU), 2011–2014.

[18] Office of International Affairs Scholarship Committee (TTU), 2009–2014.

[17] WISE PhD Curriculum Committee (TTU), 2011–2013.

[16] Assessment Committee (College of Engineering), 2011–2012.

[15] Search Committee: Presidential Chair (TTU), 2012–2012.

[14] Search Committee: ETF Senior Hire Position in Wind Energy (TTU), 2012–2012.

[13] Academic Programs Committee (College of Engineering), 2009–2012, 2006–2007.

[12] TEACH Program Mentor, Ariful Bhuiyan, (TTU), 2011–2012.

[11] Faculty Awards Committee (College of Engineering), 2009–2012, 2004–2008, 2000–2001.

[10] Enrollment Management Committee (College of Engineering), 2011–2012.

[9] Search Committee: Don-Kay-Clay Cash Distinguished Engineering Chair in Wind Energy, Executive Director/President of the National Wind Resource Center (TTU), 2011–2011.

[8] Scholarship Selection Committee (Achievement Rewards for College Scientists), 2005–2010.

[7] PoWERS-STRIDE Committee (Partnership of Women in Engineering, Research, and Science - Strategies and Tactics for Recruiting to Improve Diversity and Excellence) (TTU), 2009–2010.

[6] Travel Fund Focus Group (Graduate School), 2008.

[5] Scholarship Selection Committee (Cross-Cultural Academic Advancement Center), 2007.

[4] Graduate Programs Matrix (College of Engineering), 2006–2007.

[3] Student Affairs Committee (TTU), 2004–2007.

[2] Co-op Faculty Advisory Committee (College of Engineering), 2004–2007.

[1] College Grade Appeals Board (College of Engineering), 2004.

Faculty Advising of University Student Organizations

[4] Faculty advisor (inaugural), Society for Design and Process Science, TTU Student Chapter, 2010–2013.

[3] Faculty advisor, American Society of Mechanical Engineers, TTU Student Chapter, 2005–2007.

[2] Faculty advisor, National Society of Black Engineers, TTU Student Chapter, 2005–2007.

[1] Faculty advisor, African Student Organization, TTU, 2002–2004.

Professional Organizations

[1] Founding member, Black Faculty and Staff Organization, TTU & TTU Health Sciences Center

Study Abroad

[2] Led a study abroad 11-student group to Jade University of Applied Sciences in Germany, 2012.

[1] Led a study abroad 13-student group to Jade University of Applied Sciences in Germany, 2011.

Conferences

[3] Faculty Judge, 2012 Arts and Humanities Graduate Student Research Conference, Lubbock, Texas, Oct 27, 2012.

[2] Faculty Judge, 2012 Annual Graduate Student Research Poster Competition, Lubbock, Texas, Mar 30, 2012.

[1] Session chairperson, Annual Symposium on Interdisciplinary Senior Student Design Program of TTU, Lubbock, Texas, May 1, 2000.

SERVICE TO THE PROFESSION OF ENGINEERING

Professional Society Leadership

[7] Elected to the Executive Committee of the American Society of Mechanical Engineers' Safety Engineering & Risk Analysis Division. 2nd Vice Chair & Treasurer (2021–present)

[6] Elected to the Executive Committee of the American Society of Mechanical Engineers' Safety Engineering & Risk Analysis Division. 3rd Vice Chair & Membership (2020–2021)

[5] Elected to the Executive Committee of the American Society of Mechanical Engineers' Safety Engineering & Risk Analysis Division. 4th Vice Chair & Secretary (2019–2020)

[4] Elected to the Executive Committee (Non-voting member) of the American Society of Mechanical Engineers' Safety Engineering & Risk Analysis Division. Co-Editor of Newsletter, Chair of Student Paper Contest (2018–2019)

[3] Program Chairperson, 2014 International Conference of Society for Design and Process Science (SDPS 2014), Kuching, Sarawak, Malaysia, Jun 15–19, 2014.

[2] Program Vice-Chairman, 2006 World Conference on Integrated Design & Process Technology, San Diego, California, Jun 25–30, 2006.

[1] Program Chairman, 2005 World Conference on Integrated Design & Process Technology, Beijing, China, Jun 12–16, 2005.

Editorial Boards

[5] Guest Editor of *Sustainability*, Special issue on "The Path to Sustainability: Material Efficiency, Energy, Water, and Infrastructure" (1/19–present)

[4] Honorary Editor of *Journal of Integrated Design and Process Science*, Society for Design and Process Science (9/17–present)

[3] Co-Editor of *SERAD Newsletter*, Safety Engineering & Risk Analysis Division, American Society of Mechanical Engineers (4/18–8/19)

[2] Senior Advisory Board of *Journal of Integrated Design and Process Science*, Society for Design and Process Science (12/14–9/17)

[1] Managing Editor of *Journal of Integrated Design and Process Science*, Society for Design and Process Science (1/09–12/14)

Editorial Task Committees

[1] ASCE/ASME Task Committee: Interview and Selection of Editor-in-Chief for ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems: Part A. Civil Engineering, and Part B. Mechanical Engineering (7/21)

Program Accreditation at US and International Universities

[1] Program Evaluator Visitor (PEV) for ABET (Global Accreditor of College and University Programs in Applied & Natural Science, Computing, Engineering, and Engineering Technology), 2013–present.
Virtual accreditation visit to evaluate a mechanical engineering BS program, Oct 2021
Virtual accreditation visit to evaluate a mechanical engineering BS program, Nov 2020
On-site accreditation visit to evaluate a mechanical engineering BS program, Nov 2019
On-site accreditation visit to evaluate a mechanical engineering BS program, Oct 2018
On-site accreditation visit to evaluate a mechanical engineering BS program, Sep 2017
On-site accreditation visit to evaluate a mechanical engineering BS program, Nov 2016
On-site accreditation visit to evaluate a mechanical engineering BS program, Oct 2015
On-site accreditation visit to evaluate a mechanical engineering BS program, Sep 2014

External Scientific Reviewer for Federal Programs at Universities

[1] Subject Matter Expert for Iowa NSF EPSCoR Program (University of Iowa, Iowa State University, and University of Northern Iowa), 2012–2016.
Subject matter expert's final full report, Jun 27, 2016
On-site evaluation visit and report, Jul 27–28, 2015
On-site evaluation visit and report, Sep 17–18, 2014
On-site evaluation visit and report, Jul 22–23, 2013

External Evaluator for Tenure and Promotion of Faculty Members at US and International Universities

[8] Concordia University (Canada)
[7] New Mexico State University
[6] Old Dominion University
[5] Texas A&M University - Corpus Christi
[4] University of Alabama at Birmingham
[3] University of Missouri
[2] University of Missouri - Kansas City
[1] Wayne State University

Book Reviews

[4] Elsevier Science Publisher (4/03)
[3] John Wiley & Sons, Inc. (4/05, 7/03)
[2] McGraw-Hill Companies (11/06)
[1] Thomson Delmar Learning (2/05, 4/04)

Journal Reviews

[44] *Advances in Engineering Software* (2/08)
[43] *Advances in Mechanical Engineering* (10/15)
[42] *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering* (5/21)
[41] *Computers in Industry* (11/20)
[40] *Engineering Failure Analysis* (12/20)
[39] *Experimental Mechanics* (2/12)
[38] *IEEE Systems Journal* (2/12)
[37] *IEEE Transactions on Education* (3/13, 4/08)
[36] *IEEE Transactions on Engineering Management* (7/10, 3/10)
[35] *Integrated Computer-Aided Engineering* (12/13)

[34] *International Journal of Sports Medicine* (10/14)
[33] *International Journal of Engineering Education* (10/20, 12/07)
[32] *International Journal of Mechanical Sciences* (3/12)
[31] *International Journal of Microstructure and Materials Properties* (3/09)
[30] *Journal of Ambient Intelligence and Humanized Computing* (7/20)
[29] *Journal of Applied Mechanics* (1/10)
[28] *Journal of Automobile Engineering* (2/11, 9/10, 4/09, 11/07)
[27] *Journal of Biomechanics* (10/09)
[26] *Journal of Engineering Design* (9/18, 6/18)
[25] *Journal of Engineering Manufacture* (4/14, 11/12)
[24] *Journal of Engineering Tribology* (10/15)
[23] *Journal of the Brazilian Society of Mechanical Sciences and Engineering* (11/17)
[22] *Journal of Integrated Design and Process Science* (6/20, 5/20, 3/18, 4/17, 8/16, 11/12, 10/12, 9/12, 8/12, 6/12, 4/12, 7/09, 5/09, 7/08, 7/07, 12/04, 12/03)
[21] *Journal of the Mechanical Behavior of Biomedical Materials* (1/19)
[20] *Journal of Mechanical Design* (4/18)
[19] *Journal of Mechanical Engineering Science* (9/15, 5/15, 1/12, 12/10, 11/10)
[18] *Journal of Pressure Vessel Technology* (4/06, 10/05)
[17] *Journal of Sound and Vibration* (2/11, 6/06, 10/05, 7/05, 5/05, 2/05, 5/03)
[16] *Journal of Strain Analysis for Engineering Design* (7/07)
[15] *Journal of Systems Integration* (6/98)
[14] *Journal of the Franklin Institute* (11/11, 2/11)
[13] *Journal of Vibration and Control* (7/20, 6/20, 7/04)
[12] *Journal of Vibration Engineering & Technologies* (10/21, 9/21, 7/21)
[11] *Mechanics Based Design of Structures and Machines* (9/20, 3/13, 4/12, 9/10)
[10] *Mechanism and Machine Theory* (5/20, 9/19)
[9] *Multidiscipline Modeling in Materials and Structures* (1/21)
[8] *Proceedings of the Institution of Mechanical Engineers Part C: Journal of Mechanical Engineering Science* (12/20, 5/18, 4/12)
[7] *Reliability Engineering and System Safety* (5/21)
[6] *Renewable and Sustainable Energy Reviews* (1/21)
[5] *Sensors* (9/20)
[4] *Simulation Modelling Practice and Theory* (6/08, 5/08)
[3] *Structural Health Monitoring* (9/20)
[2] *Tribology International* (4/16, 3/16)
[1] *Wind Energy* (7/20)

Conference Paper Reviews

[13] ASEE Annual Conference & Exposition (1/14, 2/08, 2/07, 2/06, 1/05)
[12] ASME Graduate Student Technical Conference (3/07, 3/05, 3/04)
[11] ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (6/14, 3/13, 7/10, 3/10, 2/08)
[10] ASME International Mechanical Engineering Congress & Exposition (5/21, 6/19, 5/19, 6/16, 6/15, 6/14, 7/10, 7/09, 6/09, 6/06, 7/05)
[9] ASME / IEEE Joint Rail Conference (1/05)
[8] IEEE International Conference on Prognostics and Health Management (3/19)

[7] International Conference of Society for Design and Process Science (9/15)

[6] International Conference on Advanced Technology in Experimental Mechanics (5/07)

[5] International Conference on Integrated Design and Process Technology (5/11, 5/03, 5/02, 5/00)

[4] International Symposium on Management, Engineering, and Informatics (12/08, 4/08, 11/07)

[3] International Conference on Prognostics and Health Management (3/19)

[2] International Conference on Rotordynamics (4/18)

[1] International Symposium on Vibro-Impact Dynamics of Ocean Systems and Related Problems (10/08)

Grant Review Panels

[14] Member, Natural Sciences and Engineering Research Council of Canada (NSERC) (1/19)

[13] Member, National Science Foundation Review Panel for Proposals (1/18)

[12] Member, National Science Foundation Review Panel for Proposals (11/17)

[11] Member, National Science Foundation Review Panel for Proposals (1/17)

[10] Member, National Science Foundation Review Panel for Proposals (11/16)

[9] Member, (Department of Defense) Science, Mathematics, and Research for Transformation (SMART) Scholarship Evaluation Panel (1/15)

[8] Member, (Institute of International Education) Global Innovation Initiative - Energy, Climate Change & the Environment Panel (12/14)

[7] External Reviewer, Petro-Canada Young Innovator Awards Program (11/06)

[6] Member, National Science Foundation Review Panel for Proposals (2/05)

[5] Ad Hoc Reviewer, US Department of Agriculture Review Panel for Proposals (11/04)

[4] Ad Hoc Reviewer, National Science Foundation Review Panel for Proposals (3/04)

[3] Ad hoc reviewer, US Department of Agriculture's Small Business Innovation Research Program (12/03)

[2] Member, National Science Foundation Review Panel for Proposals (4/03)

[1] Member, National Science Foundation Review Panel for Proposals (11/99)

Conferences and Workshops

[37] Scientific Committee Member, 2022 International Conference on Flexible Automation and Intelligent Manufacturing, Detroit, Michigan, Jun 19-23, 2022.

[36] Session Chairperson, Topic: Student Safety Innovation Challenge, Track: Safety Engineering, Risk and Reliability Analysis, 2021 ASME International Mechanical Engineering Congress & Exposition, Virtual Conference, Nov 1–5, 2021.

[35] Program Committee Member, 2020 International Conference of Society for Design and Process Science (SDPS 2020), Virtual Conference, Nov 17–19, 2020.

[34] Session Chairperson, Student Safety Innovation Challenge, 2020 ASME International Mechanical Engineering Congress & Exposition, Virtual Conference, Nov 15–19, 2020.

[33] Session Chairperson, Student Safety Innovation Challenge, 2019 ASME International Mechanical Engineering Congress & Exposition, Salt Lake City, Utah, Nov 11–14, 2019.

[32] Program Co-Chairperson, International Mini-Symposium on Rotating Machinery, Lubbock, TX, Sep 4, 2019.

[31] Program Co-Chairperson, Workshop - Grant Writing, Research Design, Leadership, Research Resource Center, Jimma, Ethiopia, Aug 12–15, 2019.

[30] Program Co-Chairperson, Grant Writing Workshop, Jimma, Ethiopia, Mar 13–15, 2019.

[29] Program Co-Chairperson, International Conference on Sustainable Development of Ethiopia – Resource Sustainability and Infrastructure Improvements, Jimma, Ethiopia, Mar 11–12, 2019.

[28] Program Committee Member, Design Science Research 2018: Workshop on Data Driven Design and learning, Montreal, Canada, Aug 23–25, 2018.

[27] Program Committee Member, 2017 International Conference of Society for Design and Process Science (SDPS 2017), Birmingham, Alabama, Nov 5–9, 2017.

[26] Topic Co-Organizer, ASME International Mechanical Engineering Congress & Exposition, Tampa, Florida, Nov 3–9, 2017.

[25] Program Committee Member, Mini-Symposium on Probabilistic Prognostics and Health Management of Energy Systems, Ilha Solteira, SP, Brazil, May 25, 2017.

[24] Program Chairperson, 2017 Probabilistic Prognostics and Health Management of Energy Systems Workshop (PPHMES 2017), Lubbock, Texas, May 15–16, 2017.

[23] Program Chairperson, International Workshop on Transportation, Sustainable Water Resources, and Construction, Jimma, Ethiopia, Apr 24–25, 2017.

[22] Program Committee Member, 2016 International Conference of Society for Design and Process Science (SDPS 2016), Orlando, Florida, Dec 4–6, 2016.

[21] Session Chair, STEM across Continents Program, Lubbock, Texas, Aug 31–Sep 1, 2016.

[20] Organizing Committee Member, 2015 Probabilistic Prognostics and Health Management of Energy Systems Workshop (PPHMES 2015), Ilha Solteira, SP, Brazil, Dec 14–15, 2015.

[19] Program Committee Member, 2015 International Conference of Society for Design and Process Science (SDPS 2015), Fort Worth, Texas, Nov 2–5, 2015.

[18] Program Committee Member, 2013 International Conference of Society for Design and Process Science (SDPS 2013), Campinas, São Paulo, Brazil, Oct 27–31, 2013.

[17] Session Chair, "On Wind Technologies, Grid Integration & Unique Facilities," 2012 Wind Farms' Underperformance & Partnerships: Building Partnerships to Meet the 2030 Grand Challenge, Lubbock, Texas, Mar 28–29, 2012.

[16] Session Organizer and Chair, "Design Automation," 2011 World Conference on Integrated Design & Process Technology, Jeju Island, South Korea, Jun 12–16, 2011.

[15] Session Organizer and Chair, "Design Automation III," 2010 World Conference on Integrated Design & Process Technology, Dallas, Texas, Jun 6–11, 2010.

[14] Session Organizer and Chair, "Design Automation II," 2010 World Conference on Integrated Design & Process Technology, Dallas, Texas, Jun 6–11, 2010.

[13] Session Organizer and Chair, "Design Automation I," 2010 World Conference on Integrated Design & Process Technology, Dallas, Texas, Jun 6–11, 2010.

[12] Session Co-Chair, "Vibration and Control of Mechanical Systems - V," 2009 ASME International Mechanical Engineering Congress & Exposition, Lake Buena Vista, Florida, Nov 13–19, 2009.

[11] Session Moderator, "Design Communications," 2009 ASEE Annual Conference & Exposition, Austin, Texas, Jun 14–17, 2009.

[10] Program Committee Member, 2008 Transdisciplinary Conference on Integrated Systems, Design, & Process Science, Taichung, Taiwan, Jun 1–6, 2008.

[9] Program Committee Member, 2007 World Conference on Integrated Design & Process Technology, Antalya, Turkey, Jun 3–8, 2007.

[8] Workshop Chair, 2006 International Conference on Water in Arid and Semiarid Lands: Innovative Approaches and Informed Decision Making, Lubbock, Texas, Nov 15–17, 2006.

[7] Session Co-Chair, "Inverse Problems III: Orthotropic Materials," 2006 SEM Annual Conference & Exposition, St Louis, Missouri, Jun 4–7, 2006.

[6] Session Organizer and Chair, "General Design and Application - 1A," 2003 World Conference on Integrated Design & Process Technology, Austin, Texas, Dec 3–6, 2003.

[5] Session Organizer and Chair, "General Design and Application - 1B," 2003 World Conference on Integrated Design & Process Technology, Austin, Texas, Dec 3–6, 2003.

[4] Session Developer and Chairperson, "Design and Product Development," 2002 World Conference on Integrated Design & Process Technology, Pasadena, California, Jun 23–28, 2002.

[3] Session Developer and Chairperson, "General Design and Applications - I," 2002 World Conference on Integrated Design & Process Technology, Pasadena, California, Jun 23–28, 2002.

[2] Session Developer and Chairperson, "Manufacturing," 2000 World Conference on Integrated Design & Process Technology, Dallas, Texas, Jun 4–8, 2000.

[1] Session Developer and Chairperson, “General Design and Analysis,” 2000 World Conference on Integrated Design & Process Technology, Dallas, Texas, Jun 4–8, 2000.