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JEBIESHIA T R

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Profile

- Six years of research experience, having excellent academic record and demonstrated expertise in composite structures, damage analysis, dynamic analysis, FEA and aerospace structures
- Self-starter and passionate to dive into the depths of engineering, to learn and apply new concepts and technologies.
- Strong verbal and written communication skills, detail oriented and self-motivated to achieve realistic goals. Team player, can work independently and in group.

Technical Skills

- Programming languages- MATLAB
- Application Software- ANSYS (APDL), MSC NASTRAN/PATRAN, LATEX/LYX, MS-Office

Research Interests

- Finite Element Analysis
- Aircraft Structures
- Ansys-Matlab coupling
- Aircraft Structural Dynamics
- Composite Structures
- Damage Analysis
- Structural Health Monitoring
- Numerical and Practical Experimentation

Research Profile

PhD (ongoing): Damage Detection of Laminated Composite Structures using Unified Particle Swarm Optimization Technique

- Development of finite element formulation for undamaged and damaged composite structures to estimate the vibration responses
- Construction of an inverse technique based on UPSO for the assessment of damages of various composite structures
- Identification of damage locations and quantifications in composite beam and plate like structures for noisy and noise-free conditions
- Experimental validation of developed algorithm to assess damages for various composite structures
- Comparison of damage assessment problem with different objective functions

Masters Project: Damage Modelling of Composite Structures

- Free vibration characteristics of healthy and damaged laminated composite structures
- Effect of anisotropic damage on angle-ply and cross-ply laminates has been studied
- Anisotropic in nature and was parametrically incorporated into the composite using the concept of reduction in stiffness
- Finite Element formulation has been carried out in Matlab environment to find out the variation or reduction in natural frequency due to damage in the composite beam and plate structures
- Damage Orthogonality on composite structures has been verified.

Bachelors Project: Study of Flow Visualization Techniques with Optical methods

- Theoretical study of various Optical flow visualization techniques
- Detail study of the Teopler-Schlieren system, Shadowgraph technique and Interferometer for the density and its variations in compressible gaseous flow stream

List of Publications in International Journals

1. Damage assessment of composite structures using Particle Swarm Optimization, **Jebieshia T R**, D. K. Maiti and D. Maity, International Journal of Aerospace System Engineering, Vol.2, No.2, pp.24-28 (2015), ISSN 2383-4986.
2. Frequency based Damage Assessment of Composite Members using Unified Particle Swarm Optimization. (under review)

List of Publications in International Conferences

1. Damage Detection of Laminated Composite Shells using Unified Particle Swarm Optimization, **Jebieshia T R**, D. K. Maiti and D. Maity, Seventh International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2017), IIT Kharagpur December 28-30, 2017.
2. Vibration based Damage Assessment of Laminated Composite Structures using UPSO, **Jebieshia TR**, D. K. Maiti and D. Maity, INCCOM-15 (ISAMPE National Conference on Composites), NAL, Bangalore, March 2-3 2017.
3. Frequency and Mode shape based Damage Detection of Composite Structures, **Jebieshia T R**, D. K. Maiti and D. Maity, Asian Joint Symposium on Aerospace Engineering-AJSAE, Jeju Island, Korea, May 18-21, 2016.
4. Vibration Characteristics and Damage Detection of Composite Structures with Anisotropic Damage using Unified Particle Swarm Optimization Technique, **Jebieshia T R**, D. K. Maiti and D. Maity, American Society for Composites 30th Technical Conference – ASC, Michigan State University, USA, September 28-30, 2015.
5. Damage assessment of composite structures using Particle Swarm Optimization, **Jebieshia T R**, D. K. Maiti and D. Maity, The 8th Asian-Pacific Conference on Aerospace Technology and Science - APCATS- Jeju Island, Korea, May 20-23, 2015.
6. 'Free Vibration Characterictics and Damage Assesment of Composite Structures, **Jebieshia T R**, D. K. Maiti and D. Maity, Sixth International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2014), IIT Kharagpur, December 29-31, 2014.
7. Damage Assessment Of Composite Structures From Changes In Natural Frequency Using Unified Particle Swarm Optimization, Bharadwaj Nanda, **Jebieshia T.R**, D. K. Maiti And D. Maity, 5th International Congress on Computational Mechanics and Simulation,- ICCMS, CSIR-SERC, Chennai, December 10-13, 2014.
8. Free Vibration Characteristics of Damaged Composite Structures using FEM, **Jebieshia T R**, Sreehari V. M and D. K. Maiti, 3rd International Conference on Materials for Future – ICMF, Thrissur, Kerala, November 6-8, 2013.
9. Buckling Load Capacity of Composite Plates with and without Internal Flaws using FEM., Sreehari V. M, **Jebieshia T R** and D. K. Maiti, 3rd International Conference on Materials for Future – ICMF, Thrissur, Kerala, November 6-8, 2013.

Internships

- Mechanical Engineering Workshop Training at Rajiv Gandhi Institute of Technology, Kottayam, Kerala, (June 2009 – Aug 2009)
- Laboratory Training at Park Research Centre, Park College of Engineering and Technology, Coimbatore, Tamil Nadu (Feb 2011 – April 2011)
    - Calibration of Test Section of a Sub-sonic wind tunnel
    - Pressure distribution over an airfoil at different angles of attack
    - Bending of Beams

- Characteristics of Centrifugal blower
- Study of Piston and Jet engines in detail

- Experimental study to extract data (Natural frequencies, mode shapes, FRFs etc) from OROS data acquisition system with modal analysis software healthy and damaged composite beams has been carried out at Department of Aerospace Engineering, IIT Kharagpur.

Education

Degree/ Certificate	University/Board	Year of passing	CGPA/%
PhD (Aerospace Structures)	Indian Institute of Technology Kharagpur	May 2018 (expecting)	-
M. Tech (Aerospace Engineering)	Indian Institute of Technology Kharagpur	2013	CGPA 8.66
AMAeSI (B.E-Aeronautical Engineering)	The Aeronautical Society of India	2011	64.9%
Higher Secondary Exam (Class XII)	Govt. Higher Secondary School Neyyattinkara (Kerala State Board)	2006	83%
SSLC Exam (Class X)	Govt. Higher Secondary School Parassala (Kerala State Board)	2004	89.16%

Awards and Honors

- **Best Poster Presentation Award** for Research Scholars' Day, Department of Aerospace Engineering, IIT Kharagpur, 2016- 2017
- Recipient of **MHRD Fellowship** during PhD (2013-present) and M. Tech (2011-2013)
- **Best Paper Award** for 3rd International Conference on Material for Future (ICMF-2013)
- Secured **All India Rank 61** for Aerospace Engineering GATE 2011.
- **All India Rank 1** for Airplane Stability and Control in AMAeSI Examination (June 2010)
- Secured **All India Rank 3** for Aircraft Design in AMAeSI Examination (Dec 2009)
- **All India Rank 1** for Strength of Materials in AMAeSI Examination (Dec 2008)

Roles and Responsibilities held

- **Teaching Assistant** for Finite Element Method for 1st year MTech and PhD students under Prof. D.K. Maiti
- Volunteer for Seventh International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2017), IIT Kharagpur, December 28-30, 2017.
- **Teaching Assistant** for Aerospace Structures for 1st year MTech students under Prof. D.K. Maiti
- **Member of Women Representative Council**, IIT Kharagpur representing the Department of Aerospace Engineering for the Academic year 2017-18.
- **Research Scholars Representative** (2014-15) of the Department of Aerospace Engineering.
- Volunteer for Sixth International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2014), IIT Kharagpur, December 29-31, 2014.
- **Teaching Assistant** for Structures Lab for 3rd year BTech students under Prof. D.K. Maiti
- **Teaching Assistant** for Engineering Mechanics for the 1st year BTech students under Prof. N. Singh and Prof. M.K. Laha.

Professional Membership

- The Aeronautical Society of India (AeSI)
- Institution of Engineers India (IEI)