Dr. V. HUZUR SARAN

Professor
Department of Mechanical and Industrial Engineering
Indian Institute of Technology, Roorkee
Tel: +91-01332-285682
Fax: +91-01332-273560
Email: v.saran@me.iitr.ac.in

Academic qualifications

Ph.D.	I.I.T. Roorkee, Roorkee, 2004
M. E. (Machine Design)	Roorkee University, Roorkee, 1987
B.E. (Mechanical Engineering)	D.E.I. Engineering College, Agra, 1984

Areas of Interest

Vehicle dynamics, Human response to vibrations, Fault diagnosis of bearings

Academic Experience

- Professor, Indian Institute of Technology, Roorkee : Aug. 2020 - ongoing
- Associate Professor, Indian Institute of Technology, Roorkee : Oct. 2012 - Aug. 2020
- Assistant Professor, Indian Institute of Technology, Roorkee : Sept. 2001 - Oct. 2012
- Lecturer, University of Roorkee, Roorkee : Sept. 1987 - Sept. 2001

Association with Professional Bodies

1. Member, The American Society of Mechanical Engineers
2. Life Member, The Institution of Engineers (India)
3. Life Member, Indian Society for Mechanical Engineers
4. Member, Executive Committee, Systems Society of India (2020-2026)

Sponsored Projects

1. "Effect of Low Frequency Vibration on Human Comfort", Principal Investigator, Research Project of S.E.R.C., Department of Science and Technology, New Delhi, Rs. 43.93 lacs, July 2007- July 2011.
2. "Influence of Low Frequency Vibration on Activity Comfort while Travelling by Railway Vehicles", Swedish International Development Cooperation Agency (SIDA), Co-investigator, Rs. 50.95 lacs, January 2006 – December 2008.
3. "Collaboration in Research & Development of New Curriculum in Sound and Vibration", Co-investigator, EU-Asia Link Program, Rs. 578 lacs, January 2006- December 2008.
4. "Vertical Dynamics and Ride Analysis of Three wheeled motor vehicles", Co-Investigator, S.E.R.C., Department of Science and Technology, New Delhi, Rs. 9.77 lacs, 1998- 2001.

Consultancy Projects

1. "Inspection of Mussoorie Ropeways", M/s Shail Shekhar Asso., Mussoorie, Rs. 0.22 lacs, April- June, 2006.
2. "Analysis and Design Recommendations for Stability and Dynamic Behaviour of Three-Wheeled Motor Vehicles", TVS Motor Co. Hosur, Rs. 0.30 lacs, March-September, 2003.
3. "Road Tests on Motor Cycles", TVS Suzuki Ltd., Hosur, Rs. 0.40 lacs, June – October, 1997.

Workshops/ Conference organized and Invited talks delivered

- Session Chair, XVIII Vibration Engineering & Technology of Machinery Conference (VETOMAC 2023), Indian Institute of Technology Roorkee, December 18 - 20, 2023.
- Organizing Secretary, National Systems Conference "Innovative and Emerging trends in Engineering Systems", NSC-2019, 06-08 December, 2019.
- Keynote talk titled "Perspectives in Vibration Studies of Vehicles and Activity Comfort" in International Conference Future Learning Aspects of Mechanical Engineering (FLAME - 2018), Amity University, Noida, 2018.
- Invited talk titled "Effect of Whole body vibration on Human Comfort" in National Conference Innovations in Civil and Mechanical Engineering - 2016 at Baddi University of Emerging Sciences and Technology (BUEST), Baddi, 2016.
- Organized Workshop on "Noise and Vibrations: Their Influence on Quality of Life and Product", at College of Engineering, Trivandrum, Organised by Swedish International Development Cooperation Agency (SIDA), December 15, 2009.
- Organized Workshop on "Noise and Vibration Issues in Railways", at Research Design & Standards Organisation, Lucknow, EU-Asia Link Program & Swedish International Development Cooperation Agency, January 25, 2008.

Awards and other extension activities

- Editor, Lecture Notes in Systems Engineering, Springer, publishing conference proceedings (NSC-2019).
- Guest Editor, Lecture Notes in Mechanical Engineering, Springer, publishing conference proceedings (ICETMIE-2019).
- Founded the ASME Students Chapter in 2007 and associated as Faculty Advisor till date
- Best Freshman Design Award for project, "Harnessing energy via modified speed breakers" in International ASME competition "IAM3D Challenge", Boston, USA, 2015.
- Brij Mohan Lal Memorial prize for paper "Road Roughness Measurements using PSD Approach", in the Journal of The Institution of Engineers (India), 2006.
- Best Paper award, "Ride behaviour analysis of a three-wheeled vehicle", in 13th International Conference of ISME, IIT Roorkee, Dec. 2003.

Foreign countries visited

- Krakow, Poland – attended conference ICSV 16, 5-9 July 2009.
- Loughborough, U.K.- Consortium meeting, EU-Asia Link Program, *"Collaboration in Research & Development of New Curriculum in Sound and Vibration",* August 19 to 26, 2007.
- Stockholm, Sweden- Consortium meeting, EU-Asia Link Program, *"Collaboration in Research & Development of New Curriculum in Sound and Vibration",* August 21 to 25, 2006.

Ph.D. Thesis supervision

1. Anand Prakash, "Statics and dynamics of functionally graded material plate using isogeometric analysis", Co-Supervisor: Dr. S. P. Harsha, 2021- In progress.

2. Vineet Kumar, "Structural Response of FGM Plate with variable thickness using HSD theory", Co-Supervisor: Dr. S. P. Harsha, 2018 – 2022.

3. Vivek Parmar, "Diagnostics of Self-aligning Rolling Element Bearing", Co-Supervisor: Dr. S. P. Harsha, 2018 – 2021.

4. Rajesh Govindan, "Dynamics of Human Body Exposed to Vibration Environment during Spaceflight", Co-Supervisor: Dr. S. P. Harsha, 2017 – 2021.

5. Pravajyoti Patra, "Prognostics and Diagnostics of Cylindrical Roller Bearing", Co-Supervisor: Dr. S. P. Harsha, 2016 – 2021.

6. Ishbir Singh, "Development of Biodynamic models for a seated/ standing Human body subjected to Harmonic Vibrations", Co-Supervisor: Prof. S. P. Nigam, Thapar University, 2012 – 2016.

7. Vikas Kumar, "Effect of Whole Body Vibration on Activity Comfort and Biodynamic Response", 2011 – 2015.

8. A. S. Prasanth, "Effect of Low Frequency Vibration on Human Comfort", Co-Supervisor: Dr. S. P. Harsha, 2009 – 2014.
9. Mahesh Bhiwapurkar, "Effect of Whole Body Vibration on Activity Comfort", Co-Supervisor: Dr. S. P. Harsha, 2009-2011.

10. Ramasamy Narayanamoorthy, "Effect of Low Frequency Vibration on Train Passenger Comfort", 2006-2011.

M. Tech Dissertation supervision

1. Hemanth Kumar P.V., Design and Analysis of Compression Mold for Developing Sustainable Composites", 2025, Co-supervisor: Prof. I.D. Singh
2. Raj Mourya, Bearing Fault Classification Using Machine Learning", 2024, Co-superviror: Dr. S.P. Harsha.
3. Mantu Kumar Das, "Study of Whole-body Vibration on Seated Subjects", 2024, Co-supervisor: Dr. Vidit Gaur.
4. Arbind Kumar Sharma, "Modelling and simulation of road vehicle dynamics", 2023, Co-supervisor: Dr. Anil Kumar.
5. Sudhanshu Kumar Sharma, "Finite Element Analysis of FGM plates", 2023, Co-supervisor: Dr. S.P. Harsha.
6. Prateek Kumar Gupta, "Fault diagnosis of high speed rolling element bearing using machine learning method", 2022.
7. Raj Kumar Gupta, "Dynamical study of sigmoidal based functionally graded piezoplates", 2022, Co-supervisor: Dr. S.P. Harsha.
8. Pragati Bansal, Prognostics of high speed bearing using soft computing methods", 2021
9. Neelu Singh, "Dynamics of human body exposed to vibration environment during space flight", 2020, Co-supervisor: Dr. S.P. Harsha.
10. Rahul Sharma, "Diagnostics and degradation pattern analysis of high speed bearings", 2020, Co-supervisor: Dr. S.P. Harsha.
11. Chalachew Dagnew, "Analysis of the effects of vehicle overloading on thermos-mechanical condition of grey Cast Iron ventilated disk brake during braking phase", 2020.
12. Pradip Kumar, "Finite element analysis of flow induced vibration on stent", 2018, Co-supervisor: Dr. S.P. Harsha.
13. Teetu Kumar, "Analysis of Boron Nitride nano tubes reinforced Polymer composite", 2018, Co-supervisor: Dr. S.P. Harsha.
14. Aman Kumar, "Biodynamic modelling of seated human body under WBV exposure with ANN", 2017, Co-supervisor: Dr. S.P. Harsha.
15. Amit Goyal, "Vibration analysis of CNT reinforced functionally graded material", 2017, Co-supervisor: Dr. S.P. Harsha.
16. Mohd. Qasim, "Effect of low frequency vibration on reading activity in standing posture" 2016, Co-supervisor: Dr. S.P. Harsha.
17. Prem Kumar Singh, "Dynamic analysis of rail wheel structure for passenger trains", 2016, Co-supervisor: Dr. S.P. Harsha.
18. Amit Kumar, "Nonlinear modelling and analysis of active magnetic bearing systems", 2016, Co-supervisor: Dr. S.P. Harsha.
19. Surbhi S. Bhagwat, "Strength analysis of BNNT reinforced polymer based nano-composites", 2015, Co-supervisor: Dr. S.P. Harsha.
20. Vikas Verma, "Analysis of a bogie- suspension system in Indian trains", 2015, Co-supervisor: Dr. Anil Kumar.
21. Ankit Pandey, "Vibration analysis of inflatable structure", 2015, Co-supervisor: Dr. S.P.

Harsha.

22. Deepak Kumar, “Modelling and analysis of a piezoelectric beam for vibration energy harvesting” 2015, Co-supervisor: Dr. Anil Kumar.
23. Sandeep Rajgotra, "Biodynamic response of seated human using AI technique", 2014.
24. Vijay Kumar, "Biodynamic response of human hand-arm model under vibration", 2014.
25. Nilesh Mishra, "Development of MATLAB code for visual analysis of vibration data", 2014, Co-supervisor: Dr. Anil Kumar.
26. Pawar Rajkumar Kishan, “Study of dynamic response of standing subjects under whole body vibration”, 2013.
27. Chavan Audumbar Subhash, “Study of hand –arm vibration”, 2013.
28. G. Veeresalingam, “Evaluating comfort of seated subjects by measuring VDV”, 2013.
29. Arpit Kumar Pandey, “Virtual prototype of three wheeled motor vehicle for vertical dynamics evaluation”, 2013.
30. Shahnawaz Alam, “Evaluation of performance characteristics of a three wheeled motor vehicle”, 2013.
31. Suraj Kumar Chand, “Study of hand arm vibration on drill operator", 2012.
32. Prakash Kumar, “Analysis of noise and vibration in relation with physiological parameters using ANN”, 2012, Co-supervisor: Dr. S.P. Harsha.
33. Pradeep Kumar Sharma, "Study of comfort while performing sedentary activity under low frequency vibrations”, 2012.
34. Pankaj Parag Chalotra, "Study of whole body vibration on standing subjects", 2012.
35. Atul Kumar, "Study of seated human under low frequency vibrations”, 2012.
36. Rajeev Kumar, “Study of human comfort in reading while travelling in vehicles under low frequency vibration”, 2011.
37. Sagar Patel, “Bio-dynamic response and biodynamic modeling of seated human subjects under whole body vibration”, 2011.
38. N.V. Amar Kishore, “An experimental and computational study of seated postures of human under low frequency vibrations”, 2011.
39. Shabbir Hussain, "Study of hand writing activity under low cycle vibrations using artificial intelligence technique", 2011.
40. P. Pul Singh, “Analysis of low frequency vibration on sedentary activity using DOE”, 2010
41. Jitendra Yadav, “Experimental investigation of discomfort in sedentary activity under low frequency vibrations”, 2010
42. M. Desta, “Measurement and biodynamic model development of seated human subjects exposed to low frequency vibration environment”, 2010, Co-supervisor: Dr. S.P. Harsha.
43. Gurwinder Singh, “The simulation of multiple cracks in welded structure using element free galerkin method”, 2010, Co-supervisor: Dr. I.V. Singh.
44. K. Giri Kumar, “Design and Development of TPMS-tyre pressure monitoring system”, 2009.
45. B. Aswani Kumar, “Investigation of Elasto-Plastic fracture behavior using EFGM”, 2009, Co-supervisor: Dr. I.V. Singh.
46. Smit Shalva Topno, “Development of a biodynamic model of a human in sitting posture performing sedentary activities”, 2008, Co-supervisor: Dr. S.P. Harsha.

47. Ranjit Annasaheb Patil, “Estimation of rail wheel wear and optimization of wheel profile”, 2007, Co-supervisor: Prof. V.K. Goel.
48. Gagan Ratnakar, “Dynamic behaviour of a railway vehicle with single axle bogie”, 2007, Co-supervisor: Prof. V.K. Goel.
49. Sheikh Najam, “Performance of rail vehicles with independently rotating wheels”, 2007, Co-supervisor: Prof. V.K. Goel.
50. P.V. Krishnakant, “Evaluation of ride and activity comfort for the passengers while travelling by Rail Vehicles”, 2007.
51. Sudhakar Yadala, “Analysis of impact forces between railway wheels and track”, 2006.
52. Srikanth Nuthakki, “Stress analysis of railway wheel using Finite element method”, 2006, Co-supervisor: Prof. V.K. Goel.
53. Manoj Sharma, “Lateral stability and handling behaviour of Three-wheeled vehicles”, 2006, Co-supervisor: Prof. V.K. Goel.
54. P.V. Nageswara Rao, “Lateral dynamic behaviour of Three-wheeled motor vehicles”, 2001, Co-supervisor: Prof. V.K. Goel.
55. D.K. Dhote, “Investigations of vertical vibrations of small size pneumatic tyres”, 1998.
56. Kailash Jat, “Vertical dynamics of Bajaj rear engine autorickshaw”, 1995.
57. Anumandla Venkanna, “Vertical dynamic evaluation of Three-wheeled motor vehicles”, 1995.

List of Research Publications

Refereed Journals

1. Anand Prakash, Pawan Kumar, **V. H. Saran** and S. P. Harsha, “Coupled thermo-mechanical bending and vibration responses of Porous Multidirectional Circular Functionally graded (PMCF) plate: An isogeometric analysis”, Int. Jnl. of Computational Materials Science and Engineering, 2025.

2. V. Kumar, S.J. Singh, **V.H. Saran** and S.P. Harsha, “Effect of elastic foundation and porosity on buckling response of linearly varying functionally graded material plate”, Structures, Vol. 55, pp. 1186-1203, September 2023.

3. V. Kumar, S.J. Singh, **V.H. Saran** and S.P. Harsha, “Vibration response of the exponential functionally graded material plate with variable thickness resting on the orthotropic Pasternak foundation”, Mechanics Based Design of Structures and Machines, April 2023.

4. Anand Prakash, Pawan Kumar, **V. H. Saran** and S. P. Harsha, “NURBS based thermoelastic behaviour of thin functionally graded sigmoidal (TFGS) porous plate resting on variable Winkler’s foundation, Int. Jnl. Mech Mater Des, V. 19, pp. 831-860, March 2023.

5. V. Kumar, S.J. Singh, **V.H. Saran** and S.P. Harsha, "Vibration Response Analysis of Tapered Porous FGM Plate Resting on Elastic Foundation", Int. Jnl. of Structural Stability and Dynamics, Vol. 23, No. 2, pp. 1-31, 2023.

6. Rajesh Govindan, **V.H. Saran** and S.P. Harsha, "Transmissibility response analysis of a human body in semi- supine posture exposed to low-frequency vibrations", Proc IMechE Part C: J Mechanical Engineering Science, pp. 1-14, 2022.

7. V. Kumar, SJ Singh , **VH Saran** and SP Harsha, "Vibration response of exponentially graded plates on elastic foundation using higher-order shear deformation theory" Indian Journal of Engineering & Materials Sciences, Vol 29, 181-188, 2022.

8. Rajesh Govindan, **V.H. Saran** and S.P. Harsha, "Biodynamic human body model to assess the injury risk during space capsule landing", Int. Jnl. Of Crashworthiness, Vol.27, No.5, pp.1257-1269, 2022.

9. Vivek Parmar, **V.H. Saran** and S.P. Harsha, "An autonomous method for diagnosing raceway defects and misalignment in a self-aligning rolling-element bearing", Proc IMechE Part K: J Multi-body Dynamics, pp. 1-18, 2022.

10. Rajesh Govindan, **V.H. Saran** and S.P. Harsha, "Biodynamic response analysis of semi-supine human under varying vertical excitations", Int. Jnl. Of Ind. Ergonomics, Vol. 85, 2021.

11. Rajesh Govindan, **V.H. Saran** and S.P. Harsha, "Subjective discomfort analysis of human body in semi-supine posture caused by vertical sinusoidal vibration", Ergonomics, pp.744-754, Vol. 64, No. 6, 2021

12. V. Kumar, S.J. Singh, **V.H. Saran** and S.P. Harsha, "An analytical framework for rectangular FGM tapered plate resting on the elastic foundation", Proceedings of Materials Today, pp. 1719- 1726, 2020.

13. Vivek Parmar, **VH Saran** and SP Harsha, "Effect of dynamic misalignment on the vibration response, trajectory followed and defect-depth achieved by the rolling-elements in a double-row spherical rolling element bearing" Mechanism and Machine Theory, Vol. 162, 104366, 2021

14. V. Kumar, SJ Singh , **VH Saran** and SP Harsha*, "Vibration characteristics of porous FGM plate with variable thickness resting on Pasternak's foundation" European Journal of Mechanics: Part A - Solids, Vol 85, 104124, 2021.

15. Rajesh Govindan, **V.H. Saran** and S.P. Harsha, "Low-Frequency Vibration Analysis of Human Body in Semi-Supine Posture Exposed to Vertical Excitation", European Journal of Mechanics / A Solids, pp. 1-13, Vol. 80, 2020.

16. V. Kumar, S.J. Singh, **V.H. Saran** and S.P. Harsha, "An analytical framework for rectangular FGM tapered plate resting on the elastic foundation", Materials Today: Proceedings, pp. 1719- 1726, V 28, part 3, 2020.

17. Vivek Parmar, **V.H. Saran** and S.P. Harsha, "Effect of Unbalanced Rotor on Dynamic Characteristics of Double-Row Self-Aligning Ball Bearing" European Journal of Mechanics/ Part A – Solids, pp. 1-18, Vol.82, 2020.

18. Vivek Parmar, **V.H. Saran** and S.P. Harsha, "Nonlinear vibration response analysis of a double-row self-aligning ball bearing due to surface imperfections", Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, pp. 01-22, Vol. 234, No.3, 2020.

19. Pravajyoti Patra, **V. H. Saran** and S.P. Harsha, "Vibration Response Analysis of High-Speed Roller Bearings Using Response Surface Method", Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, pp. 379-392, Vol. 234, No. 2, 2020.

20. Pravajyoti Patra, **V. H. Saran** and S.P. Harsha, "Chaotic dynamics of cylindrical roller bearing supported by unbalanced rotor due to localized defects", Journal of Vibration and Control, pp. 1898-1908, Vol. 26, No.21, 2020.

21. M.K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, "Seat to Head Transmissibility during exposure to vertical seat vibration: effects of posture and vibration magnitude", International Journal of Acoustics and Vibration, pp. 3-11, Vol.24, No.1, 2019.

22. Vikas Kumar and **V. H. Saran,** "Biodynamic Model of the Seated Human Body under the Vertical Whole Body Vibration Exposure", International Journal of Acoustics and Vibration, pp. 657-664, Vol. 24, No. 4, 2019.

23. Pravajyoti Patra, **V. H. Saran** and S.P. Harsha, "Non-linear dynamic response analysis of cylindrical roller bearings due to rotational speed", Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, pp. 379-390, Vol. 233, No.2, 2018.

24. M.K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, "Effects of posture and vibration magnitude on seat to head transmissibility during exposure to fore-and-aft vibration", Journal of Low Frequency Noise, Vibration and Active Control, pp. 826-838, Vol. 38, No. 2, 2018.

25. Pravajyoti Patra, **V.H. Saran** and S.P. Harsha, "Nonlinear Dynamic Response Analysis of Cylindrical Roller Bearings due to Unbalance", Advances in Engineering Design, pp. 815-824, Chapter 76, Springer, 2018.

26. Aman Kumar, **V. H. Saran** and S. P. Harsha, "Biodynamic modelling of seated human body under whole body vibration exposure using an artificial neural network," International Journal of Vehicle Noise and Vibrations, pp. 187-199, Vol. 13, Nos. 3-4, 2017.

27. M.K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, “Effects of vibration magnitude and posture on seat-to-head-transmissibility responses of seated occupants exposed to lateral vibration”, International Journal of Vehicle Noise and Vibration, pp. 42-59, Vol. 12, No. 1, 2016.

28. M.K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, “Interference in writing performance under whole-body vibration exposure together with subject posture”, International Journal of Vehicle Noise and Vibration, pp.182 – 198, Vol.12, No.2, 2016.

29. Vikas Kumar and **V. H. Saran,** “Seat to Head Transmissibility and Reading Discomfort of the Seated Subjects Exposed to Whole Body Vibration,” International Journal of Acoustics and Vibration, pp. 67-74, Vol 21, No.1, 2016.

30. Ishbir Singh, S.P. Nigam and **V.H. Saran,** “Modal analysis of human body vibration model for Indian subjects under sitting posture”, Ergonomics, pp. 1117-1132, Vol. 58, No.7, 2015.

31. Vivek Gupta, **V.H. Saran** and Satish C. Sharma, “A novel technique to measure the rolling resistance of tyres using force transducer”, Journal of the Institution of Engineers (India): Series C, pp. 325-330, Vol 96, No.3, 2015.

32. Vikas Kumar and **V. H. Saran, “**Influence of postures and vibration magnitude on seat-to-head transmissibility during uniaxial whole body vibration exposure”, International. Journal of Vehicle Noise and Vibration, pp. 149-164, Vol.11, No.2, 2015.

33. Vikas Kumar and **V. H. Saran,** “Influence of reading format on reading activity under uniaxial whole body vibration”, International Journal of Industrial Ergonomics, pp. 520-527, Vol. 44, 2014.

34. Harsha S. P., M. Desta, A. S. Prashanth and **V. H. Saran**, “Measurement and Bio-dynamic Model Development of Seated Human Subjects Exposed to Low Frequency Vibration Environment.” International Journal of Vehicle Noise and Vibrations, pp. 1- 24, Vol. 10 (2), 2014.

35. A.S. Prashanth, N.V. Amar Kishore, **V. H. Saran** and S.P. Harsha, “Analysis of Seated Human Body Under Low Frequency Vibrations Using Transmissibility and Driving Point Mechanical Impedance”, International Journal of Engineering Res & Tech, pp. 734 -744, V.2, No. 6, 2013.

36. R. Narayanamoorthy and **V. H. Saran,** "Investigation of activity performance on laptop in vibration environment", International Journal of Industrial Ergonomics, pp. 513-524, Vol. 42, 2012.

37. M. K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, **"**Interference in reading an e-paper under Whole-body Vibration exposure with subject posture", International Journal of Acoustics and Vibration**,** pp. 100- 107, Vol 11, No. 2, 2012.

38. M. Desta, **V.H. Saran** and S.P. Harsha, "Effects of Inter-Subject Variability and Vibration Magnitude on Vibration Transmission to Head during Exposure to Whole-Body Vertical Vibration", International Journal of Acoustics and Vibration, pp. 88- 97, Vol. 16, No.2, 2011.

39. M.K. Bhiwapurkar, **V.H. Saran,** S.P. Harsha, V.K.Goel and Mats Berg, "Effect of magnitudes and directions (mono-axis and multi-axis) of whole body-vibration exposures and subjects postures on the sketching performance", Proceedings of the Institution of Mechanical Engineers, Part F, Journal Of Rail & Rapid Transit, pp. 71-83, Vol. 225, No. 1, 2011.

40. M. K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, **"**Objective and subjective responses of seated subjects while reading Hindi newspaper under multi axis whole-body vibration", International Journal of Industrial Ergonomics**,** pp. 625- 633, Vol. 141, 2011.

41. M.K. Bhiwapurkar, **V. H. Saran** and S.P. Harsha, "Quantitative evaluation of distortion in sketching under mono and dual axis whole body vibration", Industrial Health, pp. 410-420, Vol. 49, No. 4, 2011.

42. R. Narayanamoorthy and **V. H. Saran,** "Error Analysis of Task Performance with Laptop in Vibration Environment", Computers in Human Behaviour, pp. 2263-270, Vol. 27, 2011.

43. M.K. Bhiwapurkar, **V.H. Saran,** S.P. Harsha, V.K. Goel and Mats Berg, "Influence of Mono-axis Random Vibration on Reading Activity", Industrial Health, pp. 675-681,Vol. 48, 2010.

44. M.K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, "Effect of Multi-axis Whole Body Vibration Exposures and Subject Postures on Typing Performance", International Journal of Engineering Science and Technology, pp. 3614-3620, Vol. 2(8), 2010.

45. M.K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, "Effect of Multi-axis Vibration and Subject Postures on Sketching Distortion", International Journal of Engineering Science and Technology, pp.14-24, Vol. 2(10), 2010.

46. P. Pul Singh, Jitendra Yadav, M.K. Bhiwapurkar, **V.H. Saran** and S.P. Harsha, "A futuristic model for activity comfort using artificial neural network", Indian Jnl. of Engineering Science and Technology, V.4, No. 1, 2010, pp. 108-113.

47. R. Narayanamoorthy, V. K. Goel and **V. H. Saran,** "Vibration measurement- a tool for evaluating activity comfort in trains", Jnl. of Instrumentation Society of India, V 39, No.3, 2009, pp. 189-193.

48. **V. H. Saran** and V.K. Goel, "Ride Behaviour of Three-Wheeled Vehicle- Model and Optimization" Advances in Vibration Engineering, pp. 65-78, Vol. 6, No. 1, 2007.

49. **V. H. Saran** and V.K. Goel, "Ride Behaviour of Three-Wheeled Vehicle- Model and Optimization" Advances in Vibration Engineering, pp. 65-78, Vol. 6, No. 1, 2007.

50. K. Ramji, A. Gupta, **V.H. Saran,** V.K. Goel and V. Kumar, "Road Roughness Measurements using PSD Approach", Journal of The Institution of Engineers (India), pp.193-200, Vol.85, 2004.

51. K. Ramji, V. K. Goel, and **V.H. Saran,** "Stiffness properties of small sized pneumatic tyres", Proceedings of the Institution of Mechanical Engineers, Part D, pp.107-114, Vol. 216, 2002.

52. **V.H. Saran** and V.K. Goel, "Rolling dynamic stiffness and damping characteristics of small sized pneumatic tyres", Proceedings of the Institution of Mechanical Engineers, Part D, pp. 243-248, Vol. 214, No.3, 2000.

International/ National Conferences

1. Anand Prakash, Pawan Kumar, **V. H. Saran** and S. P. Harsha, "Dynamic response analysis of multidirectional circular functionally graded porous plate using isogeometric analysis", XVIII Vibration Engineering & Technology of Machinery Conference (VETOMAC 2023), Indian Institute of Technology Roorkee, December 18 - 20, 2023.

2. Arbind Kumar Sharma, **V.H. Saran** and Anil Kumar,"Comparative Analysis of Road Vehicle Performance on Different Roads", XVIII Vibration Engineering & Technology of Machinery Conference (VETOMAC 2023), Indian Institute of Technology Roorkee, December 18 - 20, 2023.

3. Vikas Kumar and **V. H. Saran**, "The Influence of Vibration Magnitude and Frequencies on the Apparet Mass of the Himan Body Exposed to Vibration", XVIII Vibration Engineering & Technology of Machinery Conference (VETOMAC 2023), Indian Institute of Technology Roorkee, December 18 - 20, 2023.

4. Pravajyoti Patra, **V. H. Saran** and S.P. Harsha, "Crack detection in rolling element bearings using the wavelet transform", 43rd National Systems Conference on Innovative and Emerging Trends in Engineering Systems, IIT Roorkee, Roorkee, December 6-8, 2019.

5. Vivek Parmar, **V. H. Saran** and S.P. Harsha, "Quasi periodic and chaotic analysis of double-row self-aligning ball bearing due to unbalance load and localized defects", 43rd National Systems Conference on Innovative and Emerging Trends in Engineering Systems, IIT Roorkee, Roorkee, December 6-8, 2019.

6. Vineet Kumar, S.J. Singh, **V. H. Saran** and S.P. Harsha, "Effect of foundation on free vibration of tapered functionally graded material plate", 43rd National Systems Conference on Innovative and Emerging Trends in Engineering Systems, IIT Roorkee, Roorkee, December 6-8, 2019.

7. Arvinder Singh, Harkirat Singh, Ishbir Singh, Sachin Kalsi and **V.H. Saran**, "Effect of Variant Seat Suspension Systems on Human Ride Comfort", 43rd National Systems Conference on Innovative and Emerging Trends in Engineering Systems, IIT Roorkee, Roorkee, December 6-8, 2019.

8. Pravajyoti Patra, **V. H. Saran** and SP Harsha, "Non-linear dynamic response analysis of cylindrical roller bearings due to unbalancing", Int. Conference on Future Learning Aspects of Mechanical Engineering (FLAME - 2018), Amity University, Noida, October 4, 2018.

9. Rajesh Govindan, **V. H. Saran** and S.P.Harsha, "Modal Analysis of Human Body in Seated Posture", 42nd National Systems Conference (NSC-2018) on Advanced Systems Engineering Concepts for National Development, VSSC, Thiruvananthapuram, December 27-29, 2018.

10. Vikas Kumar and **V. H. Saran**, "Typing performance of the seated subjects on tablet under the vertical whole body vibration exposure", ICSV 2016 - 23rd International Congress on Sound and Vibration: From Ancient to Modern Acoustics, Greece, July 10 to 14, 2016.

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