
YUCHENG LIU

Professor and Graduate Coordinator, Ph.D., P.E.
Jack Hatcher Chair in Engineering Entrepreneurship
ASME Fellow, SAE Fellow

Department of Mechanical Engineering
Mail Stop 9552, 222 Carpenter Hall
James Worth Bagley College of Engineering
Mississippi State University
Mississippi State, MS 39762

(662) 325-1536 (O)

(662) 325-7223 (F)

Email: liu@me.msstate.edu

BIOGRAPHICAL DATA**EDUCATION**

- 2002-2005 Doctor of Philosophy degree in Mechanical Engineering granted August 2005
University of Louisville, Louisville, Kentucky
Research area: advanced product design and development/finite element methods
- 2000-2002 Master of Science degree in Mechanical Engineering granted August 2003
University of Louisville, Louisville, Kentucky
Research area: computer aided design/finite element methods
- 1993-1997 Bachelor of Science degree in Mechanical Engineering granted July 1997
Hefei University of Technology, Hefei, Anhui, China
Major: mechanical and computational design

EMPLOYMENT

- 2019-Present Full Professor, Department of Mechanical Engineering, James Worth Bagley
College of Engineering, Mississippi State University, Mississippi State,
Mississippi
- 2018-Present Jack Hatcher Chair in Engineering Entrepreneurship, James Worth Bagley
College of Engineering, Mississippi State University, Mississippi State,
Mississippi
- 2016-Present Graduate Coordinator, Department of Mechanical Engineering, James Worth
Bagley College of Engineering, Mississippi State University, Mississippi State,
Mississippi

- 2014-2019 Associate Professor, Department of Mechanical Engineering, James Worth Bagley College of Engineering, Mississippi State University, Mississippi State, Mississippi
- 2014-Present Affiliate Faculty, Center for Advanced Vehicular Systems (CAVS), Mississippi State University, Mississippi State, Mississippi
- 2014-Present Affiliate Faculty, High Performance Computing Collaboratory (HPC²), Mississippi State University, Mississippi State, Mississippi
- 2012-2013 Fellow of Computation and Visualization Enterprise (CAVE), Louisiana Immersive Technologies Enterprise (LITE), University of Louisiana at Lafayette, Lafayette, Louisiana
- 2012-2013 Graduate Coordinator, Department of Mechanical Engineering, College of Engineering, University of Louisiana at Lafayette, Lafayette, Louisiana
- 2009-2014 Assistant Professor, Department of Mechanical Engineering, College of Engineering, University of Louisiana at Lafayette, Lafayette, Louisiana
- 2005-2008 Post-Doctoral Research Associate, Department of Mechanical Engineering, J. B. Speed School of Engineering, University of Louisville, Louisville, Kentucky
- 2000-2005 Research Assistant, Department of Mechanical Engineering, J. B. Speed Engineering School, University of Louisville, Louisville, Kentucky
- 1999-2000 Manufacturing Engineer, Shanghai Yanfeng Automobile Trim Products Co., Ltd, Shanghai, China
- 1997-1999 Product Engineer, Shanghai Yanfeng Automobile Trim Products Co., Ltd, Shanghai, China

OTHER APPOINTMENTS

- 2015-2018 Guesting Professor, Hefei University of Technology, Hefei, Anhui, China
- 2015 Summer Senior Visiting Scholar, State Key Laboratory of Advanced Design and Manufacturing for Vehicle Body, Hunan University, Changsha, Hunan, China

AWARDS AND HONORS

- 2020 Forest R. McFarland Award, Society of Automotive Engineers
- 2019 Elected Society of Automotive Engineers (SAE) Fellow
- 2018 ISET B. N. Gupta Award, Indian Society of Earthquake Technology (ISET)
- 2018 Jack Hatcher Chair in Engineering Entrepreneurship, Mississippi State University
- 2018 Faculty Research Award, Mississippi State University
- 2018 Bagley College of Engineering Faculty Research Award, MSU
- 2017 Southeastern Conference Visiting Faculty Travel Grant, MSU

2017	Elected American Society of Mechanical Engineers (ASME) Fellow
2016	NASA/EPSCoR Travel Funds, Mississippi Space Grant Consortium
2016	Mechanical Engineering Outstanding Senior Faculty Research Award, MSU
2014	Research Enhancement Award, Louisiana Space Consortium
2013	Certificate of Achievement in Research & Sponsored Activities, UL Lafayette
2013	Junior Faculty Researcher of the Year, College of Engineering, UL Lafayette
2012	Summer Research Award, University of Louisiana at Lafayette
2011	Research Enhancement Award, Louisiana Space Consortium
2010	Research Enhancement Award, Louisiana Space Consortium
2010	Honorary Fellow, Australian Institute of High Energetic Materials
2010	EPSCoR Neutron Travel Fellowship, University of Tennessee
2009-present	Academic Keys Who's Who in Engineering Academia
2002-2004	Grosscurth Fellowship, University of Louisville
2001	Hsing Chuang Award for Excellence in Graduate Study, University of Louisville
1995-1996	Third Place Scholarship, Hefei University of Technology
1995-1996	Second Place Scholarship, Hefei University of Technology
1993-1994	Outstanding Student Award, Hefei University of Technology
1993-1994	Third Place Scholarship, Hefei University of Technology
1993-1994	Third Place Scholarship, Hefei University of Technology

PROFESSIONAL DEVELOPMENT AND CERTIFICATES

- William L. Giles Faculty Leadership Program, Mississippi State University, 2018 – 2019.
- Certificate of Completion: ABET Program Evaluator Candidate (PEVC) Training, Baltimore, MD, May 5 – 6, 2018.
- NSF Division of Materials Research Principal Investigator Workshop, Arlington, VA, June 7 – 9, 2017.
- Mathematical Modeling of 2D Materials Workshop, Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, MN, May 16 – 19, 2017.
- Certificate of Completion: Best Practices in Online Instruction, Center for Teaching and Learning, Mississippi State University, October 2016.
- Certificate of Completion: NCEES Chief Proctor Training, Atlanta, GA, March 9, 2013.
- 2011 CAREER Award Regional Forum, Louisiana State University, Baton Rouge, LA, November 8 – 9, 2011. (Nominated by the VP Research of UL Lafayette)
- ASME District E Management Training Seminar (MTS), Dallas, TX, September 23 – 24, 2010.
- Vulcan at the SNS Workshop, Oak Ridge National Laboratory, Oak Ridge, TN, January 21 – 22, 2010.

PROFESSIONAL REGISTRATION

Professional Engineer (Mechanical Engineering), registered in Ohio State (71346) (Since 2006)

PROFESSIONAL AFFILIATIONS

Fellow, American Society of Mechanical Engineers (ASME) (Since 2007, Fellow since 2017)
 Fellow, Society of Automotive Engineers (SAE) (Since 2007, Fellow since 2019)
 Member, American Society for Engineering Education (ASEE) (Since 2011)

Member, American Association for the Advancement of Science (AAAS) (Since 2015)
Member, International Association for Computational Mechanics (IACM) (2014-2015)
Member, United States Association for Computational Mechanics (USACM) (2014-2015)
Member, American Academy of Mechanics (AAM) (2014-2015)

SERVICE

PROFESSIONAL SERVICE

- Panelist, Phase I: Advanced Materials & Energy Harvesting Devices and Systems Panel, NSF SBIR Program, 2020
- Panelist for NSF Graduate Research Fellowship Program, 2017, 2019, 2020
- Vice Chair of Professional Skills Division, ASEE Southeastern Section, 2020 –
- Secretary of Professional Skills Division, ASEE Southeastern Section, 2019 – 2020
- Panelist, Phase I: Structural and Building Materials Panel, NSF SBIR/STTR Program, 2019
- Panelist, Phase I: Metals, Ceramics and Advanced Materials Panel, NSF SBIR/STTR Program, 2018
- Member, SAE International Technical Standards System Safety Technical Committee (G-48), 2018 –
- Panelist, Unsolicited Proposal Review Panel on Constitutive Behavior for NSF Mechanics of Materials and Structures Program, 2018
- Speaker, STEM Presentation at Tupelo Middle School, Tupelo, MS, 2016
- Member, ASME Subcommittee on Verification and Validation in Computational Modeling of Advanced Manufacturing, 2016 –
- Panelist for SMART Scholarship Evaluation Panel, Department of Defense, 2016
- Chief Proctor, NCEES Examination, Lafayette, LA, 2012 – 2013
- Panelist for NSF Engineering Design Innovation Program, 2012
- Assistant Chief Proctor, NCEES Examination, Lafayette, LA, 2011
- Speaker, Engineering & Technology Summer Camp, Lafayette, LA, 2010
- Member of WASET Scientific and Technical Committee on Natural and Applied Sciences

UNIVERSITY SERVICE

Mississippi State University

University

Member, Faculty Grievance Committee, Robert Holland Faculty Senate, 2021 –
Member, Internal Review Committee for the Department of Electrical and Computer Engineering – Graduate Program, 2017

Department

Chair, Student Competition Oversight Committee, Mechanical Engineering Department, 2020 –
Chair, Promotion & Tenure Committee, Mechanical Engineering Department, 2019 –
Chair, Faculty Search Committee, Mechanical Engineering Department, 2016 –
Chair, Graduate Committee, Mechanical Engineering Department, 2016 –

Member, CAVS Endowed Chair Search Committee, 2019 – 2020
 Member, Strategic Planning Committee, Mechanical Engineering Department, 2016 –
 Member, Faculty Search Committee, Mechanical Engineering Department, 2014 –
 Member, Undergraduate Committee, Mechanical Engineering Department, 2014 – 2016
 Member, Course Standardization Committee, Mechanical Engineering Department, 2014 – 2016
 Member, PhD Qualifying Exam Task Group, Mechanical Engineering Department, 2014 –

University of Louisiana at Lafayette

University

Member, Distance Learning Committee, 2013 – 2014
 Member, Governmental Concerns Committee, 2012 – 2014
 Member, Committee on Academic Affairs and Standards, 2012 – 2014
 Faculty Senator, University of Louisiana at Lafayette, 2012 – 2014
 Member, Student Evaluation of Instruction Committee, 2009 – 2012

Department

Advisor of Society of Automotive Engineers (SAE) Student Chapter, 2018 –
 Coordinator, ABET Executive Committee, Mechanical Engineering Department, 2012 – 2014
 Member, Faculty Search Committee, Mechanical Engineering Department, 2011 – 2014
 Member, Curriculum Committee, Mechanical Engineering Department, 2011 – 2014
 Member, Graduate Affairs Committee, Mechanical Engineering Department, 2009 – 2014
 Member, Department of Mechanical Engineering Head Search Committee, 2009 – 2010
 Advisor of American Society of Mechanical Engineers (ASME) Student Chapter, 2009 – 2014

EDITORSHIP

Editor

[Design, Analysis, and Assessment of Energy Absorbers](#), special issue of *Advances in Mechanical Engineering*, 2018 10(5)

International Journal of Differential Equations (Guest editor)	2015
Prudence Journal of Engineering and Technology Research	2013 –

Editorial Board Member

International Scholarly Research Notices	2013 –
The Scientific World Journal	2013 –
Information Sciences Letters	2013 –
ISRN Applied Mathematics	2013 – 2014
Research Bulletin of the Australian Institute of High Energetic Materials	2010 –
International Journal of Vehicle Structures & Systems	2009 –

REVIEWER

Funding Agencies

Mississippi Space Grant Consortium (MSSGC) Graduate Fellowship Program	2020 –
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SBIR/STTR Program, National Science Foundation	2018 –
Mechanics of Materials and Structures Program, National Science Foundation	2018 –
EPSCoR Program, National Aeronautics and Space Administration	2017 –
Graduate Research Fellowship Program, National Science Foundation	2017 –
SMART Scholarship for Service Program, Department of Defense	2016 –
Advanced Research Projects Agency – Energy, Department of Energy	2015 –
Engineering Design Innovation Program, National Science Foundation	2011 –
National Energy Technology Laboratory, Department of Energy	2011 –

Books and Chapters

<i>Multiscale Biomechanical Modeling of the Brain</i> , Elsevier, 2020
<i>Build Your Own Race Car</i> (Proposal), SAE International, 2018
<i>Problems and Solutions in Manufacturing for Engineers</i> (Proposal), Springer UK, 2016
<i>NMR Spectroscopy in the Undergraduate Curriculum</i> , Volume 2, ACS Publications, 2015

Refereed Journals

Proceedings of IMechE, Part D: Journal of Automobile Engineering	2020 –
Journal of Physics and Chemistry Solids	2020 –
Applied Sciences	2020 –
Alexandria Engineering Journal	2020 –
Research in Science & Technological Education	2020 –
SAE International Journal of Transportation Safety	2020 –
Energy	2020 –
Multidiscipline Modeling in Materials and Structures	2020 –
Tribology International	2020 –
ASME Journal of Energy Resources Technology	2020 –
Water	2020 –
International Journal of Pressure Vessels and Piping	2020 –
Shock and Vibration	2019 –
Nuclear Engineering and Technology	2019 –
Journal of Renewable and Sustainable Energy	2019 –
Mathematical Problems in Engineering	2018 –
Journal of Manufacturing Processes	2018 –
MethodsX	2018 –
Applied Soft Computing	2018 –
Steel and Composites Structures, An International Journal	2018 –
Metallurgical and Materials Transactions A	2018 –
Journal of Materials Research and Technology	2018 –
Engineering Failure Analysis	2017 –
International Journal of Mechanical Engineering Education	2017 –
ASME Journal of Mechanical Design	2017 –
Ultrasonics	2017 –
Drinking Water Engineering and Science	2017 –
Iranian Journal of Science and Technology	2017 –
Journal of Composite Materials	2016 –
Sustainability	2016 –

Journal of Hydrodynamics, Series B	2016 –
Journal of Marine Science and Engineering	2016 –
Advances in Mechanical Engineering	2016 –
International Journal of Mechanics and Materials in Design	2015 –
Journal of Hydraulic Engineering	2015 –
IEEE/CAA Journal of Automatica Sinica	2015 –
Journal of Process Mechanical Engineering	2015 –
Applied Mathematical Modelling	2015 –
Modelling and Simulation in Materials Science and Engineering	2015 –
Advances in Engineering Software	2014 –
Ocean Engineering	2014 –
Engineering Structures	2014 –
International Journal of Marine Energy	2014 –
Neural Computing and Applications	2014 –
International Journal of Computational Methods in Engr. Sci. & Mechanics	2014 –
Finite Elements in Analysis and Design	2013 –
International Journal of Energy and Environmental Engineering	2013 –
E3 Journal of Scientific Research	2013 –
The Scientific World Journal	2013 –
Geologos	2013 –
Applied Mathematics & Information Sciences	2013 –
British Journal of Mathematics & Computer Science	2013 –
ISRN Applied Mathematics	2013 –
Information Sciences Letters	2013 –
Prudence Journal of Environmental Science Research	2013 –
British Journal of Applied Science & Technology	2013 –
Journal of Advanced Research	2013 –
Computational Materials Science	2013 –
Energies	2012 –
E3 Journal of Environmental Research and Management	2012 –
Fatigue and Fracture of Engineering Materials and Structures	2012 –
E3 Journal of Medical Research	2012 –
Engineering Computations	2012 –
Central European Journal of Engineering	2012 –
Journal of Mechanical Engineering Science	2011 –
E3 Journal of Energy Oil and Gas Research	2011 –
Journal of Engineering Design	2011 –
Zeitschrift fur Naturforschung A – Physical Sciences	2011 –
Applications and Applied Mathematics: An International Journal	2011 –
Computers & Mathematics with Applications	2011 –
International Journal for Numerical Methods for Heat and Fluid Flow	2010 –
Journal of the Franklin Institute	2010 –
International Journal of Thermal Sciences	2010 –
European Journal of Engineering Education	2010 –
Mathematic Scientific Journal	2010 –
Experimental Techniques	2009 –

SAE Transactions	2009 –
International Journal of Vehicle Structures & Systems	2009 –
International Journal of Computer Aided Engineering and Technology	2009 –
EURASIP Journal on Advances in Signal Processing	2009 –
International Journal of Computer Mathematics	2008 –
International Journal of Crashworthiness	2008 –
Journal of Computational and Applied Mathematics	2008 –
Computer Applications in Engineering and Education	2008 –
International Journal of Materials and Product Technology	2007 –
International Journal of Heavy Vehicle Systems	2007 –
International Journal of Design Engineering	2007 –
Thin-Walled Structures	2006 –

Conferences

- 2021 ASEE SE Section Annual Conference, Virtual Conference, March 8 – 11, 2021.
- 2021 ASEE Annual Conference & Exposition, Long Beach, CA, USA, June 27 – 30, 2021.
- ASME 2020 International Mechanical Engineering Congress & Exposition, Virtual Conference, Online, November 16 – 19, 2020.
- SAE 2020 World Congress Experience, Detroit, MI, USA, April 21 – 23, 2020.
- The 3rd International Conference on Mechanical, Electric and Industrial Engineering (MEIE 2020), Kunming, China, May 23 – 25, 2020.
- ASME 2019 International Mechanical Engineering Congress & Exposition, Salt Lake City, UT, USA, November 8 – 14, 2019.
- SAE 2019 AeroTech Americas, Charleston, SC, USA, March 26 – 28, 2019.
- 2019 ASEE SE Section Annual Conference, North Carolina State University, Raleigh, NC, USA, March 10 – 12, 2019.
- ASME 2018 International Mechanical Engineering Congress & Exposition, Pittsburgh, PA, USA, November 9 – 15, 2018.
- 2018 ASEE Annual Conference & Exposition, Salt Lake City, UT, USA, June 24-27, 2018.
- ASME 2017 International Mechanical Engineering Congress & Exposition, Tampa, FL, USA, November 3 – 9, 2017.
- SAE 2017 World Congress Experience, Detroit, MI, USA, April 4 – 6, 2017.
- ASME 2016 International Mechanical Engineering Congress & Exposition, Phoenix, AZ, USA, November 11 – 17, 2016.
- ASME 2015 International Mechanical Engineering Congress & Exposition, Houston, TX, USA, November 13 – 19, 2015.
- The 11th International Conference on Automotive Engineering, Bangkok, Thailand, March 30 – April 1, 2015.
- ASEE SE Section Annual Conference, University of Florida, Gainesville, FL, USA, April 12 – 14, 2015.
- SAE 2015 World Congress and Exposition, Detroit, MI, USA, April 21 – 23, 2015.
- ASME 2014 International Mechanical Engineering Congress & Exposition, Montreal, Quebec, Canada, November 14 – 20, 2014.
- ASME 2014 4th Joint US-European Fluids Engineering Division Summer Meeting and 12th International Conference on Nanochannels, Microchannels, and Minichannels, Chicago, IL,

- USA, August 3 – 7, 2014.
- The 10th International Conference on Automotive Engineering (ICAE-10), Bangkok, Thailand, March 31 – April 2, 2014.
 - IETC 2014 Industrial Energy Technology Conference, New Orleans, LA, May 20 – 23, 2014.
 - ASME 2013 International Mechanical Engineering Congress & Exposition, San Diego, California, USA, November 15 – 21, 2013.
 - 2013 ASEE Gulf Southwest Annual Regional Conference, University of Texas at Arlington, Arlington, TX, USA, March 21 – 23, 2013.
 - ASME 2012 International Mechanical Engineering Congress & Exposition, Houston, TX, USA, November 9 – 15, 2012.
 - ASME 2011 International Mechanical Engineering Congress & Exposition, Denver, CO, USA, November 11 – 17, 2011.
 - 2010 ASEE SE Section Annual Conference, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA, April 18 – 20, 2010.
 - 38th Annual North American Manufacturing Research Conference (NAMRC 38), Kingston, Ontario, Canada, May 26 – 28, 2010.
 - ASME 2009 International Mechanical Engineering Congress & Exposition (IMECE 2009), Lake Buena Vista, FL, USA, November 13 – 19, 2009.
 - 18th IASTED International Conference on Modeling and Simulation (MS 2007), Montreal, Quebec, Canada, May 30 – June 1, 2007.

External P&T Reviewer

Dr. Liu has reviewed a promotion packet for faculty from the University of Texas Rio Grande Valley.

ORGANIZER AND CHAIR OF CONFERENCES/SESSIONS /WORKSHOPS

- Member, Organizing Committee for the Global Conference on Manufacture and Industrial Engineering (GCMIE-2021), Brussels, Belgium, September 13 – 15, 2021.
- Topic Co-Organizer and Session Chair, Computational Modeling and Simulation for Advanced Manufacturing, ASME 2020 International Mechanical Engineering Congress & Exposition, Virtual Conference, Online, November 16 – 19, 2020.
- Moderator, 2020 Frontiers in Education Conference (FIE 2020), Uppsala, Sweden, October 21 – 24, 2020.
- Member, Organizing Committee for the 2nd International Conference on Computational Methods and Applications in Engineering (ICMAE 2020), Mississippi State University, MS, USA, May 7 – 9, 2020.
- Topic Co-Organizer and Session Chair, Computational Modeling and Simulation for Advanced Manufacturing, ASME 2019 International Mechanical Engineering Congress & Exposition, Salt Lake City, UT, USA, November 8 – 14, 2019.
- Organizer, Additive Manufacturing Session, SAE 2019 AeroTech Europe, Bordeaux, France, September 24 – 26, 2019.
- Panelist, Additive Manufacturing Panel on Workforce Development and Training, SAE 2019 AeroTech Americas, Charleston, SC, USA, March 27, 2019.
- Committee Member, Additive Manufacturing for Aerospace and Defense Session, SAE 2019

AeroTech Americas, Charleston, SC, USA, March 26 – 28, 2019.

- Topic Co-Organizer and Session Chair, Computational Modeling and Simulation for Advanced Manufacturing, ASME 2018 International Mechanical Engineering Congress & Exposition, Pittsburgh, PA, USA, November 9 – 15, 2018.
- Session Chair, ASEE SE Section Annual Conference, Embry-Riddle Aeronautical University, Daytona Beach, FL, USA, March 4 – 6, 2018.
- Member, ASME 2017 Verification and Validation Symposium Organizing Committee, Las Vegas, NV, USA, May 3 – 5, 2017.
- Session Organizer, ASME 2016 International Mechanical Engineering Congress & Exposition, Phoenix, AZ, USA, November 11 – 17, 2016.
- Session Chair, ASME 2015 International Mechanical Engineering Congress & Exposition, Houston, TX, USA, November 13 – 19, 2015.
- Organizer, Ocean Wave Energy Workshop, Lafayette, LA, June 15, 2012.
- Session Chair, 2012 International Conference on Computer, Electrical, and Systems Sciences (ICCESSE 2012), Amsterdam, Netherlands, May 13 – 14, 2012.
- Session Chair, 2012 IEEE Green Technologies Conference (GTC'12), Tulsa, OK, USA, April 19 – 20, 2012.
- Session Chair, 2011 Hawaii University International Conferences (HUIC) on Mathematics & Engineering Conference, Honolulu, HI, USA, June 13 – June 15, 2011.
- Co-Organizer, Steam Lab Revitalization Project Workshop, Lafayette, LA, August 20, 2010.

MEDIA COVERAGE

- Research featured on www.hispanicbusiness.com (07/26/2013)
- Interviewed by Colonel Masson, ScienceNews Radio Network, 02/07/2011, 02/16/2012.

CONSULTING ACTIVITIES

Diomedia Industries, LLC	2016 –
Systems Automotive Interiors	2014 –
United International Corporation	2011 –
2M-Tek Inc.	2009 –

SELECTED SERVICE ACCOMPLISHMENTS

- The Mechanical Engineering Master of Science Distance Program is ranked 3rd nationally in 2019 according to the “25 Best Online Master’s in Mechanical Engineering” released by Online Schools Report.
- The Mechanical Engineering Master of Science Distance Program is ranked 6th nationally in 2018 according to SR Education Group.
- Obtained \$55,000 Graduate Recruitment Grant and Fellowship Award as the ME Graduate Coordinator at Mississippi State University.
- Increased UL Lafayette’s ASME student membership by 80% since becoming the ASME advisor in 2009.
- Obtained \$500 Master’s Program Recruitment Assistance Grant as the MCHE Graduate Coordinator at UL Lafayette.

RESEARCH

RESEARCH INTERESTS

- Material multiscale modeling and simulation
- High strain rate phenomena and penetration mechanics
- Computer-aided design and engineering
- Finite element analysis
- Computational fluid dynamics
- Crashworthiness analysis
- Structural mechanics
- Kinematics and dynamics
- Optimum design
- Mechanical and advanced machine design
- Marine and hydrokinetic system design
- Vehicle system design and analysis
- Development of interactive design software
- Applied mathematics

PUBLICATIONS (TOTAL: 5 books, 7 chapters, 1 patent, 121 journal articles, and 91 conference and technical papers)

Books and Chapters

1. **Liu, Yucheng**, [*Aerospace Structures and Materials*](#), Frontiers in Aerospace Science, Vol. 1, Bentham Science Publishers Ltd., Sharjah, United Arab Emirates, 2016 (Edited Book).
2. Bi, X.-G. and **Liu, Yucheng**, “An Analytical and Experimental Investigation into Vibratory Force for Aircraft Wings”, Chapter 2 in [*Aerospace Structures and Materials*](#), Bentham Science Publishers Ltd., Sharjah, United Arab Emirates, 2016.
3. Dou, Y.-Q. and **Liu, Yucheng**, “Computational and Analytical Investigation of Lateral Impact Behavior of Pressurized Pipelines”, Chapter 3 in [*Aerospace Structures and Materials*](#), Bentham Science Publishers Ltd., Sharjah, United Arab Emirates, 2016.
4. **Liu, Yucheng**, [*Structural Analysis and Modelling: Research and Development*](#), Nova Science Publishers, Inc., Hauppauge, NY, USA, 2013 (Edited Book).
5. Liu, Y.-M., Woo, H.-J., and **Liu, Yucheng**, “Molecular Basis for Mechanical Functions of Molecular Motor Myosin”, Chapter 5 in [*Structural Analysis and Modelling: Research and Development*](#), Nova Science Publishers, Inc., Hauppauge, NY, USA, 2013.
6. **Liu, Yucheng** and Wang, Q.-K., “Computational Modeling and Strength Analysis of Stiffened Plates with Arbitrarily Oriented Stiffeners”, Chapter 9 in [*Structural Analysis and Modelling: Research and Development*](#), Nova Science Publishers, Inc., Hauppauge, NY, USA, 2013.
7. **Liu, Yucheng**, Alidoust, S., and Qi, B., “Prototyping and Experimental Evaluation of an Air Filtration System”, Chapter 4 in [*Refrigeration Systems, Design Technologies and Developments*](#), Edited by D. Alda and D. Ciarlo, Nova Science Publishers, Inc., Hauppauge, NY, USA, 2013.

8. Liu, W.-L. and **Liu, Yucheng**, [*An Introduction to Earthquake Prediction*](#), LAP Lambert Academic Publishing, Saarbrücken, Germany, 2012.
9. Peymani, F. Y., Ghanbary, S. A., **Liu, Yucheng**, and Hayatdavoudi, A. Z., “CFD Simulation of Phase Particle Entrapment”, Chapter 7 in [*Engineering Applications of Computational Fluid Dynamics*](#), Edited by Maher A. R. Sadiq Al-Baghdadi, International Energy and Environment Foundation, 2011 pp. 285 – 318.
10. **Liu, Yucheng**, [*Development of Simplified Crash Computer Models for Thin-Walled Beams*](#), LAP Lambert Academic Publishing, Koln, Germany, 2009.
11. **Liu, Yucheng**, [*Simplified Modeling for Crashworthiness Analysis: Vehicle Chassis*](#), VDM-Verlag, Saarbrücken, Germany, 2008.
12. **Liu, Yucheng** and Day, M. L., “[*Axial Crushing of Thin-Walled Tubes with Octagonal Section: Modeling and Design*](#)”, Chapter 25 in *Advances in Computational Algorithms and Data Analysis*, Edited by S.-L. Ao, B. B. Rieger, and S.-S. Chen, Springer Netherlands, 2008.

Patents

1. Ball, J. E., Burch, V., R. F., Cagle, L. D., Davenport, C. S., Gafford, J. R., Hannis, T. J., Hegman, A. R., LeClair, A. M., **Liu, Yucheng**, Mazzola, M. S., McKinney, H. G., Reza, T., Shi, J., Wei, P., and Iacomini, D. W., “Systems and Methods for Enhanced Collision Avoidance on Logistics Ground Support Equipment Using Multi-Sensor Detection Fusion”, Patent No. US2019265714A1, August 2019.

Refereed Journals

Published or Accepted

1. Deng, X.-Q., Wang, J., Wang, S.-K., Wang, S.-S., **Liu, Yucheng**, Dou, Y.-Q., and He, G., “Investigation of attapulgitic clay crushing by bionic tooth plates inspired from convex structures on body surface of dung beetles”, Accepted by *International Journal of Design Engineering*, In Press.
2. Brown, W. B. and **Liu, Yucheng**, “Modeling and Simulation of an Electric Vehicle with Independent Rear Motors to Estimate the Fuel Economy during EPA Drive Cycles”, Accepted by *International Journal of Vehicle Structures & Systems*, In Press.
3. **Liu, Yucheng**, Whitaker, S., Hayes, C., Logsdon, J., McAfee, L., and Parker, R., “Establishment of an Experimental-Computational Framework for Promoting Project-Based Learning for Vibration and Controls Education”, Accepted by *International Journal of Mechanical Engineering Education*, In Press.
4. Dimitrov, N., **Liu, Yucheng**, and Horstemeyer, M. F., “An Electroplastic Internal State Variable (ISV) Model for Nonferromagnetic Ductile Metals”, Accepted by *Mechanics of Advanced Materials and Structures*, In Press.
5. Dimitrov, N., **Liu, Yucheng**, and Horstemeyer, M. F., “A Review of Mechanisms in Electro-Mechanical Coupling of Ductile Metals”, Accepted by *Mechanics of Advanced Materials and Structures*, In Press.
6. **Liu, Yucheng**, Stranburg, T., Chander, H., Bell, J., and Knight, A., “Additively Manufactured Metal Foot Orthotics: Lessons Learned from NSF I-Corps”, Accepted by *Journal of*

Technology Transfer, In Press.

7. He, G., **Liu, Yucheng**, Hammi, Y., Bammann, D. J., and Horstemeyer, M. F., “A Combined Viscoelasticity-Viscoplasticity-Anisotropic Damage Model with Evolving Internal State Variables Applied to Fiber Reinforced Polymer Composites”, Accepted by *Mechanics of Advanced Materials and Structures*, In Press.
8. Gan, Y.-J., Bi, X.-G., **Liu, Yucheng**, Li, Q.-L., Qin, B.-Y., Jiang, Q.-B., and Mo, P., “[Numerical Investigation Energy Conversion Performance of Tin-Based Perovskite Solar Cells using Cell Capacitance Simulator](#)”, *Energies*, 13, 2020, 5907 (17 pages).
9. Chen, L., Yenusah, C. O., Ji, Y.-Z., **Liu, Yucheng**, Stone, T. W., Horstemeyer, M. F., Chen, L.-Q., “[Three-Dimensional Phase-Field Simulation of \$\gamma\$ Precipitation Kinetics in Inconel 625 during Heat Treatment](#)”, *Computational Materials Science*, 187, 2021, 110123 (13 pages).
10. Deng, X.-Q., Wang, S.-S., Hammi, Y., Qian, L.-M., and **Liu, Yucheng**, “[Study on the Influence of Key Design Parameters on Lubrication Characteristics of a Novel Gear System Applying Taguchi Method](#)”, *Structural and Multidisciplinary Optimization*, 62, 2020, 2833-2847.
11. Deng, X.-Q., Wang, S.-S., Qian, L.-M., and **Liu, Yucheng**, “[Simulation and Experimental Study of Influences of Shape of Roller on the Lubrication Performance of Precision Speed Reducer](#)”, *Engineering Applications of Computational Fluid Mechanics*, 14(1), 2020, pp. 1156 – 1172.
12. Dou, Y.-Q., **Liu, Yucheng**, Huddleston, B., Hammi, Y., and Horstemeyer, M. F., “[A Molecular Dynamics Study of Effects of Crystal Orientation, Size Scale, and Strain Rate on Penetration Mechanisms of Monocrystalline Copper Subjected to Impact from A Nickel Penetrator at Very High Strain Rates](#)”, *Acta Mechanica*, 231, 2020, pp. 2173 – 2201.
13. Deng, X.-Q., Wang, J., Wang, S.-K., Wang, S.-S., **Liu, Yucheng**, and He, G., “[A Comparison Study of Anti-Backlash Single- and Double-Roller Enveloping Hourglass Worm Gear](#)”, *Chinese Journal of Mechanical Engineering*, 56(3), 2020, pp. 88 – 95. (This paper was selected as cover article.)
14. Deng, X.-Q., Wang, S.-S., Wang, S.-K., Wang, J., **Liu, Yucheng**, Dou, Y.-Q., and He, G., “[Lubrication Mechanism in Gearbox of High-Speed Railway Trains](#)”, *Journal of Advanced Mechanical Design, Systems, and Manufacturing (Machine Design & Tribology)*, 14(4), 2020, JAMDSM0054 (19 pages).
15. Liu, P.-W., Wang, Z., Xiao, Y.-H., Lebensohn, R. A., **Liu, Yucheng**, Horstemeyer, M. F., Cui, X.-Y., and Chen, L., “[Integration of Phase-Field Model and Crystal Plasticity for the Prediction of Process-Structure-Property Relation of Additively Manufactured Metallic Materials](#)”, *International Journal of Plasticity*, 128, 2020, 102670 (21 pages).
16. Deng, X.-Q., Wang, S.-S., Hammi, Y., Qian, L.-M., and **Liu, Yucheng**, “[A Combined Experimental and Computational Study of Lubrication mechanism of High Precision Reducer Adopting Gears Meshing with Complicated Space Surface Contact](#)”, *Tribology International*, 146, 2020, 106261 (13 pages).
17. Deng, X.-Q., Wang, J., Wang, S.-K., Wang, S.-S., **Liu, Yucheng**, and He, G., “[An Optimal Process of Machining Complex Surfaces of Anti-Backlash Roller Enveloping Hourglass Worms](#)”, *Journal of Manufacturing Processes*, 49, 2020, pp. 472 – 480.

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 13. **Liu, Yucheng** and Baker, F., “Development of Vibration and Control Systems through Student Projects”, Proceedings of ASEE SE Section Annual Conference, North Carolina State University, Raleigh, NC, USA, March 10 – 12, 2019.
 14. **Liu, Yucheng**, Chander, H., Knight, A., and Bell, J., “Educating Tomorrow’s Engineering Entrepreneur through Participating NSF I-Corps Program”, Proceedings of ASEE SE Section Annual Conference, North Carolina State University, Raleigh, NC, USA, March 10 – 12, 2019.

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23. **Liu, Yucheng** and Baker, F., “A Course Assessment Tool for A Mechanical Engineering Design Class”, Proceedings of ASEE SE Section Annual Conference, Embry-Riddle Aeronautical University, Daytona Beach, FL, USA, March 4 – 6, 2018.
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68. **Liu, Yucheng**, “A Numerical Method of Solving Volterra Integral Equation”, Proceedings of 2011 Hawaii University International Conferences (HUIC) on Mathematics & Engineering Conference, Honolulu, HI, USA, June 13 – June 15, 2011.
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74. **Liu, Yucheng**, “Modeling and Simulation of Thin-Walled Columns with Triangular Cross-Section”, Proceedings of 2010 Interdisciplinary Conference on Chemical, Mechanical and Materials Engineering, December 6 – 20, 2010.
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80. **Liu, Yucheng**, “Crashworthiness Analysis of Finite Element Truck Chassis Model Using LS-DYNA”, Proceedings of 11th International LS-DYNA Users Conference, Dearborn, MI, USA, June 6 – 8, 2010.
81. **Liu, Yucheng**, “Study of Thin-Walled Box Beams Crushing Behaviors Using LS-DYNA”, Proceedings of 11th International LS-DYNA Users Conference, Dearborn, MI, USA, June 6 – 8, 2010.
82. Artigue, A. J., Sommers, J. D., **Liu, Yucheng** and Chambers, T. L., “Achieve Objectives of Engineering Design Course Through Theo Jansen Project and a Design Sample”, Proceedings of ASEE Southeastern Annual Conference, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA, April 18 – 20, 2010.
83. Bi, X.-G. and **Liu, Yucheng**, “Analytical Methods of Evaluating Aerodynamic Forces of Aircraft Wings”, SAE Technical Paper 2009-01-3281, Proceedings of SAE 2009 AeroTech Congress & Exhibition, Seattle, WA, USA, November 10 – 12, 2009.
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86. **Liu, Yucheng** and Day, M. L., “Bending and Modeling of Channel Section Beam”, Proceedings of Symposium on Mechanics of Slender Structures (MoSS 2008), University of Maryland Baltimore County, Baltimore County, MD, USA, July 23 – 25, 2008.
87. **Liu, Yucheng** and Day, M. L., “Simplified Modeling of Thin-Walled Tubes with Octagonal Cross Section – Axial Crushing”, Proceedings of World Congress on Engineering and Computer Science (WCECS 2007), San Francisco, CA, USA, October 24 – 26, 2007.
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89. **Liu, Yucheng** and Day, M. L., “Development of Simplified Truck Chassis Model for Crashworthiness Analysis”, Proceedings of LS-DYNA International Users Conference, Dearborn, MI, USA, June 4 – 6, 2006.
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91. **Liu, Yucheng** and Day, M. L., “Comparisons between Detailed and Simplified Models for Thin-Walled Beams Structures”, Proceedings of 2005 Huntsville Simulation Conference, Huntsville, AL, USA, October 25 – 28, 2005.

SEMINARS AND CONFERENCE PRESENTATIONS

1. “Design and Fabrication of Mount Plate for Integration of Multiple Cameras in UAV using 3D Printing and Traditional Manufacturing Method”, Presentation at ASME 2020 International Mechanical Engineering Congress & Exposition, Virtual Conference, November 19, 2020.
2. “Design of Instructional Tools to Facilitate Understanding of Fluid Viscous Dampers in a Vibration and Controls Class and Course Assessment”, Presentation at 2020 ASEE Virtual Annual Conference, June 24, 2020.
3. “Implementation of MATLAB/Simulink into a Vibration and Control Course for Mechanical Engineering Students”, Presentation at ASEE SE Section Annual Conference, Auburn University, Auburn, AL, USA, March 9, 2020.
4. “A Computational Study of Human Head Response to Impact from a Small Unmanned Aircraft System”, Presentation at 36th South Biomedical Engineering Conference 2020, Kenner, LA, USA, March 7, 2020.
5. “Meshing Characteristics and Engagement of Anti-Backlash Single- and Double-Roller Enveloping Hourglass Worm Gear”, Presentation at ASME 2019 International Mechanical Engineering Congress & Exposition, Salt Lake City, UT, USA, November 14, 2019.
6. “Design and Prototyping of Cleaning Systems for Cylinder Head and Engine Block Conveying Lines”, Presentation at the 2019 Southeast Symposium on Contemporary Engineering Topics and UNO Engineering Forum, University of New Orleans, New Orleans, LA, USA, September 13, 2019.
7. “Experimental Analysis and Computational Modeling of Electroplasticity of

- Nonferromagnetic Ductile Metals”, Invited Talk at NPU School of Aeronautics Colloquium, Northwestern Polytechnical University, Xi’an, Shaanxi, China, June 5, 2019; Institute of Mechanics, Chinese Academy of Sciences, Beijing, China, June 10, 2019; Yulin Normal University, Yulin, Guangxi, China, June 17, 2019.
8. “Design and Assessment of An Antbacklash Single Roller Enveloping Hourglass Worm Gear”, Presentation at SAE 2019 World Congress Experience, Detroit, MI, USA, April 11, 2019.
 9. “A Computational Study of Crystal Orientation Effects on High Strain Rate Performance of Single Crystal Copper”, Presentation at SAE 2019 World Congress Experience, Detroit, MI, USA, April 10, 2019.
 10. “Constitutive Modeling of Elasto-Thermo-Visco-Plastic and Anisotropic Damage Behavior of Fiber Reinforced Polymers”, Invited Talk in the Department of Mechanical Engineering, Clemson University, Clemson, SC, March 29, 2019.
 11. “Theoretical Modeling of the Mechanical Degradation of Polymer Composites due to Moisture/Water Absorption and Damage Progression”, Presentation at SAE 2019 AeroTech Americas, Charleston, SC, USA, March 27, 2019.
 12. “Development of Vibration and Control Systems through Student Projects”, Presentation at ASEE SE Section Annual Conference, North Carolina State University, Raleigh, NC, USA, March 12, 2019.
 13. “Educating Tomorrow’s Engineering Entrepreneur through Participating NSF I-Corps Program”, Presentation at ASEE SE Section Annual Conference, North Carolina State University, Raleigh, NC, USA, March 11, 2019.
 14. “Crystal Orientations Effects of Copper Single Crystals Simulated by LAMMPS Employing Modified Embedded Atomic Method”, Presentation at ASME 2018 International Mechanical Engineering Congress & Exposition, Pittsburgh, PA, USA, November 12, 2018.
 15. “Computational Design and Analysis of Nitinol-Based Arch Wedge Support”, Presentation at ASME 2018 International Mechanical Engineering Congress & Exposition, Pittsburgh, PA, USA, November 12, 2018.
 16. “Design, Installation, and Validation of A Data Acquisition System”, Presentation at ASME 2018 International Mechanical Engineering Congress & Exposition, Pittsburgh, PA, USA, November 12, 2018.
 17. “Design and Prototyping of Cleaning Systems for Cylinder Head and Engine Block Conveying Lines”, Invited Talk at the 2018 Southeast Symposium on Contemporary Engineering Topics and UAH Engineering Forum, University of Alabama at Huntsville, Huntsville, AL, USA, August 3, 2018.
 18. “Development of A Cargo Tractor-Aircraft Collision Avoidance System”, Invited Talk at School of Mechanical and Automotive Engineering, Hefei University of Technology, Hefei, Anhui, China, July 9, 2018; Intelligence Tec Co., Ltd., Suzhou, Jiangsu, China, July 11, 2018.
 19. “A Multiphase Internal State Variable Model with Rate Equations for Predicting Elastothermoviscoplasticity and Damage of Fiber Reinforced Polymer Composites”, Invited Talk at School of Mechanical Engineering and Automation, Xihua University, Chengdu, Sichuan, China, June 21, 2018; College of Mechanical and Aerospace Engineering, Jilin

University, Changchun, Jilin, China, June 28, 2018.

20. "A Course Assessment Tool for A Mechanical Engineering Design Class", Presentation at ASEE SE Section Annual Conference, Embry-Riddle Aeronautical University, Daytona Beach, Florida, USA, March 5, 2018.
21. "Development and Optimization of A Wave Energy Conversation System for Deepwater Offshore Platform Applications", Presentation at 2017 Louisiana Energy R&D Forum, Lafayette, LA, USA, October 24, 2017.
22. "Improve Heat Resistance of Composite Engine Cowlings using Ceramic Coating Materials, Experimental Design and Testing", Presentation at SAE 2017 AeroTech Congress & Exhibition, Fort Worth, TX, USA, September 26, 2017.
23. "Mechanical Design, Prototyping, and Validation of A Martian Robot Mining System", Presentation at SAE 2017 World Congress & Exhibition, Detroit, MI, USA, April 6, 2017.
24. "Development of a Particulate Trapping System and Investigation of Effects of Viscosity of the Filter Media Using Experimental and Computational Methods", Presentation at SAE 2017 World Congress & Exhibition, Detroit, MI, USA, April 5, 2017.
25. "Development of a Dynamic Modeling Framework to Predict Instantaneous Status of Towing Vehicle Systems", Presentation at SAE 2017 World Congress & Exhibition, Detroit, MI, USA, April 5, 2017.
26. "Computational Investigation of Penetration Mechanics of Copper with Different Grain Sizes and Nanotwin-Strengthened Copper", Invited Talk at ASME 2016 International Mechanical Engineering Congress & Exposition, Phoenix, AZ, USA, November 17, 2016.
27. "Process-Structure Relationship of Dynamic Recrystallization Process: Experimental and Computational Study", Invited Talk at the 2016 Southeast Symposium on Contemporary Engineering Topics and JSU Engineering Forum, Jackson, MS, USA, August 26, 2016.
28. "Multiscale Experimental-Computational Framework for Process-Structure-Property-Performance Sequence of Materials", Invited Talk at Institute of Mechanics, Chinese Academy of Sciences, Beijing, China, June 27, 2016; School of Mechanical Engineering, Tianjin University, Tianjin, China, June 28, 2016.
29. "High Velocity Penetration of Metallic Materials, Computational and Experimental Study", Presentation at ASME 2015 International Mechanical Engineering Congress & Exposition, Houston, TX, USA, November 18, 2015.
30. "Development and Application of ISV Plasticity Theory and Multiscale Modeling Approach for Impact and Penetration Simulation of CFRPs and Process-Structure-Property-Performance Study of Metal Foams", Presentation at SAE 2015 AeroTech Congress & Exhibition, Seattle, WA, USA, September 23, 2015.
31. "Multiscale Modeling and Simulation of Ni-Cu Penetration", Invited Talk at School of Mechanical Engineering, Shanghai Jiao Tong University, Shanghai, China, June 4, 2015; State Key Laboratory of Advanced Design and Manufacturing for Vehicle Body, Hunan University, Changsha, Hunan, China, June 16, 2015; School of Mechanical and Automotive Engineering, Hefei University of Technology, Hefei, Anhui, China, July 2, 2015.
32. "The Configuration Recommendation Strategy Based on Similarity in Product Configuration

- for Manufacturing”, Presentation at ASME 2014 International Mechanical Engineering Congress & Exposition, Montreal, Quebec, Canada, November 20, 2014.
33. “Analytical Investigation and Parametric Study of Lateral Impact Behavior of Pressurized Pipelines and Influence of Internal Pressure”, Presentation at ASME 2014 International Mechanical Engineering Congress & Exposition, Montreal, Quebec, Canada, November 19, 2014.
 34. “Design, Modeling, and Assessment of a Wave Energy Conversion System for Offshore Oil & Gas Industry and Other Research and Teaching Highlights”, Presentation at ME Seminar, University of Maine, Orono, ME, March 29, 2014.
 35. “Application and Commercialization of Wave Energy Conversion Technology for Offshore Oil and Gas Industry”, Invited Talk at Lunch Meeting of Instrument Society of America, Lafayette Section, Lafayette, LA, March 25, 2014.
 36. “Research, Teaching, and Plans in Impact and Crashworthiness Analysis, Vehicle Design and Analysis, Computational Solid Mechanics, Wave and Ocean Energy and Other Areas”, Presentation at ME Seminar, Mississippi State University, Starkville, MS, March 5, 2014.
 37. “Establishment of a Wave Energy and Technology Lab to Promote the Experimental Study of Ocean and Wave Energy”, Presentation at ASME 2013 International Mechanical Engineering Congress & Exposition, San Diego, CA, USA, November 19, 2013.
 38. “Development of an Efficient WEC System to Convert both Kinetic and Thermal Energy from Ocean Waves”, Presentation at ASME 2013 International Mechanical Engineering Congress & Exposition, San Diego, CA, USA, November 19, 2013.
 39. “Application of Computational Techniques in Structural Impact and Crashworthiness Analysis”, Presentation at Graduate Seminar at the Department of Chemical Engineering, University of Louisiana at Lafayette, October 7, 2013.
 40. “Instructional Courseware Developed for Thermodynamics Course”, Presentation at 2013 ASEE Gulf Southwest Annual Regional Conference, University of Texas at Arlington, Arlington, TX, USA, March 22, 2013.
 41. “Research of Structural Mechanics and Other Engineering Problems using Computational, Experimental and Analytical Methods”, Presentation at ME Seminar, University of Arkansas, Fayetteville, AR, February 22, 2013.
 42. “Modeling and Simulation of Performance of Stiffened Plates during Strength Analysis”, Presentation at ASME 2012 International Mechanical Engineering Congress & Exposition, Houston, TX, November 14, 2012.
 43. “Comparison of Regular Stiffeners and Arbitrarily Oriented Stiffeners in Buckling Analysis”, Presentation at ASME 2012 International Mechanical Engineering Congress & Exposition, Houston, TX, November 14, 2012.
 44. “Evaluation of Paddle Wheels in Generating Hydroelectric Power”, Presentation at ASME 2012 International Mechanical Engineering Congress & Exposition, Houston, TX, November 14, 2012.
 45. “Assessing the Potential of Power Production from a Stacked Paddle Hydroturbine”, Invited Talk at VerTech 2012 Conference, Crowley, LA, November 7, 2012.

46. “Revitalization of UL Lafayette Steam Lab and Incorporation into Mechanical Engineering Curriculum”, Invited Talk at CLECO/UL Alternative Energy Center, Crowley, LA, October 11, 2012.
47. “LaSPACE Related Activities at the University of Louisiana at Lafayette”, Briefing at 2012 LaSPACE Council Meeting, Shreveport, LA, October 5, 2012.
48. “Design, Modeling, and Evaluation of a Cost Effective Particulate Control System”, Presentation at SAE 2012 Aerospace Manufacturing and Automated Fastening Conference & Exhibition, Fort Worth, TX, September 19, 2012.
49. “Recent Research Achievements in Engineering Numerical Method and Analysis”, Presentation at 2012 International Conference on Computer, Electrical, and Systems Sciences (ICCESSE 2012), Amsterdam, Netherlands, May 14, 2012.
50. “Development of an Analytical Model to Predict the Performance of Paddle Wheel in Generating Electricity and Its Validation Using Computational Fluid Dynamics (CFD)”, Presentation at 2012 IEEE Green Technologies Conference (GTC’12), Tulsa, OK, April 19, 2012.
51. “Demonstration of a Cost Effective, Portable and Efficient Particulate Management System”, Presentation at NASA Stennis Space Center, MS, April 9, 2012.
52. “CFD Simulation of Phase Particle Entrapment”, Presentation at ASME 2011 International Mechanical Engineering Congress & Exposition, Denver, CO, November 17, 2011.
53. “Thin-Walled Parts Structural Performance during Static, Modal, and Dynamic Analysis”, Presentation at ASME 2011 International Mechanical Engineering Congress & Exposition, Denver, CO, November 15, 2011.
54. “Computer Modeling and Simulation in Engineering Design and Analysis”, Invited Talk at The Center for Advanced Computer Studies Colloquium, University of Louisiana at Lafayette, Lafayette, LA, November 11, 2011.
55. “Application of He’s Variational Iteration Method to Solve Nonlinear Differential Difference Equations”, Presentation at 2011 Hawaii University International Conferences (HUIC) on Mathematics & Engineering Conference, Honolulu, HI, June 15, 2011.
56. “Solving Volterra Integral Equation of The Second Kind by Applying Legendre Polynomials”, Presentation at 2011 Hawaii University International Conferences (HUIC) on Mathematics & Engineering Conference, Honolulu, HI, June 13, 2011.
57. “A Revitalized Steam Lab in UL Lafayette”, Presentation at 2011 Industrial Energy Technology Conference (IETC 2011), New Orleans, LA, May 18, 2011.
58. “Application of Computational Techniques in Structural Impact and Crashworthiness Analysis”, Invited Talk at Department of Mechanical Engineering, Louisiana State University, Baton Rouge, LA, February 18, 2011.
59. “Crushing Behavior of Thin-Walled Beams”, Presentation at MCHE Seminar, University of Louisiana at Lafayette, Lafayette, LA, December 2, 2008.
60. “A Review of My Recent Research, Teaching, and Projects”, Presentation at MEIE Seminar, Texas A&M University – Kingsville, Kingsville, TX, November 3, 2008.

61. “Bending and Modeling of Channel Section Beam”, Presentation at 2008 Symposium on Mechanics of Slender Structures, University of Maryland Baltimore County, Baltimore County, MD, July 24, 2008.
62. “Parametric Study on Axial Crushing of Thin-Walled Beams with Box Section”, Presentation at 2008 Symposium on Mechanics of Slender Structures, University of Maryland Baltimore County, Baltimore County, MD, July 24, 2008.
63. “Crushing Behaviors of Thin-Walled Members, Modeling and Design”, Presentation at ME Seminar, Mississippi State University, Starkville, MS, January 25, 2008.
64. “Impact Experimental Analysis and Computer Simulation Using ANSYS”, Presentation at 2006 International ANSYS Conference, Pittsburgh, PA, May 2 – 4, 2006.
65. “Development of Simplified Models for Crashworthiness Analysis”, Presentation at ME Seminar, University of Louisville, Louisville, KY, January 24, 2006.
66. “Comparisons between Detailed and Simplified Models for Thin-Walled Beams Structures”, Presentation at 2005 Huntsville Simulation Conference, Huntsville, AL, October 25 – 28, 2005.

POSTERS AND ABSTRACTS

1. Perkins, R. A., Yang, W.-H., **Liu, Yucheng**, Chen, L., and Yenusah, C., “A Finite Element Analysis to the Effect of Porosity on the Plasticity and Damage Behavior of Mg Az31 and Al 6061 T651 Alloys”, ASME 2019 International Mechanical Engineering Congress & Exposition, Salt Lake City, UT, USA, November 10, 2019.
2. Yenusah, C., **Liu, Yucheng**, Ji, Y., Yang, W.-H., Horstemeyer, M. F., and Chen, L., “Investigation of Precipitation of γ ” in Inconel 625 at Non-Equilibrium Thermal Conditions during Additive Manufacturing”, NSF Mechanics of Materials and Structures (MOMS) Grantees’ Meeting, Washington University in St. Louis, St. Louis, MO, October 13, 2019.
3. Yang, W.-H., **Liu, Yucheng**, He, L., Yang, T.-N., Wang, Z., Song, X., Yenusah, C., and Chen, L., “Microstructural Effects on the Effective Piezoelectric Responses of Additively Manufactured Triply Periodic Co-Continuous Piezocomposite”, NSF Mechanics of Materials and Structures (MOMS) Grantees’ Meeting, Washington University in St. Louis, St. Louis, MO, October 13, 2019.
4. He, G. and **Liu, Yucheng**, “Predicting Flow Stress of Mechanically Milled Aluminum through Artificial Neural Network”, Institute for Mathematics and Its Applications (IMA) Hot Topics Workshop, University of Minnesota, Minneapolis, MN, March 6 – 8, 2018.
5. He, G., **Liu, Yucheng**, Bammann, D.J., Francis, D. K., Chandler, M. Q., and Horstemeyer, M. F., “A Multiphase Internal State Variable Model with Rate Equations for Predicting Elastothermoviscoplasticity and Damage of Fiber Reinforced Polymer Composites”, Mathematical Modeling of 2D Materials Workshop, University of Minnesota, Minneapolis, MN, May 16 – 19, 2017.
6. Honegger, J. and **Liu, Yucheng**, “Role of Computer Simulation in Exploring Oil and Gas in the Arctic”, IMECE2013-66929, 2013 ASME International Undergraduate Research and Design Exposition, San Diego, CA, USA, November 13 – 21, 2013.
7. Baheri, A. K., **Liu, Yucheng** and Hedayati, M., “Study on Tube Hydroforming Process using

- Finite Element Analysis and Experimental Validation”, 2013 ASEE Gulf Southwest Annual Regional Conference, University of Texas at Arlington, Arlington, TX, USA, March 21 – 23, 2013.
8. Chand, M. and **Liu, Yucheng**, “Development of a Numerical Algorithm for Effectively Modeling and Analyzing Aerospace Systems”, 2012 LaSPACE Council Meeting, Shreveport, LA, October 5 – 6, 2012.
 9. Honegger, J. and **Liu, Yucheng**, “Expedient Wind Energy Potential in Louisiana”, 2012 IEEE Green Technologies Conference (GTC’12), Tulsa, OK, April 19 – 20, 2012.
 10. Wang, Q.-K. and **Liu, Yucheng**, “Assessing Ultimate Limit Strength of Stiffened Plates through ANSYS Nonlinear Simulation”, 2012 ANSYS Simulation Symposium, Dallas, TX, February 7, 2012.
 11. Wang, Q.-K. and **Liu, Yucheng**, “A Semi-Analytical Algorithm of Using ANSYS for Pre- and Post-buckling Analysis of Stiffened Plates”, 2012 ANSYS Simulation Symposium, Dallas, TX, February 7, 2012.
 12. **Liu, Yucheng**, “Research and Education Goals on Computer Modeling and Simulation”, 2011 CAREER Award Regional Forum, Louisiana State University, Baton Rouge, LA, November 8 – 9, 2011.
 13. Peymani, Y. F., **Liu, Yucheng**, Hayatdavoudi, A. and Ghanbari, S. A., “CFD Simulation of Phase Particulate Entrapment”, 2011 ANSYS Regional Conference, Houston, TX, August 31 – September 1, 2011.
 14. Wang, Q.-K. and **Liu, Yucheng**, “Using of ANSYS for the Modeling and Simulation of Stiffened Plates”, 2011 ANSYS Regional Conference, Houston, TX, August 31 – September 1, 2011.

PROJECTS

Externally Funded Projects (Total Amount: \$9.4M)

1. “Development of A Phase Field Model to Simulate Microstructural Evolution in Metal Foaming Process”, Mississippi Space Grant Consortium (MSSGC), 08/03/2020 – 07/30/2021, \$54,000 (External Grant \$36,000 + Institutional Match \$18,000), PI.
2. “Surrogate Model Based Design Optimization of Portable Polymer Matrix Fiber Reinforced Composite Structure for Ballistic Impact and Blast Protection”, Combat Capabilities Development Command/Department of Defense, 01/22/2020 – 01/06/2022, \$404,800, PI.
3. “Developing A Software Tool for Modeling Vehicular Vibration-Related Human Fatigue”, US Army Engineer Research and Development Center, 10/01/2019 – 09/30/2021, \$349,236, Award No. W912HZ19C0036, Co-PI.
4. “Supplement Request for Travel Funding for G00002928 (CMMI 1662854)”, National Science Foundation, 10/01/2019 – 10/31/2019, \$7,150, PI.
5. “Advanced Modeling and Simulation of Multi-Physics Material Response in Geo-Environments: Multiscale Modeling of Cementitious Materials”, US Army Engineer Research and Development Center, 09/22/2017 – 09/22/2020, \$496,053, Co-PI.

6. “High Mobility Multipurpose Wheeled Vehicle (HMMWV) Light-Weighting Project”, AM General LLC, 03/12/2019 – 12/30/2020, \$1,747,000, Co-PI.
7. “Ground Collision Severity Studies”, Federal Aviation Administration (FAA), 08/01/2017 – 01/31/2019, \$536,486 (External Grant \$268,243 + Institutional Match \$268,243), Co-PI.
8. “Airborne Collision Severity Evaluation”, Federal Aviation Administration (FAA), 07/01/2018 – 09/30/2020, \$561,970 (External Grant \$280,985 + Institutional Match \$280,985), Co-PI.
9. “I-Corps: Customer Discovery for A Novel Performance-Enhancing Foot Orthoses”, National Science Foundation, 04/01/2018 – 09/30/2018, \$50,000, Award No. IIP 1824666, PI.
10. “REU Supplement for G00002928 (CMMI 1662854)”, National Science Foundation, 01/16/2018 – 01/15/2019, \$8,000, PI.
11. “Modeling and Simulation of Multi-Physics Material Response in Geo-Environments”, Department of Defense/U.S. Army Tank-Automotive and Armaments Command, 09/30/2016 – 08/31/2018, \$599,372, Co-PI.
12. “Theoretical Understanding of Porosity-Induced Mechanisms during Solidification of Cast Alloys and Their Influence on Process-Structure-Property-Correlations”, National Science Foundation, 08/01/2017 – 07/31/2020, \$386,689, Award No. CMMI 1662854, PI.
13. “Development of A Multiphase Computational Framework for Understanding and Predicting Plasticity and Damage Mechanisms Governing High Strain Rate Performance of Composite Structures”, Mississippi Space Grant Consortium (MSSGC), 08/31/2017 – 08/31/2018, \$64,988 (External Grant \$32,494 + Institutional Match \$32,494), PI.
14. “Tractor Collision Avoidance Prototype and GPS-Augmented Brassboard”, Industrial Sponsor, 05/01/2017 – 04/30/2018, \$709,826, Co-PI.
15. “Improving the Course *Introduction to Vibrations and Controls* by Replacing Current Textbook with Open Course Materials from MIT OpenCourseWare”, University of Mississippi and William and Flora Hewlett Foundation, 01/01/2017 – 07/31/2017, \$4,000, PI.
16. “Tug Data Acquisition”, Industrial Sponsor, 09/17/2015 – 04/30/2016, \$224,474, Co-PI.
17. “Tug – Plane Collision Avoidance/Automated Approach to Aircrafts/Inputs”, Industrial Sponsor, 08/26/2015 – 10/31/2016, \$385,548, Contract No. 15-0049-011, Co-PI.
18. “Recruiting Superior Ph.D. Students in Systems Engineering”, Louisiana Board of Regents, 08/01/2015 – 07/31/2019, \$240,000, Co-PI.
19. “Microstructure-Property Relationships in Aluminum Foam Sandwich Panels during Impact and Perforation”, Louisiana Space Consortium (LaSPACE), 02/01/2014 – 01/31/2015, \$67,844 (External Grant \$33,922 + Institutional Match \$33,922), Contract No. 86301, PI.
20. “Study of Impact Properties and Mechanisms of PP/CNT Nanocomposites through Multiscale Modeling and Simulation”, National Science Foundation and Louisiana Board of Regents, 01/01/2014 – 12/31/2014, \$10,000, Contract No. LEQSF-EPS(2014)-PFUND-384, PI.
21. “Field Investigation of the Wave Suppressor Sediment Collection (WSSC) System”, National Science Foundation and Louisiana Board of Regents, 01/01/2014 – 12/31/2014, \$44,706, Contract No. LEQSF-EPS(2014)-OPT-IN-36, Co-PI.

22. “Computational Investigation of Mechanical Behavior and Plasticity Mechanisms of CFRP Composite Panels during Impact and Perforation”, NASA EPSCoR Research Award Program (RAP), 09/01/2013 – 08/31/2014, \$68,023 (External Grant \$34,915 + Institutional Match \$33,108), Contract No. LEQSF-EPS(2013)-RAP-04, PI.
23. “Build a Scale Model of the Hydroelectricity Barge and Evaluate Its Electric Generation Ability through Experimental Validation and Computer Simulation”, National Science Foundation and Louisiana Board of Regents, 01/01/2013 – 12/31/2013, \$20,000, Contract No. LEQSF-EPS(2013)-OPT-IN-21, PI.
24. “Preliminary Evaluation of ANSYS Fluent in Modeling and Solving Environmental Problems”, Enviro-Tech Systems, L.L.C., 06/01/2012 – 07/31/2012, \$1,500, PI.
25. “Modeling and Simulation of Cyclic Impact of Iceberg on Platforms in the Arctic”, National Science Foundation and Louisiana Board of Regents, 09/01/2012 – 06/30/2013, \$4,500, Contract No. LEQSF-EPS(2012)-SURE-69, PI.
26. “Investigation of Lateral Impact Behavior of Pressurized Pipelines and Influence of Internal Pressure”, Louisiana Board of Regents, 06/01/2012 – 06/30/2015, \$280,047 (External Grant \$152,290 + Institutional Match \$127,757), Contract No. LEQSF(2012-15)-RD-A-28, PI.
27. “Development of Cross-Sectional Warping Functions for Modeling Thin-Walled Beam’s Buckling during Dynamic Analysis”, National Science Foundation and Louisiana Board of Regents, 03/01/2012 – 02/28/2013, \$10,000, Contract No. LEQSF-EPS(2012)-PFUND-297, PI.
28. “UL Ocean Energy and Technology Research Development – Phase I”, Chevron Corporation, 10/01/2012 – 04/30/2013, \$23,595, PI.
29. “Enhance Modeling and Simulation of Aerospace Systems by Developing an Efficient Algorithm for Solving Differential Equations”, Louisiana Space Consortium (LaSPACE), 01/01/2012 – 12/31/2012, \$60,831 (External Grant \$35,817 + Institutional Match \$26,287), Contract No. 63095, PI.
30. “Student Participation in 4th IEEE Region Annual Green Technologies Conference”, Advanced Research Projects Agency – Energy (ARPA-E), 04/19/2012 – 04/22/2012, \$6,890, PI.
31. “Louisiana State Save Energy Now – Phase II”, US Department of Energy (DoE), 10/01/2011 – 09/30/2012, \$327,758 (External Grant \$178,747 + Institutional Match \$149,011), DNR No. 2025-12-01, Co-PI.
32. “Development of a Cost Effective, Portable Particulate Control System to Safely Process Accumulated Particulate Matter”, NASA EPSCoR program and Louisiana Board of Regents, 07/01/2011 – 06/30/2012, \$61,025 (External Grant \$30,000 + Institutional Match \$31,025), Contract No. NASA(2011)-DART-49, PI.
33. “Travel Application to Visit Dr. Agui at NASA Research Center”, NASA EPSCoR program and Louisiana Board of Regents, 07/25/2011 – 07/27/2011, \$1,270, PI.
34. “Development of Prototype for Particulate Matter Management System to Promote Safe Removal and Disposal of Accumulated Particles”, National Science Foundation and Louisiana Board of Regents, 07/01/2011 – 06/30/2012, \$19,982, Contract No. LEQSF-EPS(2011)-OPT-IN-08, PI.

35. “A Technical Review of the Application Potential of a Hydropower Electricity Barge”, United International Corporation, 04/15/2011 – 08/15/2011, \$10,000, PI.
36. “Training in Modeling and Simulation of Nano-Indentation at OSU Lab”, National Science Foundation and Louisiana Board of Regents, 02/13/2011 – 02/27/2011, \$3,396 (External Grant \$2,000 + Institutional Match \$1,396), Contract No. NSF (2011)-LINK-52, PI.
37. “Pilot Solar Thermal Power Plant Installation”, Empower Louisiana Renewable Energy Grant Program, Louisiana Department of Natural Resources (DNR) and CLECO, 07/01/2010 – 04/30/2012, \$1,210,000 (DNR \$565,000 + CLECO \$645,000), Co-PI.
38. “Development of a Computationally Efficient Analytical Method for Design and Analysis of Stiffened Plates”, Louisiana Space Consortium (LaSPACE), 10/15/2010 – 10/14/2011, \$59,680 (External Grant \$29,984 + Institutional Match \$29,696), Contract No. 51735, PI.
39. “Computer Design and Simulation of Liquid and Foam Trap for Particulate Matter Management”, Louisiana Space Consortium (LaSPACE), 09/01/2010 – 05/31/2011, \$41,024 (External Grant \$20,235 + Institutional Match \$20,789), Contract No. 50137, PI.
40. “Louisiana State Save Energy Now”, US Department of Energy (DoE), 10/01/2009 – 02/28/2011, \$300,869, Co-PI.
41. “LaSPACE Minority Research Scholarship”, Louisiana Space Consortium (LaSPACE), 06/01/2010 – 02/28/2011, \$5,000, Contract No. 46982, PI.

Internally Funded Projects (Total Amount: \$72.6K)

1. “Implementation of MATLAB and Simulink into Vibrations and Controls Class”, Teaching Improvement and Innovation Small Grants, Center for Teaching and Learning, Mississippi State University, 8/15/2019 – 5/15/2020, \$1,500, PI.
2. “Application of Graduate Recruitment Assistance Grants to Enhance Graduate Student Recruitment and to Increase the Diversity of the Student Body in Department of Mechanical Engineering”, Graduate School, Mississippi State University, 11/1/2018 – 9/15/2019, \$25,000, Co-PI.
3. “Application of Graduate Recruitment Assistance Grants to Enhance the Graduate Program in the Department of Mechanical Engineering”, Graduate School, Mississippi State University, 11/1/2017 – 9/7/2018, \$30,000, Co-PI.
4. “Novel Foot Orthotics Design Team”, NSF I-Corps Site at MSU, 08/16/2017 – 12/31/2017, \$3,000, PI.
5. “Improve Teaching and Learning in Vibrations and Controls Class by Addition of Lab Experiences”, Otilie Schillig Special Teaching Project, Center for Teaching and Learning, Mississippi State University, 05/01/2017 – 05/01/2018, \$2,500, PI.
6. “Innovative Foot Orthotics in the Military – Impact of Material and Human Factors”, Cross-College Research Grant, Office of Research and Economic Development, Mississippi State University, 01/01/2017 – 12/31/2018, \$4,000, Co-PI.
7. “Modeling and Simulation of Mild Steel’s Moderate Velocity Impact Behavior at Multi-Length Scales”, UL Lafayette Summer Research Project, 05/15/2012 – 08/15/2012, \$6,600, PI.

Other Projects

- 2020-2022 Senior Advisor, “Design and Optimization of a Deployment Structure for a Modular Protection System”, US Army Combat Capabilities Development Command.
- 2017-2020 Senior Advisor, “Transitioning Material Systems from Laboratory to Fabrication”, Army Research Laboratory.
- 2007-2008 Post-Doctor, “Development of Software Tools Supporting Structural Assessment of Wheeled Tactical Vehicles: Phase 3 – CMTS Reliability and Safety Module”, Department of Defense/U.S. Army Tank-Automotive and Armaments Command.
- 2007-2008 Post-Doctor, “Development of Software Tools Supporting Structural Assessment of Wheeled Tactical Vehicles: Phase 2 – CMTS Functionality Enhancements: Closures, Armor, and Nonstructural Components”, Department of Defense/U.S. Army Tank-Automotive and Armaments Command.
- 2005-2007 Post-Doctor, “Development of Software Tools Supporting Structural Assessment of Wheeled Tactical Vehicles”, Department of Defense/U.S. Army Tank-Automotive and Armaments Command.
- 2004-2005 Research Assistant, “Development of Software Tools Supporting Structural Assessment of Wheeled Tactical Vehicles”, Department of Defense/U.S. Army Tank-Automotive and Armaments Command.
- 2000-2002 Research Assistant, “Improved Design Architectures for Light Platforms – Phase III”, Ford Motor Company, US Army.
- 1998-2000 Product Engineer, “Shanghai General Motor (SGM) Automotive Instrumental Panel Design Project”, Shanghai General Motor Company.

OTHER RESEARCH HIGHLIGHTS

- Received a Prototype Grant of \$2000 from the Thad Cochran Endowment for Entrepreneurship, Mississippi State University, 2018.
- Research featured in Louisiana EPSCoR Newsletters, 10(1), 2014.

TEACHING**TEACHING INTERESTS**

- Computer aided design and engineering
- Finite element analysis
- Kinematics and dynamics
- Mechanics of materials
- Continuum mechanics
- Mechanical and advanced machine design
- Optimum design

- Engineering mathematics
- Thermodynamics

COURSES TAUGHT (TOTAL: 18 courses taught at 3 universities)

<i>Start from</i>	<i>Course Name</i>	<i>Times</i>
Mississippi State University		
Summer 2020	ME 8990 – Phase Field Theory (3hr)	1
Fall 2018	GE 3011 – Engineering Entrepreneurship Seminar (1hr)	5
Spring 2017	ME 4643 – Introduction to Vibrations and Controls (3hrs)	8
Spring 2016	ME 7000 – Directed Individual Study (3hrs)	14
Fall 2014	ME 4443 – Mechanical Systems Design (3hrs)	6
University of Louisiana at Lafayette		
Summer 2013	ENGR 313 – Dynamics (3hrs)	1
Summer 2012	ENGR 597 – Independent Study (3hrs)	1
Fall 2011	ENGR 513 – Engineering Mathematics (3hrs)	3
Spring 2011	ENGR 597 – Special Topics (3hrs)	1
Spring 2011	MCHE 470 – Special Topics (3hrs)	1
Spring 2011	MCHE 578 – Special Topics (3hrs)	1
Fall 2010	MCHE 478 – Finite Element Analysis (3hrs)	7
Spring 2009	MCHE 301 – Engineering Analysis (3hrs)	5
Spring 2009	MCHE 363 – Engineering Design (3hrs)	8
University of Louisville		
Fall 2007	ME 252 – Thermodynamics I (3hrs)	1
Fall 2007	ME 280 – Structured Programming (3hrs)	1
Summer 2007	ME 310 – Thermodynamics II (3hrs)	1
Fall 2006	ME 606 – Continuum Mechanics (3hrs)	1

COURSE AND CURRICULUM DEVELOPED

- Introduced and taught “Phase-Field Theory” (ME 8990), Mississippi State University, 2020.
- Introduced and taught “Continuum Mechanics” (MCHE 562), University of Louisiana at Lafayette, 2012.
- Renovated and integrated Steam Laboratory into Mechanical Engineering Curriculum, University of Louisiana at Lafayette, 2011.

INVITED LECTURES

- Taught FE Exam review course at University of Louisiana at Lafayette since 2013.
- “Graduate Studies Orientation and Option”, MCHE 490 Senior Seminar, University of Louisiana at Lafayette, 2012 – 2014

VISITING SCHOLARS MENTORED

1. Dr. Hao Yu, Associate Professor, College of Mechanical and Electric Engineering, Changchun University of Science and Technology, Changchun, Jilin, P.R. China, 2016-2017.
2. Dr. Qi Gu, Associate Professor, School of Mechanical Engineering, Yancheng Institute of Industry Technology, Yancheng, Jiangsu, P.R. China, 2016-2017.
3. Dr. Xia Wang, Professor, Department of Applied Chemistry, Southwest Petroleum University, Chengdu, Sichuan, P.R. China, 2014-2015.
4. Dr. Niya Li, Associate Professor, College of Computer Science and Technology, Jilin University, Changchun, Jilin, P. R. China, 2013-2014.
5. Dr. Amit Setia, Assistant Professor, Department of Mathematics, Birla Institute of Technology & Science, Pilani – K. K. Birla Goa Campus, Goa, India, 2013-2014.

GRADUATE STUDENTS SUPERVISED

Ph.D. Students Advised

1. Mounia Malki, Ph.D. of Mechanical Engineering, Mississippi State University, “A Multiphysics Internal State Variable (ISV) Magneto-Thermo-Plasticity-Damage Model”, February 2020.
2. Bradley Huddleston, Ph.D. of Mechanical Engineering, Mississippi State University, “A Multiscale Continuum Fragmentation Model Motivated by Lower Length Scale Simulations”, December 2019.
3. Nikolay Dimitrov, Ph.D. of Mechanical Engineering, Mississippi State University, “Internal State Variable Modeling of Electroplastic Effects in Metals”, December 2018.
4. Ge He, Ph.D. of Mechanical Engineering, Mississippi State University, “A Combined Viscoelasticity-Viscoplasticity-Anisotropic Damage Model for Fiber Reinforced Polymer Composites”, December 2018.
5. Yangqing Dou, Ph.D. of Mechanical Engineering, Mississippi State University, “A Multiscale Study of a Nickel Penetrator Striking A Copper Plate under Very High Strain Rates”, December 2018.

M.S. Students Advised

1. Hatim Raji, M.Sc. of Mechanical Engineering, Mississippi State University, “PSPP Map of Vitreloy”, November 2020.
2. Mouad Benkirane, M.Sc. of Mechanical Engineering, Mississippi State University, “Crystal Plasticity of Steel: α Phase (BCC) Surrounded by γ Phase (FCC) at Grain Boundaries – Impact on Properties”, November 2020.
3. Udayan Manikandan, M.Sc. of Mechanical Engineering, Mississippi State University, “Sealing Test Analysis of Rubber Seat in a Knife Gate Valve FEA”, November 2020.
4. Nicolas Geeslin, M.Sc. of Mechanical Engineering, Mississippi State University, “Overview of Work Completed and Current Status of Ecocar: Mobility Challenge”, March 2020.
5. Madelyn Davis, M.Sc. of Mechanical Engineering, Mississippi State University, “Development and Comparison of 3D Printed Mount Plate vs. G10 Fiberglass Mount Plate for

- UAV Integration of Multiple Sensors”, March 2020.
6. Me'Lanae Garrett, M.Sc. of Mechanical Engineering, Mississippi State University, “Stereology of the North American Paddlefish (*Polyodon Spathula*)”, March 2020.
 7. Matthew Bilson, M.Sc. of Mechanical Engineering, Mississippi State University, “Analysis and Design of a Custom Vehicle Suspension and Testing of Additive Manufacturing Infill Design”, October 2019.
 8. Michelle Truong, M.Sc. of Mechanical Engineering, Mississippi State University, “Literature Review of Additive Manufacturing”, September 2019.
 9. Cameron Boswell, M.Sc. of Mechanical Engineering, Mississippi State University, “Becoming a Mechanical Engineer through the Use of PSPP Creation and Finite Element Simulation”, May 2019.
 10. Tyler Stranburg, M.Sc. of Mechanical Engineering, Mississippi State University, “Assessment of Nitinol-based Arch Wedge Supports through Finite Element Analysis”, October 2017.
 11. Evan S. Handler, M.Sc. of Mechanical Engineering, Mississippi State University, “Characterization and Possible Thermal Applications of Additively-Manufactured Inconel 718”, March 2017.
 12. Collin Davenport, M.Sc. of Mechanical Engineering, Mississippi State University, “Dynamic Modeling Framework to Predict Instantaneous Status of a Tractor-Dolly System”, March 2017.
 13. Andrew M. LeClair, M.Sc. of Mechanical Engineering, Mississippi State University, “Tug Data Acquisition and Autonomy Refitting Design”, August 2016.
 14. Yangqing Dou, M.Sc. of Mechanical Engineering, Mississippi State University, “Computational Investigation and Parametric Study of Lateral Impact Behavior of Pressurized Pipelines and Influence of Internal Pressure”, May 2016.
 15. Oladapo S. Akinyemi, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Similitude and Computational Fluid Dynamics (CFD) Simulation of the Model of a Hydropower System in Generating Clean Electricity from Water Flow”, May 2015.
 16. Jeremiah Pastor, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Early Development of a Wave Energy Converter with Applications in the Offshore Oil and Gas Industry”, May 2014.
 17. Manoj Chand, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Development of An Efficient Numerical Method for Solving Differential Equations using He's Variational Iteration Technique”, December 2013.
 18. Fengchun Xie, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Design, Prototyping, and Experimental Validation of a Particulate Control System”, July 2013.
 19. Qingkui Wang, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Numerical Study of Strengthening Effects of Stiffeners on Stiffened Plates Subject to Uniaxial and Biaxial Stress”, July 2012.
 20. Gary A. Glass, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Investigation of Thin-Walled Structural Performance through Finite Element Analysis and

Choose the Best Element Size for Analysis Results”, November 2011.

GRADUATE COMMITTEE MEMBERSHIP

1. Oudayl Massat, M.Sc. of Mechanical Engineering, Mississippi State University, “Bumper Reinforcement Analysis”, November 2020.
2. Chaimae Jouhari, M.Sc. of Mechanical Engineering, Mississippi State University, “Strain Rate Dependence of Cork”, November 2020.
3. Narjisse Snoussi, M.Sc. of Mechanical Engineering, Mississippi State University, “Application of Cold Spray Using Natural Materials”, November 2020.
4. Safae Belhaj, M.Sc. of Mechanical Engineering, Mississippi State University, “NASA Dynamic Safety Factor”, November 2020.
5. Fatima Hilali, M.Sc. of Mechanical Engineering, Mississippi State University, “Side Impact Test and Analysis of Tank-Car (Full vs Empty)”, November 2020.
6. Khaoula Chougag, M.Sc. of Mechanical Engineering, Mississippi State University, “Biomechanical Analysis of Human Femur Bone Using FEA”, November 2020.
7. Anas Ben Hammad, M.Sc. of Mechanical Engineering, Mississippi State University, “PDB Fuse Insertion Automation”, November 2020.
8. Yassine El Marnissi, M.Sc. of Mechanical Engineering, Mississippi State University, “Gasoline Direct Injection”, November 2020.
9. Hao Wei Lo, M.Sc. of Mechanical Engineering, Mississippi State University, “Plasma Study on Jet Flame”, March 2019.
10. Alex Smith, M.Sc. of Biological Engineering, Mississippi State University, “Finite Element Analysis of Traumatic Brain Injury due to Small Unmanned Aircraft Systems to the Human Head”, March 2019.
11. Colby Williams, M.Sc. of Mechanical Engineering, Mississippi State University, “Comparison of Polyether Ether Ketone (PEEK) and Ti-6Al-4V PLIF Implants Applied in Human Spine”, October 2018.
12. Michelle Price, M.Sc. of Mechanical Engineering, Mississippi State University, “Design Optimization of A Magnesium Subframe”, July 2018.
13. Kalyan Raj Kota, Ph.D. of Aerospace Engineering, Mississippi State University, “Development and Verification of A Finite Element Model of A Fixed-Wing Unmanned Aerial System for Airborne Collision Severity Evaluation”, June 2018.
14. Wenhua Yang, M.Sc. of Mechanical Engineering, Mississippi State University, “Microstructural Effects on the Effective Piezoelectric Responses of Additively Manufactured Triply Periodic Co-Continuous Piezocomposite”, June 2018.
15. Azizi Turner, M.Sc. of Mechanical Engineering, Mississippi State University, “Eggshell Tailored Polyurethane Foam Composites for Structural Material Design”, March 2018.
16. Pushkaraj Sakhare, M.Sc. of Mechanical Engineering, Mississippi State University, “MSU EcoCAR 3 Vehicle Simulation and Controls Contributions”, March 2018.

17. Robert W. Fuller, Ph.D. of Mechanical Engineering, Mississippi State University, “Fatigue Life and Crack Growth Predictions of Irradiated Stainless Steels”, December 2017.
18. Trevor Smith, M.Sc. of Mechanical Engineering, Mississippi State University, “An ICME Approach to Modeling Plasticity in Copper”, October 2017.
19. Mohammad Ali Bagheri, Ph.D. of Mechanical Engineering, Mississippi State University, “Microstructural Behavior and Multiscale Structure-Property Relations for Cyclic Loading of Metallic Alloys Procured from Additive Manufacturing (Laser Engineered Net Shaping – LENS)”, October 2017.
20. Omar T. Ibrahim, Ph.D. of Mechanical Engineering, Mississippi State University, “Design Configurations and Operating Limitations of An Oscillating Heat Pipe”, June 2017.
21. Thomas McIntyre, M.Sc. of Mechanical Engineering, Mississippi State University, “A Hysteretic Contact Model for the Discrete Element Method”, March 2017.
22. Abiodun A. Babalola, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Energy Assessment in Small and Medium Scale Enterprises”, November 2013.
23. Ninad P. Dhundur, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Modeling and Control of Cable-Riding Robots”, September 2013.
24. Suchethan M. Srinath, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Strain Control and Optimization in Cup Drawing”, May 2013.
25. Oluseun Osho, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Energy Management Planning for the Oil Service Industry”, May 2013.
26. Anjani K. Mishra, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Six Sigma Based Fixture Design and Process Improvement”, May 2013.
27. Edward Evans, M.Sc. of Petroleum Engineering, University of Louisiana at Lafayette, “Prevention and Mitigation of Asphaltene Deposition in an Intermittent CO₂ Flood”, May 2012.
28. Zhao Pan, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Fast Modeling and Performance Analysis of a Concentrated Solar Thermal Power Plant”, May 2012.
29. Kelly L. Guiberteau, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Capturing Wave Energy in the Gulf of Mexico”, May 2012.
30. Yoosef Peymani F., M.Sc. of Petroleum Engineering, University of Louisiana at Lafayette, “Three Phase Simulation and Optimization of Dissolved Air Floatation Folded Flow (DAFFF) System Computationally”, November 2011.
31. Kirkrai Yuvamitra, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Energy Management Planning for Manufacturing Industry”, July 2011.
32. Chunzai Liu, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Mechanical and Thermal Behavior of Vapor Grown Carbon Nanofiber/Low Density Polyethylene Composites”, May 2011.
33. Pengfei Zhang, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Process Development and Characterization of Fiber/Polymer Composites Reinforced with Carbon Nanofibers Using a Spraying Technique and Fabricated by VARTM”, May 2011.

34. Richard J. Jones, Jr, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Validating Annealed SS304 Properties through Various Material Testing Techniques at the Meso and Micro Scales”, May 2011.
35. Sumant S. Kulkarni, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Optimal Design of Fixture Layout in Multi-station Assembly Processes: A Highly Optimized Tolerance Inspired Procedure”, May 2011.
36. Amir Pishahang, M.Sc. of Petroleum Engineering, University of Louisiana at Lafayette, “Two New Correlations for CO₂ and Flue Gas Injection under Miscible Condition”, June 2010.
37. Venkata M. K. Boyapati, M.Sc. of Mechanical Engineering, University of Louisiana at Lafayette, “Simulation Aided Future State Mapping of Make-To-Order Production Shop”, December 2009.

UNDERGRADUATE ADVISING

1. Advisor of The Makers Guild, Mississippi State University, since 2019.
2. Advisor of MSU Formula SAE competition team, Mississippi State University, since 2018.
3. Advisor of MSU Baja SAE competition team, Mississippi State University, since 2018.
4. Mechanical Engineering Advisor of MSU NASA Robotic Mining Competition team, Mississippi State University, 2015 – 2017.
5. Allen Perkins, Undergraduate Student of Mechanical Engineering, Mississippi State University, 2018 – 2019.
6. Nanqiao Wang, Undergraduate Student of Mechanical Engineering, Mississippi State University, 2017 – 2018.
7. Johnathan Dowell, Undergraduate Student of Mechanical Engineering, Mississippi State University, 2016 – 2017.
8. Jasmin D. Honegger, Undergraduate Student of Mechanical Engineering, University of Louisiana at Lafayette, 2011 – 2014.
9. Raul J. Viera, Undergraduate Student of Mechanical Engineering, University of Louisiana at Lafayette, 2010 – 2011.
10. Stefan J. Chu, Undergraduate Student of Mechanical Engineering, University of Louisiana at Lafayette, 2009 – 2011.
11. Rafael M. Alvergue, Jr., Bachelor of Industrial Design, University of Louisiana at Lafayette, “Development of Light Industrial Transport Option”, May 2014.

UNDERGRADUATE FUNDED PROJECTS

1. “Design of Conveyor Roller Cleaner”, ME 4443 Mechanical Systems Design, Fall 2014, \$4,000, Sponsor: PACCAR, Inc.
2. “Cleaning of Gaps in Heavy Duty Diesel Engine Conveying Line”, ME 4443 Mechanical Systems Design, Fall 2014, \$4,000, Sponsor: PACCAR, Inc.

3. “Improved Heat Resistance of Engine Cowlings through The Implementation of Advanced Processes, Materials and Design Improvements”, ME 4443 Mechanical Systems Design, Fall 2014, \$10,000, Sponsor: Airbus Helicopters, Inc.

HIGH SCHOOL STUDENT RESEARCHERS

1. Leah Pettit, Mississippi School for Mathematical and Science, MSMS Research Program, 2017-2018.

EXTERNAL PHD DISSERTATION EXAMINER

1. Muhammad Ayaz, Ph.D. of Mathematics, University of Karachi, Pakistan, “The Development of Mathematical Model in the Applied Sciences with Reference to Environmental Quantification of Coastal Water”, May 2018.
2. Oyoon Abdul Razzaq, Ph.D. of Mathematics, University of Karachi, Pakistan, “Numerical and Analytical Methods for Solving Fuzzy Differential Equations”, January 2017.
3. Nadeem Alam Khan, Ph.D. of Mathematics, University of Karachi, Pakistan, “Analytical Solutions and Numerical Results of Some Nonlinear Oscillators”, September 2015.
4. Ram Ranjan Sahu, Ph.D. of Civil Engineering, Indian Institute of Technology Roorkee, India, “Large Deformations on Metallic Shell Structures”, June 2013.
5. Najeeb Alam Khan, Ph.D. of Mathematics, University of Karachi, Pakistan, “Analytical Study of Linear and Nonlinear Fractional Order Differential Equations”, December 2012.

STUDENT AWARDS AND HONORS

1. Wenhua Yang, 2020 ASME-CIE Hackathon: Identifying, Extracting, Analyzing Value from Large Unstructured Data Sets in Mechanical Engineering, Virtually November 14 – 15, 2020, First Place.
2. Caleb O. Yenusah, Spring 2021 Bagley College of Engineering Bridge Assistantship, Mississippi State University.
3. Ge He, 2019 Graduate Student Researcher Award, Bagley College of Engineering, Mississippi State University.
4. Yangqing Dou, Outstanding Oral Presentation Award, SAE 2018 World Congress & Exhibition, Society of Automotive Engineers.
5. Ge He, Fall 2018 Bagley College of Engineering Bridge Assistantship, Mississippi State University.
6. Yangqing Dou, Spring 2018 Bagley College of Engineering Bridge Assistantship, Mississippi State University.
7. Nanqiao Wang, 2017-2018 Undergraduate Research Award from the Bagley College of Engineering, Mississippi State University.
8. Jasmin D. Honegger, 2017 NSF Graduate Research Fellowship.
9. Jonathan Dowell, 2016-2017 Undergraduate Research Award from the Bagley College of

Engineering, Mississippi State University.

10. Jasmin D. Honegger, “Role of Computer Simulation in Exploring Oil and Gas in the Arctic”, 2013 Engineering and Technology Week – E. R. DesOrmeaux Undergraduate Student Technical Paper Contest, March 2013, University of Louisiana at Lafayette, First Place.
11. Kelly C. Schlabach, President of ASME student chapter (2012-2013), Nominee of the Charles T. Main Student Section Award, nominated by ASME District E in 2013.
12. Yoosef F. Peymani and Arash S. Ghanbari, “CFD Simulation of Phase Particulate Entrapment”, 2011 Engineering and Technology Week – Graduate Student Poster Competition, March 2011, University of Louisiana at Lafayette, Third Place.
13. Stefan J. Chu, “Wind Energy in Louisiana”, 2010 Engineering and Technology Week – E.R. DesOrmeaux Undergraduate Student Technical Paper Contest, March 2010, University of Louisiana at Lafayette, Third Place.