

## Donghyeon Ryu, Ph.D., P.E.

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### PROFESSIONAL PREPARATION:

Ph.D. in Civil and Environmental Engineering, University of California, Davis (September 2014)  
*Dissertation:* Multi-Modal, Self-Sensing, and Photoactive Structural Coatings for Sustainable Infrastructures  
*Advisor:* Prof. Kenneth J. Loh  
M.S. in Mechanical and Aerospace Engineering, University of California, Davis (March 2014)  
M.S. in Civil Engineering, Yonsei University, Seoul, South Korea (August 2008)  
B.S. in Civil and Environmental Engineering, Yonsei University, Seoul, South Korea (February 2004)

### APPOINTMENTS:

Aug. 2014 – present: Assistant Professor, Mechanical Engineering, New Mexico Tech (NMT)  
Sep. 2009 – Aug. 2014: Research Assistant, Civil & Environmental Engr., UC Davis (UCD)  
Aug. 2006 – Aug. 2008: Research Assistant, Civil Engr., Yonsei Univ., Seoul, South Korea  
Mar. 2004 – June 2006: Engineer Officer, 30<sup>th</sup> Division, Republic of Korea Army, South Korea

### AWARDS:

2018 ASCE ExCEEEd Teaching Workshop Fellow  
2013 Best Paper Award in Adaptive Structures and Material Systems (ASMS), ASME  
2013 Student Best Paper Award, 9<sup>th</sup> International Workshop on Structural Health Monitoring  
2013 Best Paper Award, 10<sup>th</sup> International Conference on Damage Assessment of Structures  
2011-2013 Three Summer Graduate Student Researcher Awards, UCD  
2011-2014 Two UCD & Humanities Graduate Research Awards, UCD  
2009-2014 Five-Year Graduate Fellowship, College of Engineering, UCD  
2006-2008 Brain Korea (BK) 21 Fellowship, Korea Research Foundation  
2005 Two Commendations, 30<sup>th</sup> Mechanized Infantry Division, Republic of Korea Army  
2000-2003 Several Merit-Based Scholarships, Yonsei University, Seoul, South Korea

### CURRENT AND PAST RESEARCH PROJECTS (TOTAL BUDGET AS PI: \$866,470; AS CO-PI: \$572,310):

#### International Research Project:

1. PI (**Ryu**); Collaborator (Kang) at Korea Railroad Research Institute: Development of Fiber Optic Impact Trigger Sensor Module using Fracto-Mechanoluminescent EuD<sub>4</sub>TEA Crystals, *Korea-US Collaborative Research Initiation Program (KU CRIP), Korea Railroad Research Institute (KRRRI)*. Budget: \$25,000 from 02/01/2017 to 10/31/2017.

#### Federal Research Projects:

4. PI (Chin) at Aerostructures Branch of National Aeronautics and Space Administration (NASA) Armstrong Flight Research Center (AFRC); Collaborator (**Ryu**); Mechanoluminescent Materials and Structural Health Monitoring Test, *NASA AFRC Center Innovation Fund*. Budget: \$20,000 from 01/01/2019 to 12/31/2019.
3. Science PI (**Ryu**); Admin PI (Hynes); Co-PIs (Kalugin, Zagrai, Shen, Lim, Park); Collaborator (Moholt, Chin, and Truong) at Aerostructures Branch of NASA AFRC: Autonomous Structural

Composites for Next Generation Aerospace Structures, *NASA Experimental Program to Stimulate Competitive Research (EPSCoR)*. Budget: \$750,000 from 08/07/2017 to 08/06/2020.

2. PI (Lim); Co-PIs (Kimberley and **Ryu**): Visualization of Extreme Dynamic Events, *Office of Naval Research (ONR) Defense University Research Instrumentation Program (DURIP)*. Budget: \$552,310 from 02/01/2017 to 01/31/2018.
1. PI (**Ryu**): College of Excellence (COE) Commercial Space Transportation (CST) Task 293 / Reduced Order Non-Linear Dynamic System Models, *Federal Aviation Administration (FAA)*. Budget: \$19,313 from 01/01/2015 to 12/31/2015.

#### State Research Projects:

6. PI (**Ryu**); Collaborators (Yang and Mascareñas) at Engineering Institute at Los Alamos National Lab (LANL): Innovative Mechanoluminescent Composites-based Strain Sensors using Image Processing and Neural Network, *New Mexico Consortium*. Budget: \$17,324 from 05/14/2018 to 08/03/2018.
5. PI (Wilson); Co-PIs (Richardson, Cook, Azarbayejani, Razavi, Carrico, O'Malley, **Ryu**, Reinow, and Borchers): On-Call Transportation Research Services, *New Mexico Department of Transportation*. Budget: N/A from 06/14/2017 to present.
4. PI (**Ryu**); Collaborator (Mascareñas) at Engineering Institute at LANL: Multifunctional Energy Storage/Structural Materials, *Engineering Institute, Los Alamos National Laboratory*. Budget: \$4,000 from 10/01/2015 to 05/31/2018.
3. PI (**Ryu**); Collaborator (Mara) at Center for Integrated Nanotechnologies (CINT) at LANL: Multiscale Characterization of Carbon Nanotubes-Doped Poly(3-hexylthiophene) Thin Films, *CINT User Proposal, Office of Science, Department of Energy (DoE)*. Budget: N/A from 08/16/2016 to 12/31/2017.
2. PI (**Ryu**); Co-PI (Kimberley): Student Hardware Competition 2017 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS), *Student Competition Program, New Mexico Space Grant Consortium (NMSGC) and NASA Space Grant College and Fellowship Program*. Budget: \$5,000 from 12/09/2016 to 10/31/2017.
1. PI (**Ryu**); Collaborator (Moholt) at Aerostructures Branch of NASA AFRC: Multifunctional Structural Composites Capable of Self-Powered Sensing and Harvesting Energy for Next Generation Aerospace Structures, *EPSCoR Research Infrastructure Development (RID) Program, NMSGC and NASA Space Grant College and Fellowship Program*. Budget: \$25,000 from 06/01/2016 to 06/15/2017.

#### Internal Research Projects:

3. PI (**Ryu**): Commercialization of AutoCom for New Mexico Tech Intellectual Property, *Office of Innovation Commercialization, New Mexico Tech*. Budget: \$5,833 from 06/15/2018 to 08/15/2018.
2. PI (**Ryu**); Co-PIs (Kimberley, Burleigh, and Henneke): Transdisciplinary Collaborative Research on Devising Self-Powered Impact Sensor Module, *Hispanic Serving Institute (HSI)-STEM, United States Department of Education (USDE)*. Budget: \$5,000 from 10/01/2016 to 09/30/2017.
1. PI (**Ryu**); Co-PIs (Kimberley and Chowdhury): Interdisciplinary Research on Developing Autonomous Mechanoluminescent Composites for Autonomous Damage Detection, *HSI-STEM, USDE*. Budget: \$10,000 from 10/01/2015 to 09/30/2016.

#### **PUBLICATIONS (TOTAL CITATIONS: 180; H-INDEX: 6; I10-INDEX: 5 BY GOOGLE SCHOLAR):**

##### Journal Publications:

12. S. Nikraves, **D. Ryu**, and Y-L Shen, 2019, "Direct Numerical Simulation of Buckling Instability of Thin Films on a Compliant Substrate," *Advances in Mechanical Engineering*, 11(4): 1-15.
11. **D. Ryu** and A. Mongare, 2018, "Corrugated Photoactive Thin Films for Flexible Strain Sensor," *Materials*, 11(10): 1970.
10. **D. Ryu** and N. Castaño, 2018, "Multivariate Characterization of Light Emission from ZnS:Cu-PDMS Self-Sensing Composites under Cyclic Tensile Strains," *IEEE Sensors Letters*, 2(2): 1-4.

9. **D. Ryu**, N. Castaño, R. Bhakta, and J. Kimberley, 2017, “Fracto-Mechanoluminescent Light Emission of EuD<sub>4</sub>TEA-PDMS Composites Subjected to High Strain-Rate Compressive Loading,” *Smart Materials and Structures*, 26(8): 1-9.
8. **D. Ryu**, F.N. Meyers, and K.J. Loh, 2015, “Inkjet-printed, Flexible, and Photoactive Thin Film Strain Sensors,” *Journal of Intelligent Material Systems and Structures*, 26(13): 1699-1710.
7. **D. Ryu** and K.J. Loh, 2014, “Multi-modal Sensing using Photoactive Thin Films,” *Smart Materials and Structures*, 23(8): 1-16.
6. L. Arronche, K. Gordon, **D. Ryu**, V. La Saponara, and L. Cheng, 2013, “Investigation of Galvanic Corrosion between AISI 1018 Carbon Steel and CFRPs Modified with Multi-walled Carbon Nanotubes,” *Journal of Materials Science*, 48(3): 1315-1323.
5. L.P. Mortensen, **D. Ryu**, Y. Zhao, and K.J. Loh, 2013, “Rapid Assembly of Multifunctional Thin Film Sensors for Wind Turbine Blade Monitoring,” *Key Engineering Materials Journal*, Trans-Tech, 569-570: 512-522. **[2013 DAMAS Best Paper]**
4. **D. Ryu** and K.J. Loh, 2013, “Analyzing the Strain Sensing Response of Photoactive Thin Films using Absorption Spectroscopy,” *Key Engineering Materials Journal*, 569-570: 695-701.
3. **D. Ryu** and K.J. Loh, 2012, “Strain Sensing using Photocurrent Generated by Photoactive P3HT-based Nanocomposites,” *Smart Materials and Structures*, 21(6): 1-9. **[2013 ASME Best Paper in Adaptive Structures and Material Systems]**
2. **D. Ryu**, K.J. Loh, R. Ireland, M. Karimzada, F. Yaghmaie, and A. Gusman, 2011, “In Situ Reduction of Gold Nanoparticles in PDMS Matrices and Applications for Large Strain Sensing,” *Smart Structures and Systems*, 8(5): 471-486.
1. H.J. Lim, **D. Ryu**, J.H. Won, and M.K. Kim, 2008, “Nonlinear Dynamic Behavior of Temporary Rail Considering the Effect of Vibration,” *Korean Society of Civil Engineers (KSCE) Journal of Civil Engineering*, KSCE, 28(2A): 171-178.

Journal Manuscripts in Preparation:

3. Nikraves, **D. Ryu**, and Y-L Shen, 2019, “Surface Instability of Composite Thin Films on Compliant Substrates: Direct Simulation Approach,” *Frontiers in Materials*
2. Q. Towler, **D. Ryu**, “EuD<sub>4</sub>TEA-Enhanced Fiber Optic Impact Sensor Module”
1. **D. Ryu** and E. Pulliam, “Multifunctional Mechano-Luminescence-Optoelectronic Composites”

Conference Publications:

25. A. Mongare, J. U.-S., A. Mislá, Y.H. Park, A. Zagrai, and **D. Ryu**, 2019, “Autonomous Structural Composites for Self-Powered Strain Sensing-Enabled Damage Detection,” *Proceedings Volume 10970, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2019, SPIE Smart Structures + Nondestructive Evaluation (SS/NDE)*, Denver, CO, March 3-7, 2019.
24. **D. Ryu** and G. Macias, 2018, “Self-powered Strain Sensor based on Mechano-Luminescence-Optoelectronic Self-sensing Composites,” *Proceedings of 9<sup>th</sup> European Workshop on Structural Health Monitoring*, Manchester, UK, July 10-13, 2018.
23. B. Holguin, J. Allison, **D. Ryu**, Z. Alvarez, F. Hernandez, and J. Kimberley, 2017, “Development of 3D Impact Self-Sensing Composites using Fracto-Mechanoluminescent EuD<sub>4</sub>TEA,” *Proceedings of the ASME 2017 Conference on SMASIS*, Snowbird, UT, September 18-20, 2017. **[Finalist for Student Hardware Competition]**
22. E. Pulliam, G. Hoover, and **D. Ryu**, 2017, “Multifunctional Mechano-Luminescent-Optoelectronic Composites for Self-Powered Strain Sensing,” *Proceedings of the ASME 2017 Conference on SMASIS*, Snowbird, UT, September 18-20, 2017.
21. Q. Towler and **D. Ryu**, 2017, “Multifunctional Mechanoluminescent Composites for Autonomous Impact Detection of Aerospace Structures,” *Proceedings of the 11th IWSHM*, Stanford, CA, September 12-14, 2017.

20. E. Pulliam, G. Hoover, and **D. Ryu**, 2017, "Characterization of Mechanoluminescent ZnS:Cu-based Self-Sensing Elastomeric Composites under Dynamic Uniaxial Tensile Strain," *Proceedings of ASCE Engineering Mechanics Institute (EMI) Conference*, San Diego, CA, June 4-7, 2017.
19. E. Pulliam, G. Hoover, D. Tiparti, and **D. Ryu**, 2017, "Development of Self-Powered Strain Sensor using Mechano-Luminescent ZnS:Cu and Mechano-Optoelectronic P3HT," *Proceedings Volume 10168, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2017, SPIE SS/NDE*, Portland, OR, March 25-29, 2017.
18. **D. Ryu**, 2016, "Carbon Nanotube Doping Effect on Structure and Optical Properties of Poly(3-hexylthiophene) Tensile Strain Sensing Thin Films," *Proceedings of the ASME 2016 Conference on SMASIS*, Stowe, VT, September 28-30, 2016.
17. J. Kimberley, R. Bhakta, N. Castaño, and **D. Ryu**, 2016, "Characterization of Mechanoluminescent Composites Subjected to High Strain Rate Loading," *Proceedings of the Society for Experimental Mechanics XIII International Congress*, Orlando, FL, June 6-9, 2016.
16. **D. Ryu**, N. Castaño, and K. Vedula, 2015, "Mechanoluminescent Composites Towards Autonomous Impact Damage Detection of Aerospace Structures," *Proceedings of the 10th IWSHM*, Stanford, CA, September 1-3, 2015.
15. **D. Ryu**, M. Romero, and R. Stoer, 2015, "Thermo-, Chemo-, and Mechano-Optical Characterization of Multi-Modal Tensile Strain and pH Sensing Thin Films," *Proceedings of the 2015 Joint 6<sup>th</sup> International Conference on Advances in Experimental Structural Engineering (6AESE)/11<sup>th</sup> International Workshop on Advanced Smart Materials and Smart Structures Technology (11ANCRiSST)*, Urbana, IL, August 1-2, 2015.
14. **D. Ryu** and K.J. Loh, 2014, "Multifunctional Self-sensing Structural Coatings with Patterned Electrodes," *Proceedings of the 6th World Conference on Structural Control and Monitoring (WCSCM)*, Barcelona, Spain, July 15-17, 2014.
13. **D. Ryu** and K.J. Loh, 2014, "Photoactive and Self-sensing P3HT-based Thin Films for Strain and Corrosion Monitoring," *Proceedings Volume 9058, Behavior and Mechanics of Multifunctional Materials and Composites 2014, SPIE SS/NDE*, San Diego, CA, March 9-13, 2014.
12. **D. Ryu** and K.J. Loh, 2013, "Characterizing the Self-sensing Properties of Photoactive P3HT-based Nanocomposites," *Proceedings of the 9th IWSHM*, Stanford, CA, September 10-12, 2013. [**2013 9IWSHM Best Student Paper**]
11. **D. Ryu** and K.J. Loh, 2012, "Self-sensing Photoactive Thin Films for Monitoring Space Structures," *Proceedings of the ASME 2012 Conference on SMASIS*, Stone Mountain, GA, September 19-21, 2012.
10. R. Ireland, **D. Ryu**, M. Karimzadeh, K.J. Loh, A. Gusman, and F. Yaghmaie, 2011, "Multifunctional Strain and Chemical Sensing using Gold Nanoparticle-based Polymer Composites," *Proceedings of the 2011 International Conference on Smart Structures and Systems (ICOSSS), Advances in Structural Engineering and Mechanics (ASEM)*, Seoul, South Korea, September 18-22, 2011.
9. **D. Ryu** and K.J. Loh, 2011, "A Bio-Inspired Nanocomposite for Photocurrent-based Strain Sensing," *Proceedings of the 8th IWSHM*, Stanford, CA, September 13-15, 2011.
8. **D. Ryu**, K.J. Loh, and F. Yaghmaie, 2011, "Validation of Photocurrent-based Strain Sensing using a P3HT-based Nanocomposite," *Proceedings Volume 7981, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2011, SPIE SS/NDE*, San Diego, CA, March 6-10, 2011. [**SPIE Travel Grant Recipient**]
7. **D. Ryu**, K.J. Loh, and F. Yaghmaie, 2011, "Towards the Development of Photosynthesis-Inspired P3HT-based Nanocomposite Sensors," *Proceedings of the 2011 National Science Foundation (NSF) Civil, Mechanical and Manufacturing Innovation (CMMI) Research and Innovation Conference*, Atlanta, GA, January 4-7, 2011. [**NSF Student Participation Grant Recipient**]
6. **D. Ryu**, M.K. Kim, G. Kim, and J.H. Won, 2009, "A Study on the Characteristic of a Skewed Bridge to the Seismic Motion using Time History Analysis," *Proceedings of the 35th KSCE Annual Conference*, Gangwon, South Korea, October 21-23, 2009.

5. **D. Ryu**, K.S. Park, H.S. Ju, and M.K. Kim, 2008, “A Study on Application of Combination Rules Involving Skewed Bridges for Response Spectrum Analysis,” *Proceedings of the 2008 International Conference on ASEM*, Jeju, South Korea, May 26-28, 2008.
4. **D. Ryu**, M.G. Shin, J.W. Park, and M.K. Kim, 2008, “A Study on Comparison of Combination Rules for the Seismic Analyses on Curved Bridges with the Different Radiuses of Curvature,” *Proceedings of the 2008 Computational Structural Engineering Institute of Korea (COSEIK) Annual Conference*, Seoul, South Korea, April 17-18, 2008.
3. K.S. Park, H.S. Ju, **D. Ryu**, and M.K. Kim, 2008, “Comparison of Minimum Seat Length Requirements,” *Proceedings of the 2008 Earthquake Engineering Society of Korea (EESK) Annual Conference*, Seoul, South Korea, March 21, 2008.
2. J.H. Won, M.K. Kim, S.U. Choi, M.H. Park, and **D. Ryu**, 2008, “A Case Study of Exposed River Crossing Pipelines Encased in Concrete Box,” *Proceedings of the 1<sup>st</sup> International Conference on Modern Design, Construction and Maintenance of Structures*, Hanoi, Vietnam, December 10-11, 2007.
1. J.H. Won, M.K. Kim, and **D. Ryu**, 2007, “Characteristics of an Encased Gas Transportation Pipeline in Offshore Application,” *Proceedings of the 7<sup>th</sup> International Offshore and Polar Engineering Conference (ISOPE)*, Lisbon, Portugal, July 1-6, 2007.

Book Series:

1. “Synthesis Lectures on Transformative Materials: Multifunctional Composites, Autonomous Structures, and Intelligent Systems,” (ed. **D. Ryu**), Morgan & Claypool Publishers (*in progress*).

Book Contributions:

3. S. Gupta, **D. Ryu**, and K. J. Loh, “Multifunctional Materials and Sensors,” *Encyclopedia on Structural Health Monitoring*, Springer (*in review*).
2. K. J. Loh, **D. Ryu**, and B. M. Lee, 2016, “Bio-inspired Sensors for Structural Health Monitoring,” *Biotechnologies and Biomimetics for Civil Engineering* (ed. F. P. Torgal, J. A. Labrincha, M. V. Diamanti, C. P. Yu, and H. K. Lee), Springer.
1. K. J. Loh and **D. Ryu**, 2014, “Multifunctional Materials and Nanotechnology for Assessing and Monitoring Civil Infrastructures,” *Sensor Technologies for Civil Infrastructure, Volume 1: Sensing Hardware and Data Collection Methods for Performance Assessment* (ed. M. L. Wang, J. P. Lynch, and H. Sohn), Woodhead Publishing.

Report:

3. **D. Ryu**, 2018, “Low Power Multi-Modal Sensor for Multi-Physics Monitoring,” *Report for Drafting Request for Proposals, Korea Evaluation Institute of Industrial Technology (KEIT)*.
2. **D. Ryu**, 2017, “Self-Powered Internet-of-Things (IoT) Sensor using Multifunctional Mechano-Luminescence-Optoelectronic Composites for Cyberinfrastructures,” *Report for Planning and Feasibility Study of IoT-based Civil Infrastructures, Korea Agency for Infrastructure Technology Advancement*.
1. **D. Ryu**, 2017, “Development of Fiber Optic Impact Trigger Sensor Module using Fracto-Mechanoluminescent EuD<sub>4</sub>TEA Crystals,” *Final Project Report, KRRRI Korea-US Collaborative Research Initiation Program*.

Ryu’s Research Featured in Magazine Article:

2. K. Button, March 2019, “Glowing under Strain,” *Engineering Notebook, American Institute of Aeronautics and Astronautics (AIAA) Aerospace America*, Link: <https://aerospaceamerica.aiaa.org/departments/glowing-under-strain/>.
1. T. Duenas and E. Glaessgen, December 2018, “Modeling Takes the Lead in Driving Materials Research for the Future,” *The 2018 Year in Review, AIAA Aerospace America*, Link:

<https://aerospaceamerica.aiaa.org/year-in-review/modeling-takes-the-lead-in-driving-materials-research-for-the-future/>.

**PATENTS:**

2. **D. Ryu** and Q. Towler, “Fracto-Mechanoluminescent Crystals-enhanced Optical Fiber-based Impact Sensor Module,” U.S. Patent (Application #: 16/222,810; Filed utility patent on December 17, 2018; Pending)
1. **D. Ryu**, “Self-Powered Sensing of Tensile Strain using Multifunctional Mechano-Luminescence-Optoelectronic Composites,” U.S. Patent (Application #: 16/293,259; Filed utility patent on March 5, 2019; Pending)

**PRESENTATIONS:**

Invited Seminars:

15. “Transformative Materials for Self-Powered Sensing and Multi-Modal Damage Detection,” *Korea Institute of Civil Engineering and Building Technology (KICT)*, Goyang, S. Korea (May 17, 2017).
14. “Light Emission Characterization of Fracto-Mechanoluminescent EuD<sub>4</sub>TEA and Development of EuD<sub>4</sub>TEA-Fiber Optics Sensor Module,” *KRRI*, Suwon, S. Korea (May 11, 2017).
13. “Multifunctional Structural Composites for Self-Powered Damage Detection and Energy Harvesting,” *Department of Civil Engineering, Kyung Hee University*, Yongin, South Korea (August 3, 2016).
12. “Multifunctional Mechanoluminescent Composites for Autonomous Damage Detection,” *Center for Safety Measurement, Division of Metrology for Quality of Life, Korea Research Institute of Standards and Science (KRISS)*, Daejeon, South Korea (August 3, 2016).
11. “Research Activities in LaSMaS,” *Inter-Society Event (ASM, SAMPE, ASME, AWS, ASCE)*, Socorro, NM (February 25, 2016).
10. “Multifunctional Optoelectronic Composites for Autonomous Infrastructure Systems,” *UC San Diego Structural Engineering Department Seminar (SE 290)*, La Jolla, CA (February 22, 2016).
9. “Multifunctional Optoelectronic Composites for Autonomous and Self-Powered Monitoring of Aerospace Structures,” *NMT ASME Student Chapter Lecture Series*, Socorro, NM (November 23, 2015).
8. “Multi-modal, Self-sensing, and Photoactive Structural Coatings for Sustainable Infrastructures,” *Engineering Institute Lecture Series, Los Alamos National Laboratory*, Los Alamos, NM (May 12, 2015).
7. “Multi-modal, Self-sensing, and Photoactive Structural Coatings for Sustainable Infrastructures,” *Department of Materials and Metallurgical Engineering, NMT*, Socorro, NM (February 13, 2015).
6. “Multi-modal, Self-sensing, and Photoactive Structural Coatings for Sustainable Infrastructures,” *Department of Mechanical Engineering, NMT*, Socorro, NM (September 23, 2014).
5. “Multi-modal and Self-sensing using Photoactive Structural Coatings,” *Department of Mechanical Engineering, NMT*, Socorro, NM (July 25, 2014).
4. “Multifunctional Structural Coating for Sustainable Infrastructures,” *Department of Civil and Environmental Engineering, Yonsei University*, Seoul, South Korea (June 30, 2014).
3. “Multifunctional Structural Coating for Sustainable Infrastructures,” *Department of Civil and Environmental Engineering, KAIST*, Daejeon, South Korea (June 24, 2014).
2. “Photoactive Structural Coating for Sustainable Infrastructure,” *Department of Civil, Construction, and Environmental Engineering, University of Alabama at Birmingham*, Birmingham, AL (April 11, 2014).
1. “Multifunctional Structural Coating for Multimodal Damage Detection,” *Department of Civil and Environmental Engineering, Virginia Polytechnic Institute and State University*, Blacksburg, VA (January 16, 2014).

Conference Oral Presentations by Ryu:

23. "Self-Powered Strain Sensor based on Multifunctional MLO Composites," *9<sup>th</sup> European Workshop on Structural Health Monitoring*, Manchester, United Kingdom (July 11, 2018)
22. "Self-Powered Sensing of Tensile Strain using Multifunctional Mechano-Luminescence-Optoelectronic Composites," *2018 SPIE SS/NDE*, Denver, CO (March 5, 2018)
21. "Development of 3D Impact Self-Sensing Composites using Fracto-Mechanoluminescent EuD<sub>4</sub>TEA," *2017 ASME Conference on SMASIS*, Snowbird, UT (September 18, 2017)
20. "Multifunctional Mechanoluminescent Composites for Autonomous Impact Detection of Aerospace Structures," *11<sup>th</sup> IWSHM*, Stanford, CA (September 12, 2017)
19. "Multifunctional MLO Composites for Self-Powered Damage Detection," *2017 ASCE EMI Conference*, San Diego, CA (June 05, 2017)
18. "Multifunctional MLO Composites for Self-Sustainable Aerospace Structures," *2017 SPIE SS/NDE*, Portland, OR (March 26, 2017).
17. "Effects of Carbon Nanotube Doping and Mechanical Strain on the P3HT-based Thin Films," *2016 ASME Conference on SMASIS*, Stowe, VT (September 29, 2016).
16. "Multifunctional Structural Composites for Self-Powered Damage Detection," *ASCE New Mexico Section Fall 2016 Meeting*, Albuquerque, NM (September 23, 2016).
15. "Effects of the Metallic Particles on the Mechanoluminescence Properties of Cu-doped ZnS," *2<sup>nd</sup> International Conference on Advances in Functional Materials*, Seogwipo, South Korea (August 8, 2016).
14. "Effects of Carbon Nanotube Doping and Mechanical Strain on the Optoelectronic Properties of P3HT-based Thin Films," *2<sup>nd</sup> International Conference on Advances in Functional Materials*, Seogwipo, South Korea (August 8, 2016).
13. "Characterization of Light Emission from Mechanoluminescent Composites Subjected to High-Rate Compressive Loading," *2016 SPIE SS/NDE*, Las Vegas, NV (March 21, 2016).
12. "Fracto-Mechanoluminescent EuD<sub>4</sub>TEA-PDMS Composites Towards Autonomous Damage Detection," *The 27<sup>th</sup> Rio Grande Symposium on Advanced Materials*, Albuquerque, NM (October 2, 2015).
11. "Characterization of Fracto-Mechanoluminescent EuD<sub>4</sub>TEA-PDMS Composites under High-Speed Compressive Loading," *10<sup>th</sup> IWSHM*, Stanford, CA (September 1, 2015).
10. "Multiphysics Analysis of Multi-Modal Tensile Strain and pH Sensing Thin Films," *2015 Joint Conference 6AESE/11ANCRiSST*, Urbana, IL (August 1, 2015).
9. "Characterization of the Multi-Modal Sensing Properties of Photoactive Structural Coatings," *2015 SPIE SS/NDE*, San Diego, CA, (March 9, 2015).
8. "Multimodal Self-sensing Structural Coatings with Patterned Electrodes", *6<sup>th</sup> WCSCM*, Barcelona, Spain, (July 15, 2014).
7. "Photoactive Thin Films for Strain and Corrosion Monitoring," *2014 SPIE SS/NDE*, San Diego, CA, (March 12, 2014).
6. "Light Wavelength-sensitive Photoactive Nanocomposites for Selective and Multi-modal Sensing," *2013 ASME Conference on SMASIS*, Snowbird, UT, (September 16, 2013).
5. "Multifunctional and Self-sensing P3HT-Carbon Nanotube Thin Films," *2012 US-Korea Conference (UKC) on Science, Technology, and Entrepreneurship*, Los Angeles, CA, (August 11, 2012).  
**[Student and Postdoc Program Participation Grant Recipient]**
4. "Multifunctional Strain and Chemical Sensing using Gold Nanoparticle-based Polymer Composites," *2011 International Conference on Smart Structures and Systems, ASEM*, Seoul, South Korea, (September 19, 2011).
3. "Validation of Photocurrent-based Strain Sensing using a P3HT-based Nanocomposite," *2011 SPIE SS/NDE*, San Diego, CA, (March 7, 2011).
2. "A Study on Application of Combination Rules Involving Skewed Bridges for Response Spectrum Analysis," *2008 International Conference on ASEM*, Jeju, South Korea, (May 28, 2008).

1. "A Study on Comparison of Combination Rules for the Seismic Analyses on Curved Bridges with the Different Radiuses of Curvature," *2008 COSEIK Annual Conference*, Seoul, South Korea, (April 17, 2008).

Conference Oral Presentations by Student Advisees:

2. A. Mongare, "Autonomous Structural Composites for Self-Powered Strain Sensing," *2019 SPIE SS/NDE*, Denver, CO (March 6, 2019)
1. E. Pulliam, "Multifunctional Mechano-Luminescent-Optoelectronic Composites for Self-Powered Strain Sensing," *2017 ASME Conference on SMASIS*, Snowbird, UT (September 19, 2017)

Other Oral Presentations by Ryu:

5. "Autonomous Composites Capable of Self-Powered Sensing and Energy Harvesting for Self-Sustainable UAV," *NMT Technology Showcase*, Socorro, NM (April 12, 2018).
4. "Multifunctional Mechano-Luminescence-Optoelectronic (MLO) Composites for 3D Self-Sensing and Self-Healing," *2017 Naval Future Force Science and Technology (S&T) Expo*, Washington, DC (July 20, 2017)
3. "Fracto-Mechanoluminescent Light Emission Characterization of EuD<sub>4</sub>TEA Crystals under High-Rate Compressive Strain," *LaSmaS- KRRJ Joint Seminar*, Socorro, NM (November 28, 2016).
2. "Reduced Order Non-Linear Structural Model," *COE CST 5<sup>th</sup> Annual Technical Meeting*, Arlington, VA (October 27, 2015).
1. "Scalable Fabrication of Multifunctional Photoactive Sensing Thin Films," *2013 Interdisciplinary Graduate and Professional Symposium (IGPS)*, Davis, CA (April 5, 2013).

Conference Poster Presentations:

11. "3D Impact and Blast Self-Sensing Composites using Mechanoluminescent Materials," *Naval Future Force S&T Expo*, Washington, DC, July 20, 2017.
10. "Multifunctional Optoelectronic Composites for Autonomous Unmanned Aerial Vehicle," *New Mexico Collaborative Research and Development Council (NMCRCDC) Unmanned Aerial Structure (UAS) and Remote Sensing (RS) Workshop*, Albuquerque, NM, February 26, 2016.
9. "Multifunctional Optoelectronic Composites for Autonomous Unmanned Aerial Vehicle," *DARPA MATRIX Proposer's Day*, Arlington, VA, January 23, 2015.
8. "Multi-modal and Self-sensing using Photoactive Thin Films and Light," *2013 9<sup>th</sup> International Workshop on Structural Health Monitoring*, Stanford, CA, September 10, 2013. [**UC Davis Graduate Student Travel Award Recipient**]
7. "Strain Self-sensing Validation for Flexible P3HT-MWNTs Thin Film Sensors," *2012 IGPS*, Davis, CA, April 26, 2012.
6. "Validation of Strain Sensing towards Flexible P3HT-MWNT Thin Film Sensors," *SPIE SS/NDE*, San Diego, CA, March 13-14, 2012.
5. "Self-sensing Poly(3-hexylthiophene)-based Structural Coatings Inspired by Photosynthesis," *2011 US-Japan Workshop on Bio-Inspired Engineering of Next-Generation Sensors and Actuators*, Berkeley, CA, November 12-13, 2011. [**National Science Foundation Student Participation Grant Recipient**]
4. "A Self-Powered New Sensor Technology towards Zero Energy Consumption," *2012 Berkeley Energy & Resources Collaborative (BERC) Energy Symposium*, Berkeley, CA, October 20, 2011.
3. "Strain Sensing using Photocurrent Generated by a Carbon Nanotube-P3HT Thin Film," *SPIE SS/NDE*, San Diego, CA, March 8-9, 2011.
2. "Towards the Development of Photosynthesis-Inspired Carbon Nanotube-P3HT-based Nanocomposite Sensors," *2011 NSF CMMI Research and Innovation Conference*, Atlanta, GA, January 4-7, 2011.



1. “Synthesis and Characterization of P3HT-based Thin Films for Photocurrent Generation and Sensing Applications,” *2011 NSF CMMI Research and Innovation Conference*, Atlanta, GA, January 4-7, 2011.

**TRAVEL GRANTS AND AWARDS:**

- 2019 NSF CAREER Proposal Writing Workshop, Washington, DC (April 2019)
- 2018 New Mexico EPSCoR Scholarship, NSF Day – New Mexico, Albuquerque, NM (August 2018)
- 2013 UCD Graduate Student Travel Award, *2013 9<sup>th</sup> IWSHM*, Stanford, CA (September 2013)
- 2012 Student and Postdoc Program Participation Grant, *2012 US-Korea Conference on Science, Technology, and Entrepreneurship*, Los Angeles, CA (August 2012)
- 2011 NSF Student Participation Grant, *2011 US-Japan Workshop on Bio-Inspired Engineering of Next-Generation Sensors and Actuators*, Berkeley, CA (November 2011)
- 2011 SPIE Student Travel Grant, *SPIE SS/NDE*, San Diego, CA (March 2011)
- 2011 NSF Student Participation Grant, *2011 NSF CMMI Research and Innovation Conference*, Atlanta, GA (January 2011)
- 2010 NSF Fellowship, *2010 Micro and Nano Scale Phenomena in Tribology, NSF Summer Institute on Nanomechanics, Nanomaterials, and Micro/Nanomanufacturing*, San Diego, CA (April 2010)

**COURSES TAUGHT AT NEW MEXICO TECH:**

<i>Course Level</i>	<i>Acad Term</i>	<i>Course #</i>	<i>Course Title</i>	<i># Crdt</i>	<i># Std</i>	<i>Eval</i>
UG	F19	MENG 304	Advanced Strength of Materials	3		
G	F19	MENG 504	Advanced Mechanics of Materials	3		
UG	S19	MENG 304	Advanced Strength of Materials	3	35	
G	S19	MENG 589/D	Design and Analysis of Experiments	3	4	
G	S19	MATE 530/D	Design and Analysis of Experiments	3	5	
G	S19	MENG 585	Graduate-Faculty Seminar	1	20	
UG	F18	MENG 304	Advanced Strength of Materials	3	46	4.20
G	F18	MENG 504/D	Advanced Mechanics of Materials	3	8	4.86
UG	S18	MENG 304	Advanced Strength of Materials	3	44	4.5
G	S18	MENG 589/D	Smart Materials and Structures	3	6	4.4
UG	F17	MENG 304	Advanced Strength of Materials	3	44	4.0
G	F17	MENG 504/D	Advanced Mechanics of Materials	3	3	N/A
UG	S17	MENG 304	Advanced Strength of Materials	3	31	4.4
G	S17	MENG 589/D	Design and Analysis of Experiments	3	4	4.0
G	S17	MATE 589/D	Design and Analysis of Experiments	3	12	3.4
UG	F16	MENG 304	Advanced Strength of Materials	3	39	4.3
G	F16	MENG 589/D	Smart Materials and Structures	3	4	4.3
UG	S16	MENG 304	Advanced Strength of Materials	3	30	4.6
G	S16	MENG 504/D	Advanced Mechanics of Materials	3	11	5.0
UG	F15	MENG 304	Advanced Strength of Materials	3	36	3.6
G	F15	MATE 530/D	Design and Analysis of Experiments	3	3	5.0
G	F15	MENG 589/D	Design and Analysis of Experiments	3	9	4.8
UG	S15	MENG 304	Advanced Strength of Materials	3	25	4.1
G	S15	MENG 504/D	Advanced Mechanics of Materials	3	5	N/A
UG	F14	MENG 304	Advanced Strength of Materials	3	54	2.7
G	F14	MENG 585	Graduate-Faculty Seminar	1	28	4.3

**COURSES TAUGHT AT UNIVERSITY OF CALIFORNIA – DAVIS AND YONSEI UNIVERSITY:**

- Teaching assistant, ENG 104 – Mechanics of Materials (undergrad, UCD)
  - Spring 2011, Winter 2011, and Spring 2010 - ENG 104
- Teaching assistant, ENG 104L – Mechanics of Materials Lab (undergrad, UCD)
  - Spring 2013 - ENG 104L
- Teaching assistant, ECI 138 – Structural Dynamics (undergrad, UCD)
  - Winter 2013
- Teaching assistant, CEE 2101 – Mechanics of Solid Materials (undergrad, Yonsei University)
  - Spring 2008
- Teaching assistant, CEE 3303 – Applied Mechanics (undergrad, Yonsei University)
  - Fall 2007

**AWARDS AND RECOGNITIONS OF ADVISED STUDENTS:**

- 2017 B. Holguin Finalist for the Student Hardware Competition, ASME 2017 SMASIS  
2017 B. Holguin Finalist for the Student Day Business Model Pre-Competition, 2017 NAE GGCS

**CURRENT GRADUATE STUDENT:**Ph.D. Student:

1. Mr. Alfred Mongare
2. Mr. Niyem Bawama

M.S. Student:

1. Mr. George Hoover

**FORMER GRADUATE STUDENTS (YEAR OF GRADUATION):**M.S. Students with Thesis:

2. Mr. Elias Pulliam (*graduated in December 2017; Los Alamos National Lab*)
1. Mr. Quinlan Towler (*graduated in December 2017; Air Force Nuclear Weapons Center on Kirtland Air force Base*)

**CURRENT UNDERGRADUATE RESEARCH ASSISTANTS:**

5. Ms. Setayesh Fakhimi (Mechanical Engineering, New Mexico Tech, 2019 – present)
4. Mr. Jeromy Trullio (Mechanical Engineering, New Mexico Tech, 2019 – present)
3. Mr. Dominic Gallegos (Mechanical Engineering, New Mexico Tech, 2019 – present)
2. Mr. Isaac Flores (Mechanical Engineering, New Mexico Tech, 2019 – present)
1. Ms. Mariah Gammill (Mechanical Engineering, New Mexico Tech, 2019 – present)

**FORMER UNDERGRADUATE RESEARCH ASSISTANTS:**

19. Ms. SoYoung Choi (Engineering Management, New Mexico Tech, 2018)
18. Mr. Nicholas Engstrom (Mechanical Engineering, New Mexico Tech, 2018)
17. Mr. Dominic Fascitelli (Mechanical Engineering, New Mexico Tech, 2017 – 2018)
16. Mr. Geronimo Macias (Mechanical Engineering, New Mexico Tech, 2017 – 2018)
15. Mr. Ben Katko (Mechanical Engineering, New Mexico Tech, 2016 – 2017; Ph.D. student, Structural Engineering, UCSD, 2018 - present)
14. Mr. Brandon Holguin (Mechanical Engineering, New Mexico Tech, 2015 – 2017; Engineer-in-Training, Bridgers & Paxton, 2018 - present)
13. Mr. James Allison (Mechanical Engineering, New Mexico Tech, 2016 – 2017; Mechanical Engineer, National Radio Astronomy Observatory, 2018 - present)
12. Mr. George Hoover (Mechanical Engineering, New Mexico Tech, 2016 – 2017; Maintenance Engineer, Peabody Energy, Inc., 2017 – present)

11. Mr. Justin Fan (Mechanical Engineering, New Mexico Tech, 2016 – 2017; MS student, Aerospace Engineering, Georgia Tech, 2017 – present)
10. Mr. Brian Molley (Mechanical Engineering, New Mexico Tech, 2016; MS student, Mechanical Engineering, New Mexico Tech, 2017 – present)
9. Mr. Dhruv Tiparti (Materials Engineering, New Mexico Tech, 2016 – 2017)
8. Mr. Daniel Barnhouse (Mechanical Engineering, New Mexico Tech, 2016)
7. Ms. Gabriella Gutierrez (Mechanical Engineering, New Mexico Tech, 2016; General Engineer, United States Air Force, 2016 – present)
6. Mr. Alex Govorov (Mechanical Engineering, New Mexico Tech, 2015; Lab Technician, Incorporated Research Institutions for Seismology, 2016 – present)
5. Mr. Ryan Stoer (Mechanical Engineering, New Mexico Tech, 2015; Bettis Atomic Power Laboratory, 2016 – present)
4. Mr. Raj Bhakta (Mechanical Engineering, New Mexico Tech, 2015 – 2016; MS student, Engineering Management, New Mexico Tech, 2016 – present)
3. Mr. Michael Romero (Mechanical Engineering, New Mexico Tech, 2015 – 2016; MS student, Aerospace Engineering, University of Michigan, 2016 – present)
2. Mr. Kevin Vedera (Mechanical Engineering, New Mexico Tech, 2014 – 2016; MS student, Mechanical Engineering, Ohio State University, 2016 – present)
1. Mr. Nicolas Castaño (Mechanical Engineering, New Mexico Tech, 2014 – 2016; PhD student, Mechanical Engineering, Stanford University, 2016 – present)

#### **PAST JUNIOR/SENIOR DESIGN PROJECTS:**

5. Multifunctional Energy Storage/Structural Materials (sponsored by Los Alamos National Laboratory; LANL Collaborator: Dr. David Mascareñas, *Fall 2018 to Spring 2019 and Fall 2015 – Spring 2017*)
4. 3D Impact Self-Sensing Composites (sponsored by NASA EPSCoR; NMT Collaborator: Prof. Jamie Kimberley, *Fall 2015 – Spring 2019*)
3. Mechanoluminescent Composites Sensor (sponsored by NASA EPSCoR/LANL; LANL Collaborator: Dr. Yongchao Yang, *Fall 2017 – Fall 2018*)
2. Inductrack Maglev Research Design (sponsored by Lawrence Livermore National Laboratory, *Fall 2014 – Spring 2017*)
1. SpaceX Hyperloop Capsule (*Fall 2015 – Spring 2017*)

#### **THESIS COMMITTEE (YEAR OF GRADUATION):**

##### M.S. Student with Thesis:

- Mr. Luis Ortega (*present*)
- Mr. Gregory Lee Melton (*present*)
- Mr. Shawn West (*present*)
- Mr. Nathaniel Pfeifer (*graduated in 2017*)
- Mr. Sidharth ArunKumar (*graduated in 2017*)
- Mr. Matthew Campisi (*graduated in 2017*)
- Mr. Blaine Trujillo (*graduated in 2017*)
- Mr. Hugh Dias (*graduated in 2016; General Motors*)

#### **PROFESSIONAL ACTIVITIES:**

- Korea Technology Advisory Group (K-TAG) Member (*2018 – present*)  
*Korea Institute for Advancement of Technology (KIAT)*
- Materials Technical Committee Member (*2017 – present*)  
*AIAA*
- Structural Health Monitoring Technical Committee Chair (*2016 – 2017*)  
*ASME, ASMS Branch*
- Structural Health Monitoring Technical Committee Secretary (*2015 – 2016*)

- ASME, ASMS Branch
- Structural Health Monitoring Technical Committee Member (2013 – present)  
ASME, ASMS Branch
- Best Paper Award Committee Member (Sept. 2017)  
11<sup>th</sup> IWSHM, Stanford, CA
- Technical Program Committee Member (2017 – present)  
SPIE SS/NDE
- Conference Symposium Organizer: Structural Health Monitoring (Sept. 2017)  
2017 ASME Conference on SMASIS, Snowbird, UT
- Conference Symposium Co-Organizer: Structural Health Monitoring (Sept. 2016)  
2016 ASME, Conference on SMASIS, Stowe, VT
- Session Co-Organizer: Multifunctional Materials and Structures (Sept. 2019)  
12<sup>th</sup> IWSHM, Stanford, CA
- Session Co-Organizer: Multifunctional Materials (Sept. 2017)  
11<sup>th</sup> IWSHM, Stanford, CA
- Session Organizer: Multifunctional Materials (June 2017)  
2017 ASCE, EMO, San Diego, CA
- Session Co-Organizer: Multifunctional Materials (Sept. 2015)  
10<sup>th</sup> IWSHM, Stanford, CA
- Proposal Panel Reviewer: NSF – ENG/CMMI (May 2018)
- Proposal Panel Reviewer: NSF – ENG/CMMI (May 2016)
- Proposal Panel Reviewer: NSF – ENG/CMMI (May 2015)
- Panel Reviewer: NASA Space Technology Research Fellowships (NSTRF) (Jan. 2019)
- Panel Reviewer: NASA Space Technology Research Fellowships (NSTRF) (Jan. 2018)
- Panel Reviewer: DoD Science, Mathematics and Research for Transformation (SMART) (Jan. 2016)

**EDITORIAL ACTIVITIES (TOTAL NUMBER OF REVIEWED PAPERS = 72):**

- Editorial Board Member in Chemistry/Materials: *SN Applied Sciences*
- Review Editor: *Frontiers in Built Environment* (2)
- Reviewer: *ACS Applied Nano Materials* (1)
- Reviewer: *Advances in Structural Engineering* (1)
- Reviewer: *ASME Journal of Nondestructive Evaluation, Diagnostics and Prognostics of Engineering Systems* (1)
- Reviewer: *Computer-Aided Civil and Infrastructure Engineering* (4)
- Reviewer: *Engineering Structures* (1)
- Reviewer: *IEEE Sensors Journal* (2)
- Reviewer: *International Journal of Distributed Sensor Networks* (1)
- Reviewer: *Journal of Civil Engineering and Architecture* (1)
- Reviewer: *Journal of Dynamic Systems, Measurement and Control* (1)
- Reviewer: *Journal of Intelligent Material Systems and Structures* (3)
- Reviewer: *Materials Research Express* (1)
- Reviewer: *Mechanical Systems and Signal Processing* (1)
- Reviewer: *Nanotechnology* (2)
- Reviewer: *Proceedings of the IEEE* (2)
- Reviewer: *Remote Sensing* (1)
- Reviewer: *Sensors* (3)
- Reviewer: *Sensors and Actuators A: Physical* (1)
- Reviewer: *Shock and Vibration* (1)
- Reviewer: *Smart Materials and Structures* (7)
- Reviewer: *Smart Structures and Systems* (2)
- Reviewer: *Structural Control and Health Monitoring* (3)

- Reviewer: *Structural Health Monitoring* (2)
- Reviewer: *Ultrasonics* (2)
- Conference manuscript reviewer: *2019 AIAA SciTech Forum, Manchester Grand Hyatt San Diego, San Diego, CA, Jan. 7-11, 2019* (6)
- Conference manuscript reviewer: *2018 AIAA SciTech Forum, Gaylord Palms, Kissimmee, FL, Jan. 8-12, 2018* (8)
- Conference manuscript reviewer: *ASME 2017 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Snowbird, UT, Sep. 18-20, 2017* (2)
- Conference manuscript reviewer: *ASME 2016 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Stowe, VT, Sep. 28-30, 2016* (3)
- Conference manuscript reviewer: *ASME 2015 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Colorado Springs, CO, Sep. 21-23, 2015* (2)
- Conference manuscript reviewer: *ASME 2018 International Mechanical Engineering Congress and Exposition, Pittsburgh, PA, Nov. 9-15, 2018* (1)
- Conference manuscript reviewer: *ASME 2017 International Mechanical Engineering Congress and Exposition, Tampa, FL, Nov. 3-9, 2017* (3)
- Conference manuscript reviewer: *ASME 2016 International Mechanical Engineering Congress and Exposition, Phoenix, AZ, Nov. 11-17, 2016* (1)

**EXTERNAL, CAMPUS, COLLEGE, AND DEPARTMENTAL SERVICE COMMITTEES:**

- *Chair, Mechanical Engineering Undergraduate Program Assessment Committee (2016 – present)*
- *Coordinator, Mechanical Engineering Undergraduate Program (2016 – present)*
- *Member, NMSGC 2020 – 2025 Strategic Planning Meeting, Las Cruces, NM (2019)*
- *Member, Engineering Advisory Committee, San Juan College (2017 – present)*
- *Member, New Mexico Tech Undergraduate Program Assessment Task Force (2017 – present)*
- *Member, Mechanical Engineering Administrator Search Ad Hoc Committee (2017)*
- *Member, Mechanical Engineering ABET Evaluation Committee (2016)*
- *Member, Mechanical Engineering Undergraduate Assessment Committee (2015 – 2016)*
- *Member, Mechanical Engineering Space Allocation Ad Hoc Committee (2016)*

**PROFESSIONAL AND COMMITTEE MEMBERSHIPS:**

- *Member, ASCE, 2009 – present*
- *Member, American Society for Engineering Education (ASEE), 2015 - present*
- *Member, ASME, 2013 – present*
  - *Chair, Structural Health Monitoring Technical Committee, ASMS Branch, 2016 – present*
  - *Secretary, SHM TC, ASMS Branch, 2015 – 2016*
  - *Member, SHM TC, ASMS Branch, 2013 – present*
  - *Member, ASMS Branch, 2019 – present*
- *Member, AIAA, 2014 – present*
  - *Member, Materials TC, 2017 - present*
- *Member, Earthquake Engineering Research Institute (EERI), 2009 – present*
- *Member, Institute of Electrical and Electronics Engineers (IEEE), 2011 – present*
- *Member, KSEA, 2012 – present*
  - *Student Chair, Sacramento Valley Chapter (SVC)/ KSEA, 2012 – 2013*
- *Member, International Society for Optical Engineering (SPIE), 2009 – present*
  - *Program Technical Committee Member, SPIE SS/NDE, 2017 – present*

**COLLABORATORS WITHIN PAST 48 MONTHS:**

- *Mr. Alexander Chin, Aerostructures Branch, NASA Armstrong Flight Research Center*
- *Prof. Sanchari Chowdhury, Chemical Engineering, New Mexico Tech*
- *Prof. Michael Hargather, Mechanical Engineering, New Mexico Tech*

- Dr. Sergei Ivanov, Center for Integrated Nanotechnologies, Los Alamos National Lab
- Prof. Nikolai Kalugin, Materials Engineering, New Mexico Tech
- Dr. Donghoon Kang, Korea Railroad Research Institute, South Korea
- Prof. Jamie Kimberley, Mechanical Engineering, New Mexico Tech
- Dr. Nan Li, Center for Integrated Nanotechnologies, Los Alamos National Lab
- Prof. Seokbin Lim, Mechanical Engineering, New Mexico Tech
- Prof. Kenneth J. Loh, Structural Engineering, UC San Diego
- Prof. Jerome P. Lynch, Civil and Environmental Engineering, University of Michigan
- Prof. Nathan Mara, Chemical Engineering and Materials Science, University of Minnesota
- Dr. David Mascareñas, Engineering Institute, Los Alamos National Lab
- Mr. Mathew R. Moholt, Aerostructures Branch, NASA Armstrong Flight Research Center
- Dr. Paulo OEMIG, New Mexico Space Grant Consortium, New Mexico State University
- Prof. Young Ho Park, Mechanical and Aerospace Engineering, New Mexico State University
- Prof. Yu-Lin Shen, Mechanical Engineering, University of New Mexico
- Mr. Samson Truong, Aerostructures Branch, NASA Armstrong Flight Research Center
- Dr. Yongchao Yang, Argonne National Lab
- Prof. Andrei Zagari, Mechanical Engineering, New Mexico Tech