Constantine M. Tarawneh
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Education

University of Nebraska-Lincoln (UNL) **August 1996 – August 2003**

- Ph.D. Mechanical Engineering, August 2003, GPA 3.96.
  - Dissertation title: "Experimental Analysis of Near-Field Acoustic Scattering by Rigid Spheroidal Objects", *Advisor: Dr. John P. Barton.*
- M.S. Mechanical Engineering, December 1999, GPA 3.75.
  - Thesis title: "Experiments with a Mass Transfer Analog for the Filling of Stratified Thermal Energy Storage", *Advisor: Dr. Kelly O. Homan.*

University of Jordan-Amman **September 1991 – January 1996**

- B.Sc. Mechanical Engineering, January 1996, finished within the top five percent in class.
  - Senior Design Project title: "Measurement of Bond Conductance in Solar Collector Absorber Plates", *Advisor: Dr. Ali Badran.*

Professional Employment

The University of Texas Rio Grande Valley (UTRGV) **September 2015 – Present**

Associate Dean for Research, Graduate Programs, and Special Projects,
College of Engineering and Computer Science **May 2016 – Present**

Full Professor, Mechanical Engineering Department **September 2015 – Present**

Director, University Transportation Center for Railway Safety (UTCRS) **October 2013 – Present**

The University of Texas-Pan American (UTPA) **August 2003 – August 2015**

Full Professor, Mechanical Engineering Department **August 2014 – August 2015**

Associate Professor, Mechanical Engineering Department **August 2009 – August 2014**

Assistant Professor, Mechanical Engineering Department **August 2005 – August 2009**

Lecturer, Mechanical Engineering Department **August 2003 – August 2005**

Duties Performed:

- Taught 17 different graduate and undergraduate courses in mechanical engineering.
- Supervised several senior design projects each year.
- Chair for 38 Master's Thesis committees and served in five others as a committee member.
- Co-advised the aero-design team for two years.
- Performed duties of Mechanical Engineering Graduate Program Director for eight years.
- Performed duties of Mechanical Engineering Undergraduate Program Director for two years.
- Performed duties of Global Security Studies and Leadership Graduate Program Director for seven years.
- Performed duties of Global Security Studies Undergraduate Minor Advising Director for six years.
- Serving in six departmental committees, four college committees, and three university committees.
- Served as **Chair** of the College of Engineering and Computer Science Council for three years.
- Served as **Chair** of the University Admissions Committee for three years.

- Served as **Chair** of the University Graduate Council for two years.
- Served as **Chair** of the University Undergraduate Curriculum Committee for two years.
- Served as **Chair** of the Faculty Merit Subcommittee within the University Merit Task Force.
- Advising 200-300 students each academic year.
- Actively involved in the various undergraduate student mentoring and research engagement programs.

University of Nebraska-Lincoln (UNL) **August 1996 – Present**

Adjunct Faculty, Mechanical and Material Engineering Department
Duties Include: **June 2019 – Present**

- Serving in doctoral dissertation committees for graduate students in the department.

Visiting Summer Faculty, Mechanical and Materials Engineering Department
Duties Included: **August 1996 – August 2013**

- Taught six different thermal sciences and engineering mechanics courses.
- Collaborated with faculty in research in the fields of Heat Transfer and Acoustics and Vibrations.

Research Assistant, Mechanical Engineering Department. Duties included:

- March of 2002, provided engineering consulting through UNL for Snyder Industries, Inc. in Lincoln, NE. The project involved conducting heat transfer related testing and modeling.
- July through September of 2001, performed systematic analysis of the electromagnetic interaction of the monochromatic light with aerosol particles of spheroidal and near-spheroidal geometries. The project was funded through a $25,000 grant from the Naval Research Laboratory (NRL) in Washington DC.
- May of 1998 through September of 2000, worked on a $100,000 grant from ASHRAE. The project involved studying Stratified Thermal Storage Systems and providing design improvements to increase their efficiency.

Teaching Assistant, Mechanical Engineering Department. Duties included:

- August of 1999 through May of 2003, supervised and instructed the Measurements Laboratory.
- August of 1999 through August of 2003, assisted undergraduate students in their senior design projects.
- August of 1996 through May of 2003, teaching assistant for the Thermodynamics course.
- January of 1997 through May of 1998, instructed the Thermal Fluids Laboratory.

Mathematics, Physics, and Engineering Tutor **September 1991 – August 2003**

- Tutored High School students and University undergraduates in Mathematics, Physics, and Engineering, including Calculus, Statics, Dynamics, Linear Algebra, Strength of Materials, Mechanical Design, Thermodynamics, and Heat Transfer.

Aeroklima, Air Conditioning Systems Design, Thessaloniki, Greece
May 1995 – August 1995

Mechanical Engineer

- Only student selected to join and contribute to team of professionals in projects to design, build, and install air conditioning systems in large industrial facilities.

Research Activities

Total Funding to Date as PI and Co-PI → $17,630,465

Proposals Funded as Principal Investigator (PI) – Total Funding of $8,134,306

Externally Funded:

1. "2020 UTCRS Summer Camps Program for K-12 Students," Funded by the Local School Districts in the Lower Rio Grande Valley, **$150,000**. **(2020)**

2. "Advanced Wireless Onboard Condition Monitoring System," 2020 AAR-TTCI University Program – Grand Challenges in Railway Technology RFP, TTCI, **$20,000**. **(Nov. 1, 2019 – Dec. 31, 2019)**
3. "Dwight David Eisenhower Transportation Fellowship Program (DDETFP)," USDOT, FHWA, **$60,000**. **(Oct. 1, 2019 – Sep. 30, 2020)**
4. "Assessing the Efficacy of Railroad Bearing Reconditioning through Service Life Performance Testing: Extended Work," Funded by the Transportation Technology Center, Inc. (TTCI), **$100,000**. **(Sep. 1, 2019 – Aug. 31, 2020)**
5. "2019 UTCRS Summer Camps Program for K-12 Students," Funded by the Local School Districts in the Lower Rio Grande Valley, **$135,000**. **(2019)**
6. "Dwight David Eisenhower Transportation Fellowship Program (DDETFP)," USDOT, FHWA, **$60,000**. **(Oct. 1, 2018 – Sep. 30, 2019)**
7. "Assessing the Efficacy of Railroad Bearing Reconditioning through Service Life Performance Testing," Funded by the Transportation Technology Center, Inc. (TTCI), **$79,862**. **(Jul. 1, 2018 – Aug. 31, 2019)**
8. "Proposal to Establish a USDOT University Transportation Center for Railway Safety (UTCRS)," USDOT, UTC Program, **$4,209,600**. **(Oct. 1, 2013 – Dec. 31, 2018)**
9. "2018 UTCRS Summer Camps Program for K-12 Students," Funded by the Local School Districts in the Lower Rio Grande Valley, **$120,000**. **(2018)**
10. "Design and Fabrication of a Table-Top Liquefied Natural Gas Demonstration Station," NextDecade Corporation, **$15,000**. **(2018)**
11. "2017 UTCRS Summer Camps Program for K-12 Students," Funded by the Local School Districts in the Lower Rio Grande Valley, **$110,000**. **(2017)**
12. "Engineering Summer Program: 2017 UTCRS Summer Research Camp," The Texas Higher Education Coordinating Board (THECB), **$11,727**. **(2017)**
13. "Amsted Rail Research Projects: Bearing Condition Monitoring Technologies, Product Validation, Field Testing, and Implementation," Amsted Industries Inc., **$364,465**. **(Feb. 1, 2015 – Aug. 31, 2016)**
14. "2016 UTCRS Summer Camps Program for K-12 Students," Funded by the Local School Districts in the Lower Rio Grande Valley, **$75,000**. **(2016)**
15. "2015 UTCRS Summer Camps Program for K-12 Students," Funded by the Local School Districts in the Lower Rio Grande Valley, **$45,400**. **(2015)**
16. "Amsted Rail Research Projects: Bearing Condition Monitoring Technologies, Product Enhancements, Optimization, and Testing," Amsted Industries Inc., **$328,605**. **(Dec. 1, 2013 – Jan. 31, 2015)**
17. "Amsted Rail Research Projects: Design and Fabrication of a Single Railroad Bearing Tester with Vertical, Lateral, and Impact Load Capabilities," Amsted Industries Inc., **$40,000**. **(Sep. 7, 2012 – Aug. 31, 2013)**
18. "Amsted Rail Research Projects: Bearing Adapter Sensor Insert Development and Optimization and Product Enhancements and Testing," Amsted Industries Inc., **$270,000**. **(Sep. 1, 2012 – Aug. 31, 2013)**
19. "Amsted Rail Research Projects: SmartPad™ Development and Product Enhancements and Testing," Amsted Industries Inc., **$530,655**. **(Sep. 1, 2011 – Aug. 31, 2012)**
20. "Amsted Rail Research Projects: Product Enhancements and New Technologies: Part II," Amsted Industries Inc., **$518,431**. **(Sep. 1, 2010 – Aug. 31, 2011)**
21. "Amtrak-Amsted Research Projects: Lateral Damper System Development and Testing," Amtrak through Amsted Industries Inc., **$41,000**. **(Apr. 1, 2010 – Aug. 31, 2011)**
22. "Amtrak-Amsted Research Projects: Hydraulic Damper System Development and Testing," Amtrak through Amsted Industries Inc., **$172,000**. **(Dec. 31, 2009 – Dec. 31, 2010)**
23. "Adapter Polymer Pad Material Characterization: Electric Conductivity Study," Amsted Industries Inc., **$28,488**. **(Sep. 1, 2009 – Sep. 1, 2010)**
24. "Amsted Rail Research Projects: Product Enhancements and New Technologies," Amsted Industries Inc., **$273,985**. **(Sep. 1, 2009 – Sep. 1, 2010)**
25. "Hydraulic Damper Orifice Valve Design: Spool Design," Amsted Industries Inc., **$17,088**. **(Sep. 1, 2008 – Sep. 1, 2009)**
26. "Hydraulic Damper Orifice Valve Design: Initial Analysis," Amsted Industries Inc., **$18,500**. **(Sep. 1, 2008 – Sep. 1, 2009)**

27. "A Theoretical and Experimental Performance Study of the Modified Polyamide Cage Cone Assemblies, and Implementation of an On-Track Field Test to Verify the Laboratory Findings of the Bearing Temperature Trending Study," Amsted Industries Inc., **$130,000**. **(Sep. 1, 2008 – Sep. 1, 2009)**
28. "An Investigation into the Heat Transfer from a Railcar Wheel to the Bearing Cup," BRENCO QBS, **$56,000**. **(May 31, 2008 – May 31, 2009)**
29. "Material Characterization of Modified Polyamide Cages," BRENCO QBS, **$5,000**. **(Mar. 31, 2008 – Dec. 31, 2008)**
30. "An Experimental and Analytical Study of the Vibration Effects on Tapered-Roller Bearings in Service," BRENCO QBS, **$60,000**. **(Sep. 30, 2007 – Dec. 31, 2008)**
31. "Designing an Experimental Setup to Test the Fabricated NGN^{TM} Valve Prototypes," SumNett Inc., **$7,500**. **(2006)**
32. "An Investigation of the Mechanism Leading to the Sudden Overheating of Railroad Tapered-Roller Bearings," BRENCO QBS, **$40,000**. **(Sep. 30, 2006 – Sep. 30, 2008)**
33. "Development of a Heat Transfer Model to Investigate Hot Bearing Trending in Tapered-Roller Bearings," BRENCO QBS, **$15,000**. **(Sep. 30, 2005 – Aug. 31, 2006)**

Internally Funded:

34. "Devising a Multivariate Correlation for the Smart Adapter Load Sensor for Use in Freight Railcar Loading Applications," UTRGV HHMI, **$3,000**. **(Jan. 1, 2017 – Aug. 31, 2017)**
35. "Temperature Profiles of Railroad Tapered Bearings with Defective Inner and Outer Rings," UTRGV Undergraduate Research Initiative (URI), **$2,000**. **(Jan. 1, 2016 – Aug. 31, 2016)**
36. "Hydraulic Oil Cooling System for Industrial Bearings under High Speed and Heavy Load Operating Conditions," UTPA Undergraduate Research Initiative (URI), **$2,000**. **(Sep. 1, 2014 – Dec. 31, 2014)**
37. "Vibration Analyses for Railroad Bearing Condition Monitoring," UTPA Undergraduate Research Initiative (URI), **$2,000**. **(Nov. 1, 2012 – Aug. 31, 2013)**
38. "Railroad Bearing Cone-Assembly Evaluation Station," UTPA Undergraduate Research Initiative (URI), **$2,000**. **(Nov. 1, 2012 – Aug. 31, 2013)**
39. "Implementation of Wireless Temperature Nodes for Continuous Rail Bearing Monitoring and Service Optimization," UTPA Undergraduate Research Initiative (URI), **$2,000**. **(Nov. 1, 2012 – Aug. 31, 2013)**
40. "Service Life of Ultrasonically Scanned Railroad Bearing Cups," UTPA Undergraduate Research Initiative (URI), **$2,000**. **(Nov. 1, 2012 – Aug. 31, 2013)**
41. "Railroad Bearing Extracting and Mounting Mechanism for a Single Bearing Tester," UTPA Undergraduate Research Initiative (URI), **$2,000**. **(Nov. 1, 2012 – Aug. 31, 2013)**
42. "Renewable Energy Awareness Workshop," UTPA Center for Integrated Global Knowledge and Understanding, **$5,000**. **(Jun. 1, 2007 – Aug. 31, 2007)**

Proposals Funded as Co-PI – Total Funding of $9,496,159

43. "Creating a Manufacturing Innovations Hub in Brownsville (MIH-B): Immediate and Long-Term Program Implementation," Greater Brownsville Incentives Corporation (GBIC), **$6,615,000. (Jun. 1, 2017 – May 31, 2022) (PI: Dr. Ala Qubbaj)**
44. "2020 Texas Prefreshman Engineering Program (TexPREP) Engineering Ambassadors," Halliburton Foundation Inc., **$23,100**. **(2020) (PI: Dr. Stephen Crown)**
45. "2019 Texas Prefreshman Engineering Program (TexPREP) Engineering Ambassadors," Halliburton Foundation Inc., **$22,200**. **(2019) (PI: Dr. Stephen Crown)**
46. "Engineering Summer Program: 2016 UTCRS Summer Research Camp," The Texas Higher Education Coordinating Board (THECB), **$12,900**. **(2016) (PI: Dr. Young-Gil Park)**
47. "Engineering Summer Program: 2015 UTCRS Summer Research Camp," The Texas Higher Education Coordinating Board (THECB), **$13,998**. **(2015) (PI: Dr. Young-Gil Park)**
48. "Engineering Summer Program: PREP Plus+," The Texas Higher Education Coordinating Board (THECB), **$12,500**. **(2014) (PI: Dr. Stephen Crown)**
49. "Multimodal Modules for Inquiry-Based Statics and Dynamics Curriculum," NSF CCLI Program, **$199,974**. **(2009) (PI: Dr. Javier Kypuros)**
50. "Viscoelastic Characterization of Candidate Seal Materials and Designs: Part III," BRENCO QBS, **$24,728**. **(Feb. 1, 2009 – Jan. 31, 2010) (PI: Dr. Robert Jones)**

51. "Viscoelastic Characterization of Candidate Seal Materials and Designs: Part II," BRENCO QBS, **$41,082**. **(Feb. 1, 2008 – Feb. 1, 2009) (PI: Dr. Robert Jones)**
52. "Viscoelastic Characterization of Seal Material," BRENCO QBS, **$30,677**. **(Nov. 15, 2006 – Nov. 15, 2007) (PI: Dr. Robert Jones)**
53. "Proposal to Establish an Intelligence Community Center of Academic Excellence," DoD, Office of the Director of National Intelligence, **$2.5 million**. **(Oct. 1, 2006 – Sep. 30, 2011) (PI: Dr. Van Reidhead)**

Large Proposals Submitted or Under Review:

54. "Proposal to Establish a National Center for Integrated Transportation Infrastructure 4.0: Improving the Durability and Extending the Life of Transportation Infrastructure," USDOT, UTC Program, University of South Carolina (lead), UTRGV Subcontract, **$5,000,000**. **(Oct. 1, 2019 – Sep. 30, 2021) [Not Selected for Funding]**
55. "Proposal to Establish a UTRGV/STC NSF Resource Hub," National Science Foundation (NSF) IUSE-HSI Program, **$3,000,000**. **(Oct. 1, 2018 – Sep. 30, 2023) [Not Selected for Funding]**
56. "Development, Characterization, and Modeling of Multi-Layer Fabric Reinforced with Shear-Thickening Fluids Created with Sub-Micron Silica and Soda-Lime Glass Particles," Department of Defense (DoD), **$600,000**. **(Jun. 1, 2018 – May 31, 2021) [Not Selected for Funding]**
57. "Engineering Transportation Research in STEM Fields," National Science Foundation (NSF) RET Site Program, **$600,000**. **(Apr. 1, 2018 – Mar. 31, 2021) [Not Selected for Funding]**
58. "USDOT University Transportation Center for Railway Safety (UTCRS): Improving the Durability and Extending the Life of Transportation Infrastructure," USDOT, UTC Program, **$7,800,000**. **(Oct. 1, 2016 – Sep. 30, 2022) [Not Selected for Funding]**

Other Research Activities

- Worked on the mechanical design aspects of an NSF funded project as part of a team with faculty from the Biology and Chemistry Departments. A laboratory based PIXE, (PIXE-L), using a ^{244}Cm alpha excitation source, was proposed for the analysis of the concentrations and transport of metal ions in live plants, which is the first of its kind. PIXE-L requires low path-length dimensions in order to minimize the loss of the He^{2+} ions and the fluoresced x-rays. The design of the ^{244}Cm source holder takes into consideration the calculated optimized source-target x-ray detector geometries, the ease of installation of the sources at Oak Ridge National Laboratory (ORNL), and the ease of manipulation while ensuring the necessary radiation protection of the device. The project was funded by NSF through a three year (12/1/03-11/30/06) **$767,000** grant.

Books

- C. Tarawneh. Near-Field Acoustic Scattering by Rigid Spheroidal Objects. VDM Verlag, Germany, 2009. **[ISBN 978-3-639-18564-5]**.

Peer-Reviewed Journal Papers

1. H. Foltz, J. Bensen*, **C. Tarawneh**, and R. Jones. Phase plane design of magnetostrictive energy harvesters. *In preparation*, to be submitted May 2020.
2. **C. Tarawneh**, J. Aranda*, V. Hernandez**, S. Crown, and J. Montalvo*. An investigation into wayside hot-box detector efficacy and optimization. *International Journal of Rail Transportation*, Published Online: 28 June 2019. https://doi.org/10.1080/23248378.2019.1636721
3. **C. Tarawneh**, J. Lima*, N. De Los Santos*, and R. Jones. Prognostics models for railroad tapered-roller bearings with spall defects on inner or outer rings. *Tribology Transactions*, Vol. 62, No. 5, pp. 897-906, 2019. https://doi.org/10.1080/10402004.2019.1634228
4. A. Chapman, F. Rodriguez**, C. Pena, E. Hinojosa**, L. Morales**, V. Del Bosque**, Y. Tijerina**, and **C. Tarawneh**. Nothing is impossible: characteristics of Hispanic females participating in an informal STEM setting. *Cultural Studies of Science Education*, published online: 08 October 2019. https://doi.org/10.1007/s11422-019-09947-6

5. **C. Tarawneh**, J. Ley, D. Blackwell*, S. Crown, and B. M. Wilson. Onboard load sensor for use in freight railcar applications. *Int. J. of Railway Technology*, Vol. 6, No. 1, pp. 41-67, 2017. doi:10.4203/ijrt.6.1.3
6. **C. Tarawneh**, R. Maldonado*, A. A. Fuentes, and J. A. Kypuros. A vibration energy approach used to identify temperature trending in railroad tapered-roller bearings. *Int. J. of Acoustics and Vibrations*, Vol. 20, No. 2, pp. 69-80, 2015.
7. **C. Tarawneh**, J. A. Turner, B. M. Wilson, and L. Koester*. Service life testing of railroad bearings with known subsurface inclusions detected with advanced ultrasonic technology. *Int. J. of Railway Technology*, Vol. 2, No. 3, pp. 55-78, 2013.
8. A. Arguelles*, **C. Tarawneh**, Y. Park, S. W. Crown. Developing positive study habits through course recitation. *Journal of Applications and Practices in Engineering Education*, Vol. 3, No. 1, pp. 1-12, 2012.
9. **C. Tarawneh**, A. A. Fuentes, J. A. Kypuros, L. A. Navarro*, A. G. Vaipan*, and B. M. Wilson. Thermal modeling of a railroad tapered roller bearing using finite element method. *Journal of Thermal Science and Engineering Applications*, Vol. 4, No. 3, pp. 9-19, 2012.
10. **C. Tarawneh**, L. Koester*, A. J. Fuller, B. M. Wilson, and J. A. Turner. Service life testing of components with defects in the rolling contact fatigue zone. *ASTM International*, STP 1548, West Conshohocken, PA, pp. 67-83, 2012.
11. **C. Tarawneh**. An effective homework methodology. *Journal of Applications and Practices in Engineering Education*, Vol. 2, No. 2, pp. 54-65, 2011.
12. J. A. Kypuros, **C. Tarawneh**, H. Vasquez, M. Knecht, and R. Wrinkle. Guided discovery modules for engineering mechanics. *Journal of Applications and Practices in Engineering Education*, Vol. 2, No. 1, pp. 30-42, 2011.
13. K. D. Cole, **C. Tarawneh**, A. A. Fuentes, B. M. Wilson, and L. Navarro*. Thermal models of railroad wheels and bearings. *Int. J. of Heat Mass Transfer*, Vol. 53, pp. 1636-1645, 2010.
14. **C. Tarawneh**, H. Vasquez, L. Navarro**, V. Reyna**, M. Acosta*, and V. Reidhead. Renewable energy prospects and feasibility for isolated communities. *Int. J. of Energy for a Clean Environment*, Vol. 10, No. 1-4, pp. 73-101, 2009.
15. K. D. Cole, **C. Tarawneh**, and B. M. Wilson. Analysis of flux-base fins for estimation of heat transfer coefficient. *Int. J. Heat Mass Transfer*, Vol. 52, pp. 92-99, 2009.
16. **C. Tarawneh**, K. D. Cole, B. M. Wilson, and F. Alnaimat*. Experiments and models for the thermal response of railroad tapered roller bearings. *Int. J. Heat Mass Transfer*, Vol. 51, pp. 5794-5803, 2008.
17. **C. Tarawneh** and K. O. Homan. Measurements of density profile evolution during the stably-stratified filling of an open enclosure. *Int. J. Heat Fluid Flow*, **29** (4): 1113-1124, August 2008.
18. **C. Tarawneh** and J. P. Barton. Experimental analysis of near-field acoustic scattering by rigid spheroidal objects. *Int. J. Acoustics and Vibration*, **12** (4): 162-170, December 2007.
19. J. P. Barton, N. L. Wolff, H. Zhang, and **C. Tarawneh**. Near-field calculations for a rigid spheroid with an arbitrary incident acoustic field. *Journal of the Acoustical Society of America*, **113** (3): 1216-1222, March 2003.
20. **C. Tarawneh** and K. O. Homan. Observations of interfacial mixing during the stably stratified filling of an open chamber. *DFD99 Meeting of the American Physical Society*, 1999.

Refereed Conference Papers

21. C. Lopez III*, **C. Tarawneh**, A. Fuentes, and H. Siegel**, "Optimizing power consumption of freight railroad bearings using laboratory experimental data," *Proceedings of the 2020 ASME Joint Rail Conference*, St. Louis, MO, April 19-22, 2020.
22. J. Lima*, **C. Tarawneh**, J. Aguilera**, and J. Cuanang*, "Estimating the inner ring defect size and residual service life of freight railcar bearings using vibration signatures," *Proceedings of the 2020 ASME Joint Rail Conference*, St. Louis, MO, April 19-22, 2020.
23. J. Cuanang*, **C. Tarawneh**, M. Amaro*, J. Lima*, and H. Foltz, "Optimization of railroad bearing health monitoring system for wireless utilization," *Proceedings of the 2020 ASME Joint Rail Conference*, St. Louis, MO, April 19-22, 2020.

24. V. Hernandez*, **C. Tarawneh**, J. Arroyo**, C. Lopez III*, D. Clasby, and S. Belport, "Assessing the efficacy of railroad bearing reconditioning through service life performance testing," *Proceedings of the 2020 ASME Joint Rail Conference*, St. Louis, MO, April 19-22, 2020.
25. S. Crown and **C. Tarawneh**, "The educational value of modelling complex thermodynamics systems with system dynamics software," *Proceedings of the 2019 ASEE Annual Conference and Exposition*, Tampa, FL, June 16-19, 2019.
26. J. Montalvo*, **C. Tarawneh**, J. Lima*, J. Cuanang*, and N. De Los Santos*, "Estimating the outer ring defect size and remaining service life of freight railcar bearings using vibration signatures," *Proceedings of the 2019 ASME Joint Rail Conference*, Snowbird, UT, April 9-12, 2019.
27. A. Villarreal*, **C. Tarawneh**, M. Ontiveros**, J. Aranda*, and R. Jones, "Prototyping a conductive polymer steering pad for rail freight service," *Proceedings of the 2019 ASME Joint Rail Conference*, Snowbird, UT, April 9-12, 2019.
28. **C. Tarawneh**, J. Montalvo*, and A. Fuentes, "Defect detection system for freight railcar tapered-roller bearings using vibration techniques," *Proceedings of the Fourth International Conference on Railway Technology (Railways 2018)*, Sitges, Barcelona, Spain, September 3-7, 2018. [Extended Abstract]
29. **C. Tarawneh**, J. Ley, D. Blackwell*, S. Crown, and B. Wilson, "Onboard load sensor for use in freight railcar applications," *Proceedings of the Fourth International Conference on Railway Technology (Railways 2018)*, Sitges, Barcelona, Spain, September 3-7, 2018. [Extended Abstract]
30. **C. Tarawneh**, J. Aranda*, V. Hernandez**, and C. Ramirez**, "An investigation into wayside hot-box detector efficacy and optimization," *Fourth International Conference on Railway Technology (Railways 2018)*, Sitges, Barcelona, Spain, September 3-7, 2018. [Extended Abstract]
31. S. Crown, **C. Tarawneh**, and J. Ley, "Developing and testing an electronic homework system to improve student engagement and learning in engineering thermodynamics," *Proceedings of the 2018 ASEE Annual Conference and Exposition*, Salt Lake City, UT, June 24-27, 2018.
32. **C. Tarawneh**, J. Aranda*, V. Hernandez**, and C. Ramirez**, "An analysis of the efficacy of wayside hot-box detector data," *Proceedings of the 2018 ASME Joint Rail Conference*, Pittsburgh, PA, April 18-20, 2018.
33. J. Montalvo*, **C. Tarawneh**, and A. Fuentes, "Vibration-based defect detection system for freight railcar tapered-roller bearings," *Proceedings of the 2018 ASME Joint Rail Conference*, Pittsburgh, PA, April 18-20, 2018.
34. N. De Los Santos*, **C. Tarawneh**, R. Jones, and A. Fuentes, "Defect prognostic models for spall growth in railroad bearing rolling elements," *Proceedings of the 2018 ASME Joint Rail Conference*, Pittsburgh, PA, April 18-20, 2018.
35. O. Rodriguez*, A. Fuentes, and **C. Tarawneh**, "Impact of hysteresis heating of railroad bearing thermoplastic elastomer suspension pad on railroad bearing thermal management," *Proceedings of the 2018 ASME Joint Rail Conference*, Pittsburgh, PA, April 18-20, 2018.
36. A. Mealer**, **C. Tarawneh**, and S. W. Crown, "Radiative heat transfer analysis of railroad bearings for wayside hot-box detector optimization," *Proceedings of the 2017 ASME Joint Rail Conference*, Philadelphia, PA, April 4-7, 2017.
37. D. Timmer, **C. Tarawneh**, and R. Jones, "Models for the residual life of railroad bearing grease in laboratory and industry applications," *Proceedings of the 2017 ASME Joint Rail Conference*, Philadelphia, PA, April 4-7, 2017.
38. N. De Los Santos**, R. Jones, **C. Tarawneh**, A. A. Fuentes, and A. Villarreal**, "Development of prognostic techniques for surface defect growth in railroad bearing rolling elements," *Proceedings of the 2017 ASME Joint Rail Conference*, Philadelphia, Pa, April 4-7, 2017.
39. O. Rodriguez*, A. A. Fuentes, **C. Tarawneh**, and R. Jones, "Hysteresis heating of railroad bearing thermoplastic elastomer suspension element," *Proceedings of the 2017 ASME Joint Rail Conference*, Philadelphia, PA, April 4-7, 2017. **[Received Best Paper Award]**
40. B. M. Wilson, A. J. Fuller, **C. Tarawneh**, and J. A. Turner, "Near race inclusions in bearing components and the resultant effect on fatigue initiation and component life," *Proceedings of the 2016 Conference on Railway Excellence (CORE)*, Melbourne, Australia, May 16-18, 2016.
41. **C. Tarawneh**, L. Sotelo**, N. De Los Santos**, A. Villarreal**, R. Lechtenberg**, and R. Jones, "Temperature profiles of railroad tapered bearings with defective inner and outer rings," *Proceedings of the 2016 ASME Joint Rail Conference*, Columbia, SC, April 12-15, 2016.

42. O. Rodriguez**, J. Carbone**, A. A. Fuentes, **C. Tarawneh**, and R. Jones, "Heat generation in the railroad bearing thermoplastic elastomer suspension element," *Proceedings of the 2016 ASME Joint Rail Conference*, Columbia, SC, April 12-15, 2016.
43. B. M. Wilson, A. J. Fuller, **C. Tarawneh**, and J. A. Turner, "Early bearing fatigue initiation by the identification and selection of bearings with near race defects," *Proceedings of the 2015 International Heavy Haul Association Conference*, Perth, Australia, June 21-24, 2015. **[Received Best Paper Award]**
44. A. Gonzalez*, **C. Tarawneh**, P. Hu, J. A. Turner, and B. M. Wilson, "Tracking of spall deterioration on tapered roller bearings," *Proceedings of the 2015 ASME Joint Rail Conference*, San Jose, CA, March 23-26, 2015.
45. R. Estrada*, H. Foltz, **C. Tarawneh**, and R. Moreno**, "Energy harvesting potential of Terfenol-D for onboard bearing health monitoring applications," *Proceedings of the 2015 ASME Joint Rail Conference*, San Jose, CA, March 23-26, 2015.
46. A. Trevino*, A. A. Fuentes, **C. Tarawneh**, and J. Montalvo**, "Fatigue life estimation of modified railroad bearing adapters for onboard monitoring applications," *Proceedings of the 2015 ASME Joint Rail Conference*, San Jose, CA, March 23-26, 2015.
47. T. Martinez*, D. Timmer, R. Jones, and **C. Tarawneh**, "Developing empirical models of railroad bearing grease," *Proceedings of the 2015 ASME Joint Rail Conference*, San Jose, CA, March 23-26, 2015.
48. P. Hu, J. Turner, **C. Tarawneh**, B. Wilson, and A. J. Fuller, "Multiple frequency ultrasonic detection of subsurface near-race inclusions for improved fatigue life performance," *Proceedings of the 2015 ASME Joint Rail Conference*, San Jose, CA, March 23-26, 2015.
49. C. Pena, A. Chapman, **C. Tarawneh**, "Robots in motion: learning about transportation engineering through robotics," *Proceeding of the 2015 Society for Information Technology & Teacher Education Conference*, Las Vegas, NV, March 2-6, 2015.
50. J. Montalvo**, A. Trevino**, A. A. Fuentes, and **C. Tarawneh**, "Structural integrity of conventional and modified railroad bearing adapters for onboard monitoring," *Proceedings of the 2014 ASME IMECE Conference,* **IMECE2014-37492**, Montreal, Canada, November 14-20, 2014.
51. **C. Tarawneh**, R. Estrada*, B. M. Wilson, and A. Martin, "Field implementation statistical analysis of an emerging bearing condition monitoring system," *Proceedings of the Second International Conference on Railways Technology (Railways 2014)*, Ajaccio, Corsica, France, April 8-11, 2014.
52. A. Zagouris*, A. A. Fuentes, **C. Tarawneh**, J. A. Kypuros, and A. P. Arguelles*, "Experimentally validated finite element analysis of railroad bearing adapter operating temperatures," *Proceedings of the 2012 ASME IMECE Conference*, **IMECE2012-88639**, Houston, TX, November 9-15, 2012.
53. L. Koester*, C. Zuhlke, B. Wilson, D. Alexander, **C. Tarawneh**, J. Turner, and J. Fuller, "Near-race ultrasonic inspection of tapered roller bearing components for non-metallic defects," *Proceedings of the 2012 ASME RTD Fall Technical Conference,* **RTDF2012-9437**, Omaha, NE, October 16-17, 2012.
54. J. A. Kypuros, H. Vasquez, **C. Tarawneh**, M. Knecht, and R. Wrinkle, "Lessons learned implementing and optimizing guided discovery modules," *Proceedings of the IEEE/ASEE Frontiers in Education Conference*, Seattle, WA, 2012.
55. J. A. Kypuros, M. Knecht, H. Vasquez, **C. Tarawneh**, and R. Wrinkle, "Guided discovery modules for statics," *Proceedings of the ASEE Conference and Exposition*, San Antonio, TX, June 2012.
56. J. A. Kypuros, H. Vasquez, **C. Tarawneh**, M. Knecht, and R. Wrinkle, "An overview of the guided discovery pedagogy," *Proceedings of the 2012 ASEE-GSW Annual Conference*, El-Paso, TX, 2012.
57. J. A. Kypuros, **C. Tarawneh**, A. Zagouris*, S. Woods*, B. M. Wilson, and A. Martin, "Implementation of wireless temperature sensors for continuous condition monitoring of railroad bearings," *Proceedings of the 2011 ASME RTD Fall Technical Conference,* **RTDF2011-67017**, Minneapolis, MN, September 21-22, 2011.
58. J. A. Kypuros, H. Vasquez, **C. Tarawneh**, M. Knecht, and R. Wrinkle, "Guided discovery modules for statics and dynamics," *Proceedings of the 2011 ASEE Annual Conference and Exposition*, Vancouver, BC, Canada, June 26-29, 2011.
59. **C. Tarawneh**, J. A. Kypuros, A. A. Fuentes, B. M. Wilson, B. A. Gonzalez*, G. Rodriguez**, and R. K. Maldonado**, "Vibration signatures of temperature trended bearings in field and laboratory testing," *Proceedings of the 2009 ASME RTD Fall Technical Conference,* **RTDF2009-18038**, Ft. Worth, TX, October 20-21, 2009.

60. S. W. Crown, A. A. Fuentes, **C. Tarawneh**, R. A. Freeman, and H. Mahdi, "Student academic advisement: Innovative tools for improving minority student attraction, retention, and graduation," *Proceedings of the 2009 ASEE Annual Conference and Exposition*, Austin, TX, June 14-17, 2009.
61. **C. Tarawneh**, A. A. Fuentes, B. M. Wilson, K. D. Cole, and L. Navarro*, "Thermal analysis of railroad bearings: effect of wheel heating," *Proceedings of the 2009 ASME Joint Rail Conference,* **JRC2009-63055**, Pueblo, CO, March 3-5, 2009.
62. **C. Tarawneh**, J. A. Kypuros, B. M. Wilson, T. W. Snyder, B. Gonzalez*, and A. A. Fuentes, "A collaborative on-track field test conducted to verify the laboratory findings on bearing temperature trending," *Proceedings of the 2009 ASME Joint Rail Conference,* **JRC2009-63056**, Pueblo, CO, March 3-5, 2009.
63. J. A. Kypuros and **C. Tarawneh**, "Scalable, inquiry-based, multimodal modules for engineering mechanics curriculum," *Proceedings of the 38th ASEE/IEEE Frontiers in Education Conference*, **Session T3A**, Saratoga Springs, NY, October 22-25, 2008.
64. **C. Tarawneh**, B. M. Wilson, K. D. Cole, A. A. Fuentes, and J. M. Cardenas*, "Dynamic bearing testing aimed at identifying the root cause of warm bearing temperature trending," *Proceedings of the 2008 ASME RTD Fall Technical Conference,* **RTDF2008-74036**, Chicago, IL, September 24-26, 2008.
65. **C. Tarawneh**, B. M. Wilson, K. D. Cole, and M. Reed, "A metallurgical and experimental investigation into sources of warm bearing trending," *Proceedings of the 2008 IEEE/ASME Joint Rail Conference,* **JRC2008-63028**, Wilmington, DE, April 22-24, 2008.
66. **C. Tarawneh**, K. Cole, B. Wilson, and K. Freisen**, "A lumped capacitance model for the transient heating of railroad tapered roller bearings," *Proceedings of the Annual ASEE-GSW Regional Conference*, **T2C5**, South Padre Island, TX, March 28-30, 2007.
67. **C. Tarawneh**, H. Vasquez, and M. A. Acosta**, "An experimental study of potential residential and commercial applications of small-scale solar power systems," *Proceedings of the Annual ASEE-GSW Regional Conference*, **T3C4**, South Padre Island, TX, March 28-30, 2007.
68. J. A. Kypuros and **C. Tarawneh**, "Multimodal assessment instruments for dynamics," *Proceedings of the Annual ASEE-GSW Regional Conference*, **T3B5**, South Padre Island, TX, March 28-30, 2007.

Non-Refereed Conference Papers

1. E. Hinojosa*, N. Olvera*, Y. Tijerina**, E. Lozano**, A. Chapman, C. Pena, and **C. Tarawneh**, "Nothing is impossible: developing persistence in Hispanic females in STEM," *The 2nd Annual RGV STEM Education Conference*, McAllen, TX, February 8-9, 2019.
2. N. Dasgupta-Schubert, M. Persans, **C. Tarawneh**, C. Schubert, M. A. Reyes**, T. Brandt**, and C. Lloren**, "Live plant PIXE imaging and XRFS: design optimization, component fabrication and estimated x-ray photon count rate," *The 108th Annual Meeting of the Texas Academy of Sciences*, The University of Texas-Pan American, Edinburg, TX, March 3-5, 2005.
3. N. Dasgupta-Schubert, **C. Tarawneh**, M. Persans, T. Brandt**, and C. Lloren**, "Bio-chemical PIXE spectrometry: fabrication of the 244Cm source holder," *Third Annual Research Symposium of the South Texas Section of the American Chemical Society*, The University of Texas-Pan American, Edinburg, TX 78539, November 12th, 2004.

* Graduate Students, ** Undergraduate Students

Patent Applications

- A US Patent Application entitled "Electrically and Thermally Conductive Thermoplastic Polyurethane," by Constantine Tarawneh *et al*, was submitted in September 2019.
- A US Patent Application entitled "Onboard Load Sensor for Freight Railcar Applications," by Constantine Tarawneh and Stephen Crown, was submitted in September 2019.
- A US Patent Application entitled "Wireless Onboard Railroad Bearing Condition Monitoring System," by Constantine Tarawneh *et al*, was submitted in September 2019.
- A US Patent Application entitled "Methods and Systems for Analyzing Samples Using Particle Irradiation," by Constantine Tarawneh *et al*, was filed on March 2nd, 2007 by Fulbright and Jaworski in Austin, TX **[Application No. 11/681,613]**.

Professional Presentations

1. C. Tarawneh. NSF Grant Writing Session: Team Building and Writing your Budget. *Invited Presenter for the 3rd Annual RGV STEM Education Conference*, McAllen, TX, February 14, 2020.
2. C. Tarawneh. STEM Panel Discussion: An Opportunity for Students and Teachers to ask the STEM Professionals about their Journey Toward a STEM Career. *Invited Panelist for the 2nd Annual RGV STEM Education Conference*, McAllen, TX, February 9, 2019.
3. C. Tarawneh. Advanced Rolling Stock Condition Monitoring Technologies for Freight Rail Transport. *Invited Speaker for the Center for Advanced Infrastructure and Transportation (CAIT) Seminar Series*, Rutgers University, Piscataway, NJ, October 26, 2018.
4. C. Tarawneh. Defect Detection System for Freight Railcar Tapered-Roller Bearings Using Vibration Techniques. *Fourth International Conference on Railway Technology (Railways 2018)*, Sitges, Barcelona, Spain, September 3-7, 2018.
5. C. Tarawneh. Onboard Load Sensor for Use in Freight Railcar Applications. *Fourth International Conference on Railway Technology (Railways 2018)*, Sitges, Barcelona, Spain, September 3-7, 2018.
6. C. Tarawneh. An Investigation into Wayside Hot-Box Detector Efficacy and Optimization. *Fourth International Conference on Railway Technology (Railways 2018)*, Sitges, Barcelona, Spain, September 3-7, 2018.
7. C. Tarawneh. An Analysis of the Efficacy of Wayside Hot-Box Detector Data. *2018 ASME Joint Rail Conference*, Pittsburgh, PA, April 18-20, 2018.
8. C. Tarawneh. The Role of the University Transportation Center for Railway Safety (UTCRS) on Modernizing Rail Infrastructure. *National Symposium on the Barriers and Opportunities for Infrastructure Renewal*, College Station, TX, September 17-18, 2017.
9. C. Tarawneh. Radiative Heat Transfer Analysis of Railroad Bearings for Wayside Hot-Box Detector Optimization. *2017 ASME Joint Rail Conference*, Philadelphia, PA, April 4-7, 2017.
10. C. Tarawneh. Advanced On-Board Condition Monitoring System for Freight Railcar Applications. Invited Speaker, *USDOT*, *Office of the Assistant Secretary for Research and Technology (OST-R) Transportation Innovation Series*, Washington, D.C., February 15, 2017.
11. C. Tarawneh. Temperature Profiles of Railroad Tapered Bearings with Defective Inner and Outer Rings. *2016 ASME Joint Rail Conference*, Columbia, SC, April 12-15, 2016.
12. C. Tarawneh. University Transportation Center for Railway Safety (UTCRS) Activities. Invited Speaker, *A Summit of University Transportation Centers for Safety*, Washington, D.C., March 30-31, 2016.
13. C. Tarawneh. Conductive Polymer Nano-Composites for Rail Suspension Applications. Research Poster, *A Summit of University Transportation Centers for Safety*, Washington, D.C., March 30-31, 2016.
14. C. Tarawneh. On-Board Sensor Technologies for Effective Bearing Condition Monitoring. *Annual Research and Development Meeting of Amsted Rail*, Granite City, IL, January 18, 2016.
15. C. Tarawneh. Keys for a Successful University Transportation Center Operation. Invited Speaker, *US DOT OST-R Session for UTC Grantees*, New Brunswick, NJ, June 2-5, 2015.
16. C. Tarawneh. University Transportation Center for Railway Safety (UTCRS) Activities. Invited Speaker, *A Summit of University Transportation Centers for Safety*, Pittsburgh, PA, March 19-20, 2015.
17. C. Tarawneh. Service Life Testing of Railroad Bearings with Known Subsurface Inclusions Detected with Advanced Ultrasonic Technology. Invited Special Lecture, *Second International Conference on Railways Technology (Railways 2014)*, Ajaccio, Corsica, France, April 8-11, 2014.
18. C. Tarawneh. Field Implementation Statistical Analysis of an Emerging Bearing Condition Monitoring System. *Second International Conference on Railways Technology (Railways 2014)*, Ajaccio, Corsica, France, April 8-11, 2014.
19. C. Tarawneh. Implementation of Wireless Temperature Sensors for Continuous Condition Monitoring of Railroad Bearings. *ASME RTD Fall Technical Conference*, Minneapolis, MN, September 21-22, 2011.
20. C. Tarawneh. Thermal Analysis of Tapered Roller Bearings Tested at UTPA. *Annual Research and Development Meeting of Amsted Industries Incorporated*, Petersburg, VA, October 5-6, 2010.
21. C. Tarawneh. Thermal and Dynamic Performance of Bearings with Cone Assembly Modifications Designed to Minimize Temperature Trending Events. *Annual Research and Development Meeting of Amsted Rail*, Petersburg, VA, November 5-6, 2009.
22. C. Tarawneh. Vibration Signatures of Temperature Trended Bearings in Field and Laboratory Testing. *ASME RTD Fall Technical Conference*, Ft. Worth, TX, October 20-21, 2009.

23. C. Tarawneh. A Collaborative On-Track Field Test Conducted to Verify the Laboratory Findings on Bearing Temperature Trending. *ASME Joint Rail Conference*, Pueblo, CO, March 3-5, 2009.
24. C. Tarawneh. Thermal Analysis of Railroad Bearings: Effect of Wheel Heating. *ASME Joint Rail Conference*, Pueblo, CO, March 3-5, 2009.
25. C. Tarawneh. Dynamic Bearing Testing Aimed at Identifying the Root Cause of Warm Bearing Temperature Trending. *ASME RTD Fall Technical Conference*, Chicago, IL, September 24-26, 2008.
26. C. Tarawneh. A Metallurgical and Experimental Investigation into Sources of Warm Bearing Trending. *IEEE/ASME Joint Rail Conference*, Wilmington, DE, April 22-24, 2008.
27. C. Tarawneh. Understanding Bearing Temperature Trending and Possible Means of Reducing its Occurrence. *Annual Research and Development Meeting of Amsted Rail*, Petersburg, VA, March 16-17, 2008.
28. C. Tarawneh and J. A. Kypuros. Multimodal Modules for Non-Calculus-Based Engineering Mechanics Curriculum. *Border, National and Global Security Conference*, Edinburg, TX, February 22, 2008.
29. C. Tarawneh. An Analytical and Experimental Study of the Vibration Effects on the Performance of Tapered Roller Bearings during Service. *Annual Research and Development Meeting of BRENCO QBS*, Petersburg, VA, October 3-4, 2007.
30. C. Tarawneh. A Lumped Capacitance Model for the Transient Heating of Railroad Tapered Roller Bearings. *ASEE-GSW Regional conference*, South Padre Island, TX, March 28-30, 2007.
31. C. Tarawneh. Results of the Static and Dynamic Thermal Testing of Railroad Tapered Roller Bearings. *Annual Research Update Meeting between BRENCO QBS and the Union Pacific (UP)*, Petersburg, VA, July 19-20, 2007.
32. C. Tarawneh. Heat Transfer Modeling for Railroad Tapered Roller Bearings. *Annual Research and Development Meeting of BRENCO QBS*, Petersburg, VA, September 26, 2006.

Chaired Master's Theses

1. "Thermal Analysis of Railroad Tapered Roller Bearings," by Fadi Alnaimat, December 2007.
2. "An Investigation into Railroad Tapered Roller Bearing Temperature Trending Using Finite Element Analysis," by Martin Cardenas, August 2008.
3. "An Experimental Study of Potential Residential and Commercial Applications of Small-Scale Hybrid Power Systems," by Michael Acosta, December 2009.
4. "Thermal Analysis of Railroad Bearings: Effect of Wheel Heating," by Lariza Navarro, May 2010.
5. "Design and Testing of Orifice Valves for Use in Freight Railcars Hydraulic Suspension System," by Awni Alshakhshir, August 2010.
6. "A Study of the Effect of Vibration on Railroad Bearing Temperature," by Bertha Gonzalez, December 2010.
7. "The Design, Development, Optimization of Variable and Fixed Orifice Dampers with Empirical and Experimental Testing for Implementation in Railroad Industry," by Charles Speck, May 2011.
8. "Effect of Geometrical Changes Caused by Temperature on the Performance of Railroad Tapered Roller Bearings," by Andrei Vaipan, December 2011.
9. "An Investigation into Temperature Trending in Railroad Tapered Roller Bearings Through Vibration Monitoring Techniques," by Rafael Maldonado, December 2011.
10. "Implementation of Wireless Temperature Sensors for Continuous Condition Monitoring of Railroad Bearings," by Andoni Zagouris, May 2012.
11. "Development of Algorithms and Criteria for Continuous Condition Monitoring of Railroad Bearings," by Sean Woods, December 2012.
12. "Development of a Vibration and Temperature Measurement Device for Railroad Bearings," by Andrea Arguelles, December 2012.
13. "Defect Detection in Railroad Tapered Roller Bearings Using Vibration Analysis Techniques," by Iris Alvarado, December 2012.
14. "Calibration and Optimization of a Load Sensor Embedded in a Railroad Bearing Adapter," by Lorenzo Saenz, May 2013.
15. "Design and Optimization of a Railroad Conductive Suspension Element Pad Composed of Thermoplastic Polyurethane and Carbon Black," by Ruben Suarez, August 2013.
16. "Design and Characterization of a Terfenol-D Based Power Source," by Raul Estrada, December 2014.

17. "Effects of Vapor Grown Carbon Nanofibers on Electrical and Mechanical Properties of a Thermoplastic Elastomer," by Daniel Basaldua, December 2014.
18. "Onboard Load Sensor Prototype for Use in Freight Railcar Service," by Thomas Diedrich, August 2015.
19. "Development, Optimization, and Implementation of a Vibration Based Defect Detection Algorithm for Railroad Bearings," by Amy Gonzalez, August 2015.
20. "Modeling the Residual Useful Life of Bearing Grease," by Thania Martinez, December 2015.
21. "Multivariate Calibration of a Load Sensor for Dynamic and Static Freight Railcar Applications," by Dylan Blackwell, December 2016.
22. "Discrete Element Analysis of SCB Variability – Asphalt Mixtures," by David Renteria, May 2017.
23. "The Effect of Heat Generation in the Railroad Bearing Thermoplastic Elastomer Suspension Element on the Thermal Behavior of Railroad Bearing Assembly," by Oscar Rodriguez, May 2018.
24. "Analysis of Flash in Injection Molding Using Flow Simulation and Design of Experiments," by Claudia Lopez, August 2018.
25. "Radiative Heat Transfer Analysis of Railroad Bearings for Wayside Thermal Detector Optimization," by James Aranda, December 2018.
26. "Development of Prognostic Techniques for Surface Defect Growth in Railroad Bearing Rolling Elements," by Nancy De Los Santos, July 2019.
27. "Defect Detection Algorithm Optimization for Use in Freight Railcar Service," by Joseph Montalvo, August 2019.
28. "Microstructural Influences on the Mechanical and Electrical Properties of Carbon Nanofiber Thermoplastic Polyurethane Composites," by Anthony Villarreal, August 2019.
29. "A Feasibility Study on the Use of Energy Harvesting Devices to Operate Low-Power Bearing Condition Monitoring Sensors in Freight Service," by Jacob Bensen, August 2019.
30. "Development of Prognostic Models for the Estimation of Defect Size and Remaining Service Life of Freight Railcar Bearings Using Vibration Signatures," by Jennifer Lima, in progress, expected date of completion: May 2020.
31. "Optimizing a Railroad Bearing Condition-Monitoring Algorithm for Use with an Onboard Wireless Low-Power Data Acquisition Module," by Jonas Cuanang, in progress, expected date of completion: December 2020.
32. "Assessing the Efficacy of Railroad Bearing Reconditioning through Service Life Performance Testing," by Veronica Hernandez, in progress, expected date of completion: December 2020.
33. "Theoretical and Experimental Study on the Energy Consumption of Railroad Bearings in Normal and Abnormal Operation Conditions," by Carlos Lopez, in progress, expected date of completion: December 2020.
34. "Developing an Efficient Energy Harvesting Device to Power Onboard Condition Monitoring Modules for Use in Railway Service," by Martin Amaro, in progress, expected date of completion: August 2021.
35. "Low-Power Wireless Onboard Condition Monitoring Sensor Network Development for Freight Railcar Service," by Karthick Kayambu, in progress, expected date of completion: August 2021.
36. "Analysis of Journal Bearing Failure Rates and Causes in North America Over the Past Three Decades," by Roberto Garcia, in progress, expected date of completion: December 2021.
37. "Assessing the Effectiveness and Efficacy of Wireless Onboard Condition Monitoring Modules in Identifying Defects in Railroad Rolling Stock," by Lee Cantu, in progress, expected date of completion: December 2021.
38. "Railcar Wheel Impact Detection Utilizing Vibration-Based Wireless Onboard Condition Monitoring Modules," by Marco Barrera, in progress, expected date of completion: December 2021.

Master's Theses Committee Member

1. "Application of Linear Viscoelastic Theory to the Design of Interference Fits with Glass Fiber Reinforced Polymer Composite Systems," by Lucas Koester, August 2008.
2. "Thermodynamic Heat Transfer Analysis and Simulation of a Domestic Size Double Stage Lithium Bromide Absorption System," by Carlos Lima, May 2009.
3. "Analysis and Design of an Anisotropic Compliant Suspension Component," by Samantha Salinas, December 2011.

4. "Load Sensor in an Elastomer Suspension Element," by Jazmin Ley, August 2012.
5. "Pressure Field Extraction from Particle Image Velocimetry Data," by Jean Calzada, December 2015.

Professional Honors and Awards

- Appointed as a **Louis A. Beecherl, Jr. Endowed Professor** in Engineering; Period: September 1, 2017 – August 31, 2020.
- The University Transportation Center for Railway Safety (UTCRS) for which I serve as the Founding Director received the inaugural **National CUTC Workforce Development and Technology Transfer Leadership Award** for 2019.
- Awarded the **Outstanding Faculty Award** by the vote of the ME students for the year 2017-2018.
- Appointed as a **Faculty Fellow** for the **Lloyd M. Bentsen, Jr. Endowed Chair** in Engineering; Period: February 1, 2017 – August 31, 2017.
- Appointed as a **Faculty Fellow** for the **Lloyd M. Bentsen, Jr. Endowed Chair** in Engineering; Period: September 1, 2012 – August 31, 2016.
- Awarded the **Dr. Hashim S. Mahdi Outstanding Faculty Award** for the year 2015-2016.
- Awarded the **Outstanding Faculty Award** by the vote of the ME students for Fall 2015.
- Awarded the **2014 Success Profile Award** which recognizes successful student employees' role models.
- Awarded the **Dr. Hashim S. Mahdi Outstanding Faculty Award** for the year 2013-2014.
- Awarded the **University Excellence Award in Teaching** for the year 2012-2013.
- Awarded the **College Excellence Award in Teaching** for the year 2012-2013.
- Awarded the **Dr. Hashim S. Mahdi Outstanding Faculty Award** for the year 2012-2013.
- Selected by the vote of the UTPA Faculty to represent the University in the prestigious **Minnie Stevens Piper Outstanding Teacher Award** for the academic year 2012-2013.
- Awarded the **HESTEC** Engineering Symposium Best Poster Award in 2012.
- Awarded the **University Excellence Award in Mentoring** for the year 2011-2012.
- Awarded the **College Excellence Award in Mentoring** for the year 2011-2012.
- Awarded the **College Excellence Award in Research** for the year 2010-2011.
- Awarded the **HESTEC** Science and Engineering Symposium Second Place Poster Award in 2011.
- Awarded the **Dr. Hashim S. Mahdi Outstanding Faculty Award** for the year 2010-2011.
- Awarded the **HESTEC** Science and Engineering Symposium Best Poster Award in 2010.
- Awarded the **Dean's Engineering Faculty Support Endowment Award** in 2010 for dedication to the students and the University's mission on becoming a premier learner-centered research institution.
- Awarded the **UT Board of Regents' Outstanding Teaching Award** in 2009.
- Awarded the **Dr. Hashim S. Mahdi Outstanding Faculty Award** for the year 2008-2009.
- Awarded the **Outstanding Faculty Award** for the year 2007-2008.
- Awarded the **Outstanding Faculty Award** for the year 2006-2007.
- Awarded the **Outstanding Faculty Mentor Award** for the year 2006-2007.
- Awarded the **Outstanding Faculty Award** for the year 2005-2006.
- Awarded the **Lockheed Martin Outstanding Faculty Award** for the year 2004-2005.
- Awarded the **Martin C. Hemsworth Scholarship** three consecutive years (2000-2002) for outstanding work as a teaching assistant.

Professional Service

- Founding Director of the University Transportation Center for Railway Safety (UTCRS) at UTRGV.
- Member of the Council of University Transportation Centers (CUTC) and one of the members of the communications task force within CUTC.
- Member of the CUTC Student Awards Selection Committee.

- One of the four Directors of the Research and Education Division (RED) within the American Road and Transportation Builders Association (ARTBA).
- Member of the External Review Committee for the Dwight David Eisenhower Transportation Fellowship Program (DDETFP) funded by the U.S. Department of Transportation.
- Member of the External Review Committee for the Department of Energy (DOE) for their Nuclear Energy University Program (NEUP).
- Member of the Editorial Board of the *Journal of Acoustics* (JoA) published by Qingres.
- Member of the Editorial Board of the *Railways 2020* Conference in Mallorca, Spain.
- Member of the Editorial Board of the *Railways 2018* Conference in Barcelona, Spain.
- Member of the Editorial Board for *Journal of Applications and Practices in Engineering Education*.
- Member of the Editorial Board of the *Railways 2014* Conference in Ajaccio, Corsica, France.
- Reviewer for the *International Journal of Heat and Mass Transfer*.
- Reviewer for the *Journal of Thermal Science and Engineering Applications.*
- Reviewer for the *International Journal of Railway Technology*.
- Reviewer for the *Journal of Transportation Safety & Security*.
- Reviewer for the *Journal of Engineering Tribology*.
- Reviewer for the *Iranian Journal of Science and Technology*.
- Reviewer for the *Transport Research Arena*.
- Reviewer for the *Journal of Dynamic Systems, Measurement and Control*.
- Reviewer for the *SpringerPlus Journal Publications*.
- Reviewer for the *ASME Conference Publications*.
- Reviewer for the *ASEE Conference Publications*.

Skills

- **Computer Skills**
  - FORTRAN, LATEX, MATLAB, MathCad, Maple, Labtech Notebook, GageScope, Engineering Equation Solver (EES), Microsoft Office Software, Axum, AutoCAD, and Xfig.
- **Language Skills**
  - Fluent in English, Greek and Arabic. Conversational and skilled in reading and writing French.

References

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