

Curriculum Vitae

1. Name: Dr. Shubham Saurabh

2. Designation: Scientist C and Assistant Professor (AcSIR)

3. Address:

Bridge Engineering and Structures Division

CSIR-Central Road Research Institute,

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4. Areas of Interest: Structural health monitoring, Structural safety audit, Load testing, Metamaterials, Auxetics, Topology optimization, Bridge engineering, Computational mechanics, Uncertainty quantification, Vibration control, Applications of artificial intelligence in bridge engineering, Impact mechanics.

5. Academic Qualifications

Degree	Subject	University/Institution	Division	Year
Ph.D.	Structural Engineering	Indian Institute of Technology Roorkee	First	2025
M.Tech.	Structural Engineering	National Institute of Technology Hamirpur	First	2020
B.Tech.	Civil Engineering	Dr. APJ A.K.T.U. Lucknow	First	2016

6. Work experience (in reverse chronological order)

S.No.	Positions held	Name of the Institute	From	To	Pay Scale
1	Scientist C	CSIR-Central Road Research Institute, New Delhi	2025	Till date	Pay Level 11 (Rs. 6600 G.P.)
2	Assistant Professor	Academy of Scientific and Innovative Research (AcSIR)	2026	Till date	-
3	Senior Research Fellow	Indian Institute of Technology Roorkee	2022	2023	As per govt. norms

4	Junior Research Fellow	Indian Institute of Technology Roorkee	2020	2022	As per govt. norms
5	Guest Lecturer	Pusa Institute of Technology, New Delhi	2017	2018	Rs. 1000 per hour
6	Guest Lecturer	G.B. Pant Institute of Technology, Delhi	2017	2018	Rs. 1000 per hour

7. Achievements

S.No	Name of Award	Awarding Agency	Year
1	Young Scientist Award	Indian Society of Theoretical and Applied Mechanics, IIT Kharagpur	2023
2	International Travel Scheme (ITS)	ANRF/SERB, Department of Science and Technology, Government of India	2024
3	FEniCS travel grant	FEniCS steering committee	2026
4	Good international conference support	Civil Engineering Department, Indian Institute of Technology Roorkee	2024
5	Partial support to attend international conference	Dean of Resource and Alumni, Indian Institute of Technology Roorkee	2024
6	Senior Research Fellowship	Defence Research and Development Laboratory-DRDO, Hyderabad	2022
7	Junior Research Fellowship	Defence Research and Development Laboratory-DRDO, Hyderabad	2020
8	Ministry of Education fellowship	Indian Institute of Technology Roorkee	2024
9	Ministry of Education fellowship	National Institute of Technology Hamirpur	2018
10	Good international conference support	Civil Engineering Department, Indian Institute of Technology Roorkee	2025

8. Q1 SCI indexed publications

S.No.	Author(s)	Title	Name of Journal	Volume/ Page	Year	Impact Factor
1	Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Ravindra Duddu	Robust topology optimization for uncertainty in load positions of transient dynamic loading	Reliability Engineering and System Safety	264, 111440	2025	13.7
	Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Pakeeruraju Podugu	Robust topology optimization for transient dynamic response minimization	Computer Methods in Applied Mechanics and Engineering	426, 117009	2024	7.6
3	Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury	Impact of parametric variation to achieve extreme mechanical metamaterials through topology optimization	Composite Structures	326, 117611	2023	7.8
4	Shubham Saurabh, R.R. Madke, Abhinav Gupta, Rajib Chowdhury	High-velocity impact behaviour of topology-optimized auxetic metamaterials	Engineering Structures	346, 121562	2026	7.6
5	Ajendra Singh, Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury	Accelerating metamaterial topology optimization using deep super-resolution networks	Computational Mechanics	1-26	2026	4.3

9. Books/Reports/Chapters/General articles etc.

S.No	Title	Author's Name	Publisher	Year of Publication
1	Recent Developments in Structural Engineering, Volume 2: Select Proceedings of 13th Structural Engineering Convention (SEC)	Anurag Gupta, Shubham Saurabh, Anurag Gupta, Rajib Chowdhury	Springer Nature	2025

10. International Conferences

- Shubham Saurabh, Avinandan Modak, R.R. Madke, Rajib Chowdhury, Efficient uncertainty quantification in re-entrant auxetic structures using polynomial chaos expansion, UK Association of Computational Mechanics, 23–25 April 2025, London, UK.
- Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Topology optimization of metamaterials for improved shear modulus, 27th International Conference on Composite Structures (ICCS27), 03–06 September 2024, Ravenna, Italy.
- Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Designing auxetic structures through topology optimization, 26th Young Researchers Conference, 2 May 2024, The Institution of Structural Engineers, London, UK (Online).
- Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Efficient bridge design using topology optimization, 68th ISTAM Conference, 07–09 December 2023, NIT Warangal, India.
- Shubham Saurabh, Anurag Gupta, Abhinav Gupta, Rajib Chowdhury, Mechanical Metamaterials design by topology optimization, ICCMS-2022, IIT Indore.
- Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Robust topology optimization incorporating uncertainty in load positions, 68th ISTAM Conference, NIT Warangal, India.
- Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Building bridges for future: Advancing design through topology optimization and additive manufacturing, Young Researchers Conclave, CSIR-CRRI Delhi, 2023.
- Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Topology optimization of structures for minimizing transient dynamic response, 68th ISTAM Conference, NIT Warangal, India.
- Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Topology Optimization of metamaterials for improved elastic modulus, SEMCE-2023, LPU Jalandhar.

- Shubham Saurabh, Rajib Chowdhury, An open-source adaptive mesh refinement framework for topology optimization, 68th ISTAM Conference, NIT Warangal, India.
- Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Pushing limits: Topology optimization empowered by parametric variation for exceptional mechanical metamaterials, Institute Research Day, IIT Roorkee, 2024.
- Shubham Saurabh, Rajib Chowdhury, Topology optimization of metamaterials for extreme elastic modulus, 68th ISTAM Conference, NIT Warangal, India.
- Anurag Gupta, Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Incorporating stress constraints in the structural topology optimization framework, SEC-2023, VNIT Nagpur.
- Ajendra Singh, Shubham Saurabh, Abhinav Gupta, Rajib Chowdhury, Metamaterial topology optimization using enhanced deep super-resolution neural network, NCMDAO, IIT Guwahati, 2023.
- Shubham Saurabh, Joy Pal, Rajib Chowdhury, Health monitoring of structures using finite element model updating technique, CARRS-2025, IIT Roorkee.
- Shubham Saurabh, Rajib Chowdhury, Modified star-shaped elastic metamaterial with triangular ligaments for enhanced bandgap, 18SEE, IIT Roorkee, 2026 (Abstract accepted).
- Shubham Saurabh, Anurag Gupta, Abhinav Gupta, Rajib Chowdhury, Large scale random vibration analysis using FEniCS, FEniCS-2026 Conference, Paris, France (Abstract accepted).
- Shubham Saurabh, R.R. Madke, Abhinav Gupta, Rajib Chowdhury, Impact resistance of topology-optimized auxetic metamaterials: A comparative study, SEC-2026, IIT Hyderabad (Abstract accepted).

11. Research Projects

- Perspective-corrected machine learning framework for crack induced distress assessment in bridges (RDSF Project (RDS-000015)) - As Project Leader
- Flexural Performance of Glass Fibre Reinforced Polymer Beams with and without Discrete Glass Fibre Reinforced Concrete (GFRC) (In-House R&D Project (OLP 0681)) - As Co- Project Leader
- Integrated Experimental, Numerical and AI-Based Studies for Seismic Performance Evaluation and Health Assessment of Steel and Fiber Reinforced Bridges (ULIP Project (MLP 0002614)) -As Task Leader
- Evaluation of Response Reduction (R Factor) for RC Piers Designed as per Indian Codes (InHouse R&D Project (OLP 0680)) - As Team member
- Assessment of Influence of Soil-Foundation-Structure Interaction on Seismic Performance of Bridges (In-House R&D Project (OLP 0678)) - As Team member

12. Consultancy Projects

- Condition Assessment and Suggestions for Remedial Measures of Major and Minor Bridges of Odisha Road Network using Modern Test Procedures of Bridges under Public Works Department, Govt. of Odisha, in the State of Odisha (SSP 4733) - As Team Member
- Structural Audit of Six Lane Access Controlled Spur to Haridwar under Delhi-Saharanpur-Dehradun Economic Corridor under Bharatmala Pariyojna (CNP-3021) - As Team Member
- Review of Design Progress Report (DPR) under NRIDA (CNP 2912) - As Team Member
- Comprehensive Condition Assessment and Remedial Strategies for Six Lane Partial Access Controlled Eastern Peripheral Expressway (NE2), Packages I to VI, starting from Kundli (1.00 KM) to Palwal (136.00 KM) (SSP 4813) - As Team Member
- Structural Audit of the Elevated Portion of the Gurgaon-Pataudi-Rewari Section of NH-352W in the State of Haryana under Bharatmala Pariyojana (SSP 4828) - As Team Member
- Third Party Structural Audit of ongoing Construction of Greenfield Connectivity to Jewar International Airport from DND-Faridabad-Ballabhgarh Bypass KMP Link-Spur to Delhi Mumbai Expressway in the State of UP and Haryana (from Km. 0+000 to Km. 31+425) (SSP-4836) - As Team Member
- Structural Audit of the Elevated Portion of the Six-lane Access Controlled Highway from DND Maharani Bagh to Junction with Jaitpur-Pushta Road section of NH-148NA (Design Ch 0+000 to Ch 9+00) in National Capital Territory on Hybrid Annuity Mode under Bharatmala Pariyojana (CNP 4792) - As Team Member
- Third Party Quality Audit of Structures during construction period of 4-laning of Behsuma-Bijnor section of NH-119 (New NH-34) from Design Ch. 39.250 km to Ch. 78.810 km (39.56km) in the state of Uttar Pradesh on Hybrid Annuity Mode under Bharatmala Pariyojna (SSP 4805) - As Team Member