

VAISHALI

Research Scholar

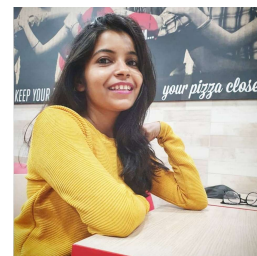
Department of Mechanical Engineering

National Institute of Technology Silchar, Silchar, Assam-788010, India

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Research Profile:

Google Scholar: <https://scholar.google.co.in/citations?user=5aGn3OwAAAAJ&hl=en>

ORCID: <https://orcid.org/0000-0002-3503-0977>

Research gate ID: <https://www.researchgate.net/profile/Vaishali-Vaishali-4>

Web of science ID: [ABB-3698-2021](#)

Citations: 41

h-index: 3

i10-index: 2

"Compassionate, proactive, and results-oriented researcher with 4+ years of experience in research and assisting in laboratory and classes on undergraduate/postgraduate levels. I have five no. of international journals, five no. of book chapters, nine no. of international conferences and one patent. I am an acting reviewer at various reputed international journals and conferences. Seeking to leverage my research experience and empathetic attitude to contribute to research and academic industry."

EDUCATION

- **PhD** in Mechanical Engineering, Department of Mechanical Engineering, National Institute of Technology Silchar, Silchar, Assam. June 2018-Till Date: **9.33/10(CPI-Course Work) (Thesis Submitted)**.
- **Master of Technology (M. Tech)** in Materials & manufacturing technology, National Institute of Technology Silchar, Assam : **9.0/10 (CGPA) (2018)**.
- **Bachelor of Engineering (B.E)** in Mechanical Engineering (ME), Noida institute of engineering & technology, Greater Noida, U.P., India: **75.76% (2014). (1st division honors)**
- **Higher Secondary (HS)**, St. Joseph Inter College, Gorakhpur, U.P. (ISC board): **70% (2010)**.
- **High School Leaving Certificate (HSLC)**, Carmel School, Gorakhpur, U.P. (ICSE board): **82.01% (2008)**.

TECHING EXPERIENCE

Have an experience of 4+ years in teaching, research and assisting in laboratory classes on undergraduate/postgraduate levels at NIT Silchar, Assam while performing TA duties (8 hours per week).

PROJECTS AND INTERNSHIP

- **National Institute of Technology Silchar, Assam, India** **June, 2018 – Till date**
PhD Thesis Title: **"Dynamic quantification of Hybrid FG-sandwich structures"**.
- **National Institute of Technology Silchar, Assam, India** **June, 2017 – March, 2018**
M.Tech Thesis Title: **"Stochastic natural frequency analysis of sandwich plates"**.
- **Noida Institute of Engineering & Technology, Greater Noida, India** **August, 2013 – June, 2014**
B.Tech Thesis Title: **"Friction stir welding of similar materials"**.
- **Summer Training: Workshop of North Eastern Railway, Gorakhpur** **2012–2013**

Area of Interest

- Uncertainty quantification
- Hybrid, composites, FGM, sandwich materials
- Machine learning
- Surrogate modeling
- Stochastic analysis
- Dynamic analysis

Communicated:

1. **Vaishali**, R. Kumar and S. Dey, "Sensitivity analysis of random frequency responses of hybrid multi-functionally graded sandwich shells" Proceedings of the Institute of Mechanical Engineers Part L, (Communicated) (**Impact factor- 2.311**)
2. **Vaishali**, R. Kumar and S. Dey, "Probing uncertainty in low-velocity impact behavior of hybrid FG-sandwich structures-Plates & shells" Scientia Iranica (Under Review) (**Impact factor- 1.435**)
3. **Vaishali**, T. Mukhopadhyay and S. Dey, "Effect of gradation on the stochastic dynamic behavior of FG-CNTR shells". (Communicated)
4. **Vaishali**, T. Mukhopadhyay and S. Dey, "Modified FSDT theory in replacement to HOZT theory for uncertainty quantification in laminated composites and sandwich plate structures" (Communicated)
5. S. Kushari, K. K. Gupta, **Vaishali** and S. Dey, "Probabilistic first ply failure analysis of laminated composite plates A RS- HDMR approach" Brazilian Society of Mechanical Sciences and Engineering. (Under Review) (**Impact factor- 2.22**)
6. **Vaishali**, P. K. Karsh, S. Kushari, and S. Dey, "Stochastic free vibration and impact loading on a functionally graded plate – a support vector machine learning model approach" Mechanics of composite materials. (Communicated) (**Impact factor- 1.333**)
7. **Vaishali**, P. K. Karsh, S. Kushari, and S. Dey, "Radial basis function-based uncertain low-velocity impact behavior analysis of functionally graded plates". Machine Learning applied to composites/engineering materials. (Springer Nature Publication- book chapter)

International Journals:

8. **Vaishali**, T. Mukhopadhyay, R. R. Kumar and S. Dey. "Probing the multi-physical probabilistic dynamics of a novel functional class of hybrid composite shells." Composite Structures, 262, p.113294, 2021. DOI: [10.1016/j.compstruct.2020.113294](https://doi.org/10.1016/j.compstruct.2020.113294) (**Impact factor- 5.138**)
9. **Vaishali**, T. Mukhopadhyay, P. K. Karsh, B. Basu and S. Dey. "Machine learning based stochastic dynamic analysis of uniaxially graded shells." Composite Structures, 237, p.111870, 2020. DOI: [10.1016/j.compstruct.2020.111870](https://doi.org/10.1016/j.compstruct.2020.111870) (**Impact factor- 5.138**)
10. R. R. Kumar, P. K. Karsh, **Vaishali**, K. M. Pandey and S. Dey. "Stochastic natural frequency analysis of skewed sandwich plates." Engineering Computations, (In Press), 2019. DOI: [10.1108/EC-01-2019-0034](https://doi.org/10.1108/EC-01-2019-0034) (**Impact factor- 1.322**)
11. **Vaishali**, P. K. Karsh and S. Dey. "Comparison of multiple surrogate models probing uncertainty in natural frequency of hybrid functionally graded sandwich cylindrical shells." Journal of Mechanics of Materials & Structure. (Accepted) (**Impact factor- 1.094**)
12. P. K. Karsh, B. S. Thakkar, R. R. Kumar, **Vaishali** and S. Dey. "Probabilistic oblique impact analysis of functionally graded plates- A Multivariate Adaptive Regression Splines Approach." European Journal of Computational Mechanics, 2021. DOI: <https://doi.org/10.13052/ejcm2642-2085.30234>

Book Chapters:

13. **Vaishali**, S. Dey, P. K. Karsh "Effect of Thickness on Probabilistic Free Vibration of Hybrid FG-Sandwich Cylindrical Shells." In: Maity D. et al. (eds) Recent Advances in Computational and Experimental Mechanics, Vol—I. Lecture Notes in Mechanical Engineering. Springer, Singapore, 2022. DOI: https://doi.org/10.1007/978-981-16-6738-1_42
14. **Vaishali**, R. R. Kumar and S. Dey. "Dynamic Sensitivity Analysis of Random Impact Behaviour of Hybrid Cylindrical Shells." In: Sahoo S. (eds) Recent Advances in Layered Materials and Structures. Materials Horizons: From Nature to Nanomaterials. Springer, Singapore, 2021. DOI: https://doi.org/10.1007/978-981-33-4550-8_11
15. **Vaishali** and S. Dey. "Temperature-Dependent Random Frequency of Functionally Graded Spherical shells—A PCE" Approach. In: Pandey K., Misra R., Patowari P., Dixit U. (eds) Recent Advances in Mechanical Engineering. Lecture Notes in Mechanical Engineering. Springer, Singapore, 2021. DOI: https://doi.org/10.1007/978-981-15-7711-6_51
16. **Vaishali** and S. Dey. "Support Vector Model Based Thermal Uncertainty on Stochastic Natural Frequency of Functionally Graded Cylindrical Shells." In: Saha S.K., Mukherjee M. (eds) Recent Advances in Computational Mechanics and Simulations. Lecture Notes in Civil Engineering, vol 103. Springer, Singapore, 2021. DOI: https://doi.org/10.1007/978-981-15-8138-0_50
17. R. R. Kumar, **Vaishali**, K. M. Pandey and S. Dey. "Effect of Skewness on Random Frequency Responses of Sandwich Plates." In: Singh B., Roy A., Maiti D. (eds) Recent Advances in Theoretical, Applied, Computational and Experimental Mechanics. Lecture Notes in Mechanical Engineering. Springer, Singapore, 2020. DOI: https://doi.org/10.1007/978-981-15-1189-9_2
18. **Vaishali**, and S. Dey "Outcome of relative thickness on free vibration analysis of hybrid hyperbolic paraboloid shells." Recent Advances in Mechanical Engineering/ International Conference On Recent Advancements in Mechanical Engineering (ICRAME 2021). (Accepted)

International Conferences:

19. **Vaishali** and S. Dey. Effect of thickness on Stochastic Natural Frequency of Functionally Graded Spherical Shells, Proceedings of 4th Indian Conference on Applied Mechanics (INCAM 2019), held on July 3-5, 2019 at **Indian Institute of Science Bangalore**, India.
20. **Vaishali** and S. Dey. Machine learning based thermal uncertainty on stochastic natural frequency of functionally graded cylindrical shells, Proceedings of 7th International Congress on Computational Mechanics and Simulation. (ICCMS 2019) held on Dec 11-13, 2019 at **Indian Institute of Technology Mandi**, India.
21. **Vaishali** and S. Dey. Radial basis function based probabilistic dynamic stability of doubly curved shells. Proceedings of 64th Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM 2019) held on Dec 9-12, 2019 at **Indian Institute of Technology Bhubaneswar**, India.
22. **Vaishali** and S. Dey. Temperature-dependent random frequency of functionally graded spherical shells – a P.C.E. approach. Proceedings of International Conference on Recent Developments in Mechanical Engineering (ICRAME 2020) held on 07-09 February, 2020 at **National Institute of Technology Silchar**, India.
23. **Vaishali** and S. Dey. Effect of thickness on probabilistic free vibration of hybrid FG-sandwich cylindrical shells. Proceeding of ICRACTEM 2020 1st Online International Conference on Recent Advances in Computational and Experimental Mechanics held on September 4-6, 2020, **Indian Institute of Technology Kharagpur**, India.
24. **Vaishali** and S. Dey. Effect of relative thickness on natural frequency analysis of hybrid hyperbolic paraboloid shells. Proceedings of International Conference on Recent Developments in Mechanical Engineering (ICRAME 2021) held on 07-09 February, 2021 at **National Institute of Technology Silchar**, India.
25. H. P. Raturi, **Vaishali**, S. Kushari, P. K. Karsh and S. Dey. Moment independent sensitivity analysis of porous functionally graded plates subjected to free vibrations, XVI International Conference On Vibration Engineering & Technology Of Machinery (VETOMAC-2021) scheduled on December 16-18, 2021 at **B. M. S. College of Engineering Bengaluru**, Karnataka, India.
26. R. Kumar, **Vaishali**, S. Kushari, T. Mukhopadhyay and S. Dey. Free vibration of bio-inspired composite circular plates – an annular-ring model. Published in the Proceedings of the Indian Structural Steel Conference held on January 06th to 08th, 2022 Organized by Structural Steel Research Group, **IIT Hyderabad**, Serial number: ISSCP10033/2022.
27. T. Loha, **Vaishali**, S. Dey. Stochastic nonlocal fundamental frequencies of single walled carbon nanorod - An artificial neural network approach, International Conference on Recent Advances in Composite Materials (ICRACM 2019) scheduled on February 25-28, 2019 at **IIT- BHU**, India.

PATENT

- S. Dey, A. J. Sharma, A. Sharmah, A. Deb, B. K. Laskar and **Vaishali**. “Mobile toilet for use in flood-hit areas”. **Patent no.-385044**, Application no.-201831021570. Intellectual property India

TECHNICAL SKILLS

- **TOOLS EXPERIENCE:** MATLAB, FORTRAN, ANSYS, CATIA, Microsoft office, Origin Pro.
- **LANGUAGE KNOWN:** C, C++.

TEACHING SUBJECTS

- Machine design
- Manufacturing technology
- Materials

AWARDS AND ACHIEVEMENTS

- **GATE qualified.**
- Acting **reviewer for reputed SCI journals** like Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering
- Awarded **1st division honors degree** in 2014 in B.Tech.

PROFICIENCY

English, Hindi.

PERSONAL PARTICULARS

Date of Birth: 26th December 1992
Gender: Female
Marital Status: Single
Category: OBC
Father's Name: Dr. Prem Kumar
Mother's Name: Mrs. Ranjana Kumari
Address: Opposite Gandhi chowk, Mahendru,
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REFERENCE

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I hereby certify that the above mentioned particulars are true to best of my knowledge and belief.

Date: 08/03/2022
Place: NIT Silchar



(Vaishali)