DEEPA KODALI
256-527-5559, kdeepa189@gmail.com

EDUCATION

- **PhD in Mechanical Engineering**, University of Alabama in Huntsville (G.P.A 3.9/4.0) Apr 2019
- **M.Tech in Design For Manufacturing**, JNTU, Hyderabad (88%) Dec 2011
- **B.E in Mechanical Production**, AU, Visakhapatnam (78%) Apr 2006

PROFESSIONAL EXPERIENCE

Postdoctoral Research Fellow, Tuskegee University of Sep 2019 – Present

- Coordinate graduate level courses along with faculty
- Conducting research on polymer nanofibers and biomaterials
- Maintaining laboratories and various equipment
- Supervising graduate and undergraduate students
- Assist in writing grants
- Organizing reports for NSF CREST grant

Graduate Teaching Assistant, University of Alabama in Huntsville 2013, Aug 2017 – Dec 2018

- Assisted students with course work, Home work and assignments for fluid mechanics
- Graded assignments and home works for fluid mechanics
- Handled Mechanics of Materials lab sessions
- Prepared laboratory assignments, examinations and evaluated performances

Graduate Research Assistant, University of Alabama in Huntsville Aug 2014 – Aug2017

- Conducted research on flexible flapping wings
- Achieved analytical models for chordwise and spanwise flexible flapping wings.
- Analyzed physics behind the complex wing kinematics in fluid structure interaction models
- MATLAB, Python, Wolfram Mathematica, CFD, FEM and Applied Mathematics

Design Engineer, Infotech Enterprises Ltd. Jul 2011-Dec 2012

- Conducted Rotor Dynamic Analysis for Gas Turbine Engines and optimized the performance
- Calculated balance correction of masses and locations from measured vibration data
- Predicted amplitudes of synchronous vibration caused by rotor imbalance
- Patran and ARDA

Assistant Professor, VITAE May 2010-Jul 2011

- Carried teaching load with administrative obligations
- Lectured class of 50 undergraduate students for structural mechanics, engineering graphics and CAD/CAE
- Monitored students in labs, prepared laboratory assignments and evaluated performances
- Participated and organized faculty workshops

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Graduate Student Researcher, Composite Product Development Center Jun 2010-Jul 2011

- Worked for months in designing and analyzing the composite conical pressure vessel that is used in the hyper velocity vehicle
- Analyzed by using ANSYS, manufactured and tested for burst pressure
- AutoCAD, ANSYS, Finite Element Analysis, Filament winding, CNC coding, and Stress analysis

Teaching Assistant, VITS Jun 2006-Jul 2009

- Assisted professors in grading
- Monitored students in labs
- Facilitated learning and improved performance by tutoring students individually and in small groups

RESEARCH INTERESTS

Design, development and optimization of flexible flapping wing models, composite materials, 3D printing of polymer nanocomposites, bio-based composites, manufacturing and testing of developed systems, development of high fidelity aeroelastic framework for fluid structure interaction of complex systems, analysis of aeroelastic performance of flexible flapping wings, design of bio inspired micro air vehicles and analysis of bio flight kinematics.

PUBLICATIONS

Book Chapters

- Gaines, A., **Kodali, D**., Jeelani, S., and Rangari, V., "Characterization and Processing of PMMA/SiO2 Nanocomposite Films and Their Applications," In *Coatings*: *Materials, Processes Characterization and Optimization,* Springer Nature, Germany 2021 (ISBN: 978-3-030-62162-9).
- **Kodali, D**., Hembrick-Holloman, V, Jeelani, S., and Rangari, V., " Thermo-mechanical Properties of Forcespun Polycaprolactone Fibers Infused with Fish Scale Based Hydroxyapatite," In *Advanced Composites: Plant and Animal Based Composites*, Verlag Walter De Gruyter, Germany 2021 (ISBN: 978−3−11−069521−2).

Journal Articles

- **Kodali, D**., and Kang, C., "An Analytical Model and Scaling of Chordwise Flexible Flapping Wings in Forward Flight**,**" *Bioinspiration and Biomimetics*, 2016.
- Kang, C., Cranford, J, Sridhar, MK, **Kodali, D,** Landrum, DB and Slegers, N "Experimental Characterization of a Butterfly in Climbing Flight" *AIAA*, 2017.
- **Kodali, D**., Medina. C., Aono, H., and Kang, C., "Effects of Spanwise Flexibility on the Performance of Flapping Flyers in Forward Flight**,**" *Journal of Royal Society Interface*, 2017.
- Uddin, M-J., **Kodali, D**., and Rangari, V., "Effect of Bone Ash Fillers on Mechanical and Thermal Properties of Biobased Epoxy Nanocomposites," *Journal of Applied Polymers*, 2020.
- **Kodali, D**., Uddin, M-J., Moura, E. A. B., and Rangari, V., "Mechanical and Thermal Properties of Modified Georgian and Brazilian Clay Infused Biobased Epoxy Nanocomposites", *Materials Chemistry and Physics*, 2020.
- Umerah, C.O., **Kodali, D**., Head, S., Jeelani, S., and Rangari, V., " Synthesis of Carbon from Waste Coconut Shell and Their Application as Filler in Bioplast Polymer Fibers for 3D Printing," *Composites Part B: Engineering*, 2020.

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- **Kodali, D**., Syed, F., and Rangari, V., "Fabrication and Characterization of Forcespun Polycaprolactone Microfiber Scaffolds," *Materials Research Express*, 2020.
- Storr,B., **Kodali, D**.,Chakrobarty. K., Baker, P.A., Rangari, V., and Catledge, S.A., " Single-Step Synthesis Process for High-Entropy Transition Metal Boride Powders Uisng Microwave Plasma", *Ceramics* 2021.

Conference Proceedings

- **Kodali, D**., and Kang, C., "Analytical Aerodynamic Model of Chordwise Flexible Flapping Wings in Forward Flight**,**" AIAA 2016-1064, 54th AIAA Aerospace Sciences Meeting, San Diego, CA.
- **Kodali, D**., and Kang, C., "An Analytical Aeroelastic Model of Spanwise Flexible Flapping Wings in Forward Flight**,**" AIAA 2017-0331, 55th AIAA Aerospace Sciences Meeting, Grapevine, TX.
- **Kodali, D**., and Rangari, V., "Microstructural Characterization of Bio Based Hydroxyapatite Infused Polycaprolactone Forcespun Fibers," *Microscopy and Microanalysis*, pp 1-3 doi:10.1017/S1431927620015032.
- **Kodali, D**., Hembrick-Holloman,V., Jeelani, S., and Rangari, V., "Characterization of Forcespun Polycaprolactone Fibers Infused with Bio-based Hydroxyapatite for Biomedical applications," Materials Chemistry 2020.
- Radhika, M., Anjaneya Prasad, B., Akella, S., and **Kodali, D**., "Synthesis of Carbon from Tea Powder Waste for Development of Polymer Nanocomposites," *IOP Conference Series: Materials Science and Engineering* 2020.

HONORS AND AWARDS

- **Graduate Dean's List** 2015 - 2019
  Had been named in the Dean's List for five years for securing high GPA in the Graduate Degree program
- **Zonta Amelia Earhart Fellowship** 2016
  Received Zonta Amelia Earhart Fellowship for the year 2016 awarded for 35 aerospace women engineers throughout the world.

COURSEWORK

•Computer Integrated Manufacturing •Elasticity •Applied Mechanics of Solids •Computational Aided Engineering •Graduate Engineering Analysis •Fracture Mechanics •Continuum Mechanics •Aerodynamics •Viscous Fluid Mechanics •Turbulence •Computational Fluid Dynamics

RESOURCE PERSON

- One week International Faculty Development Program on potential Research Areas in Mechanical Engineering at Vignan Institute of Technology and Science June 19, 2020
- One week International Faculty Development Program on Research Challenges in Mechanical Engineering at SVCET, June 22, 2020,
- One Week Training Program on Failure and Damage Mechanics of High Performance Engineering Materials at ANITS, July 17, 2020.

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ORGANIZATIONS

- American Institute of Aeronautics and Astronautics
- Society of Women Engineers
- National Society of leadership and Success
- Sigma Xi society

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