BIO-DATA

1. NAME : **DR. SUSHMITA DEKA**

2. DATE OF BIRTH : 18th February 1991

3. ADDRESS:

a) Permanent : East Milan Nagar
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4. PRESENT POSITION HELD : Assistant Professor
Mechanical Engineering Department
Assam Engineering College
Jalukbari, Guwahati, Assam – 781 013
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5. EARLIER POSITIONS HELD:

1. Assistant Professor, Mechanical Engineering Department, Jorhat Institute of Science and Technology. (April 2022 to November 2022)
2. Postdoctoral researcher, Mechanical Engineering Department, IIT Guwahati. (November 2022 to June 2024)
3. Postdoctoral researcher, Aerospace Engineering Department, IIT Madras. (June 2024 to July 2025)

6. AREAS OF INTEREST : Force Measurement in Aerodynamic Bodies, Soft Computing, Structural Analysis, Vibration, High speed facilities

7. EDUCATIONAL PROFILE:

Examination	Institution/Board/ University	Year	% of Marks	Division/ Class	Remarks
High School Leaving Certificate Examination	St Xavier's School/ Board of Secondary Education, Assam	2007	**81.2**	1st Division	
Higher Secondary	Salt Brook Academy/ Assam Higher Secondary Education Council	2009	**71.2**	1st Division	
B.E. (Mechanical Engineering)	Jorhat Engineering College/ Dibrugarh University	2014	**86.4**	1st Class (H)	Gold Medalist
M. Tech. (Design & Manufacturing)	NIT Silchar	2016	**CGPA= 9.79**		
			Thesis: *Micro hole drilling of materials having different levels of conductivities using micro EDM'*		
Ph.D.	NIT Meghalaya	2021	**Title of Thesis:** *Dynamic Calibration of Accelerometer Force Balances for Aerodynamic Models Through Soft Computing Methodologies*		

8. COMPUTER PROFICIENCY: ANSYS Structural, Adams, SolidWorks

9. DETAILS OF PUBLICATIONS/ CONFERENCE PAPERS/SEMINAR PAPERS:

Journals

1. **Sushmita Deka**, Pallekonda Ramesh Babu, and Maneswar Rahang. "A new method for force prediction in an accelerometer force balance system using support vector regression." *Transactions of the Institute of Measurement and Control* 42.4 (2020): 880-889.

2. **Sushmita Deka**, Ramesh Babu Pallekonda, and Maneswar Rahang. "Comparative assessment of modified deconvolution and neuro-fuzzy technique for force prediction using an accelerometer balance system." *Measurement* 171 (2021): 108770.

3. **Sushmita Deka**, Siddhartha Kar, and Promod Kumar Patowari. "Machinability of silicon and German silver in micro electrical discharge machining: a comparative study." *Silicon* 13.4 (2021): 1065-1077.

4. Akash Chandrabhan Chandekar, **Sushmita Deka**, Biplab Kumar Debnath, and Pallekonda Ramesh Babu. "Comparative assessment of engine vibration, combustion, performance, and emission characteristics between single and twin-cylinder diesel engines in unifuel and dual-fuel mode." *Journal of Energy Resources Technology* 144.8 (2022): 082106.

5. **Sushmita Deka**, Abhishek Kamal, Ramesh Babu Pallekonda, Maneswar Rahang, and Vinayak Kulkarni. "Measurement technique for ideal selection of sensors and accurate force recovery on aerodynamic models." *Experimental Techniques* 46.2 (2022): 213-224.

6. **Sushmita Deka**, Abhishek Kamal, Ramesh Babu Pallekonda, Vinayak Kulkarni, and Niranjan Sahoo. "Sensitivity study of force recovery algorithms for aerodynamic drag assessment on a spiked blunt body in high-speed regimes." *Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering* 239.8 (2025): 818-829.

7. Rashed Mustafa Mazarbhuiya, **Sushmita Deka**, Maneswar Rahang, and Dhinakaran Veeman. "Analysis of Output Performance Measures of Coating in EDM by Non-Dominated Sorting Using Pareto Front." *Journal of Molecular & Engineering Materials* 13.2 (2025).

Conferences

1. **Sushmita Deka**, Pallekonda Ramesh Babu, and Maneswar Rahang, Transient dynamic analysis of cantilever rod with axial impulse loading using finite element method. In MATEC Web of Conferences (Vol. 202, p. 02005). EDP Sciences (2018).

2. **Sushmita Deka**, Pallekonda Ramesh Babu, and Maneswar Rahang, Dynamic calibration of a stress wave force balance under various supports and loads using finite element analysis. In 32nd International Symposium on Shock Waves (ISSW32) (2019).

3. **Sushmita Deka**, Pallekonda Ramesh Babu, and Maneswar Rahang, Dynamic Calibration of a Single Component accelerometer force balance under application of impulse loads. In International Heat and Mass Transfer Conference (IHMTC) (2019).

4. **Sushmita Deka**, Pallekonda Ramesh Babu, and Maneswar Rahang, M., Finite element analysis on the effect of the cross-sectional shape on the response of a stress wave force balance. In 6th National Symposium on Shock Waves (NSSW) (2020).

5. **Sushmita Deka**, Sanjukta Patra, and Niranjan Sahoo, Assessment of accuracy of multi-point calibration and single point calibration technique using an accelerometer force balance. In 58th 3AF International Conference on Applied Aerodynamics (2024).

Technical Papers

1. **Sushmita Deka**, Abhishek Kamal, Sanjukta Patra, and Niranjan Sahoo, Numerical Investigation of Aerodynamic Characteristics on a Blunt Cone Model at Various Angles of Attack under Hypersonic Flow Regimes (No. 2024-26-0446) SAE Technical Paper (2024).

2. Abhishek Kamal, **Sushmita Deka**, Niranjan Sahoo and Vinayak Kulkarni, Experimental Analysis of Force Recovery and Response Time Using Strain Measurement Sensors in Stress Wave Force Balance (No. 2024-26-0451). SAE Technical Paper (2024).

Book Chapters

1. **Sushmita Deka**, Pallekonda Ramesh Babu, and Maneswar Rahang, Dynamic Calibration of Three-Component

Accelerometer Force Balance System Using Deconvolution. In Advances in Mechanical Engineering (pp. 1675-1683). Springer, Singapore (2020)

2. **Sushmita Deka**, Pallekonda Ramesh Babu, and Maneswar Rahang, 2020. Influence of stress bar length on the response of a stress wave force balance using finite element analysis. In Advances in Mechanical Engineering (pp. 263-270). Springer, Singapore (2020).

I hereby declare that all the above information are true to the best of my knowledge and belief

(Dr. Sushmita Deka)

Dated: Guwahati, the 31st July 2025