



Dr. Vaibhav Mittal

SCIENTIST C, CSIR - CRRI, NEW DELHI

Personal Webpage: <https://sites.google.com/view/dr-vaibhav-mittal>

CONTACT

+91-7905592134

vmittal.crri@csir.res.in
vaibhavmittal2909@gmail.com

EDUCATION

2019 - 2024

Academy of Scientific and Innovative Research (AcSIR)/CSIR - CBRI, Roorkee

- Ph.D. in Engineering
- CGPA: 10/10

2017 - 2019

Madan Mohan Malaviya University of Technology (MMMUT)

- Master of Technology
- Structural Engineering
- CGPA: 9.69 / 10.0

2011 - 2015

Dr. APJ Abdul Kalam Technical University (AKTU)/BIT Muzaffarnagar

- Bachelor of Technology
- Civil Engineering
- Percentage: 81.70%

AREA OF INTEREST

- Seismic Soil-Structure Interaction
- Bridge Engineering
- Performance Based Seismic Design of Structures
- Underground Structures
- Shake Table Testing
- Finite Element Analysis and Constitutive Modeling
- Structural Health Monitoring of Structures
- Repair, Rehabilitation and Strengthening Measures of Structures and Foundations

WORK EXPERIENCE

- **CSIR - CRRI, New Delhi/AcSIR** November 2025
Scientist C and Assistant Professor (Honorary)
 - Bridge Engineering and Structures (BES) Division
- **ZuruTech India Pvt. Ltd.** July 2025 - October 2025
SRE: Structural R&D Engineer
 - Soil-Structure Interaction for AAC Structures
- **CSIR - CBRI, Roorkee** August 2019 - December 2024
DST INSPIRE Fellow
 - Shake Table Testing of Scaled - Down Models subjected to Scaled-Down Input Ground Motions
 - Cyclic Triaxial Testing for Estimation of Dynamic Properties of Cohesion-less and Cohesive Soil
 - Use of Different Sensors/Transducers for Measurement of Soil, Foundation and Structural Responses
 - Finite Element Investigation for Projects Related to National Importance/Heritage Structures
 - **Software Expertise:** ABAQUS, PLAXIS 3D, DEEPSOIL, AUTOCAD, ETABS, REVIT, Staad.Pro

AWARDS AND RECOGNITIONS

- DST INSPIRE Fellow
- SERB International Travel Grant for International Conference
- IGS-Best Doctoral Thesis Award Sponsored by Prof. M.R. Madhav for the Year 2024 for my Ph.D. work on "Assessment of Seismic Response of Buildings for Different Foundation System considering Soil-Structure Interaction" at Indian Geotechnical Conference (IGC 2025) held at NIT Jalandhar, December 18-20, 2025.
- Best Paper Award for presenting my work at 8ICRAGEE 2024 held at IIT Guwahati from 11 - 14 December 2024
- Director's Best Research Publication Award 2023 for the paper "Subsurface Exploration and Investigation of Foundation Performance for Distress Assessment of a Building" by CSIR - CBRI
- Director's Best Research Publication Award 2024 for the paper "Experimental Study on Performance of Soil-Pile-Raft-Structural System and Estimation of Piled-Raft Coefficient under Seismic Excitations" by CSIR - CBRI
- Among Top 5 in Best Research Award Category (Ph.D.) by DFI, India
- Graduate Aptitude Test in Engineering (GATE)
- Gold Medalist for being University topper during M.Tech
- All India National Talent Search Examination (NTSE)

PUBLICATIONS

A. SCI/SCIE PUBLICATIONS

- **Mittal, V.**, Samanta, M., and Kanungo, D. P. (2025). Influence of isolated footing embedment on the seismic performance of building considering the soil-foundation-structure interaction: An experimental approach. *Journal of Rock Mechanics and Geotechnical Engineering (Elsevier)*, 17(2), 1194-1212. DOI: <https://doi.org/10.1016/j.jrmge.2024.04.019>. [IF - 10.80, Q1]
- **Mittal, V.**, and Samanta, M. (2024). Experimental Study on Performance of Soil-Pile-Raft-Structural-System and Estimation of Piled-Raft Coefficient under Seismic Excitations. *Engineering Structures (Elsevier)*, 325, 119440. DOI: <https://doi.org/10.1016/j.engstruct.2024.119440>. [IF 7.60, Q1]
- **Mittal, V.**, and Samanta, M. (2024). Influence of Spacing and Slenderness Ratio of End-Socketed Pile Foundation on Seismic Response of Building considering Soil-Pile-Structure-Interaction: An Experimental Approach. *Journal of Structural Engineering (ASCE)*, 151(2), 04024213. DOI: <https://doi.org/10.1061/JSENDH.STENG-13724>. [IF 3.80, Q1]
- Mittal, V., Samanta, M., and Kanungo, D. P. (2025). Seismic Response of Low-to-Mid-Rise Buildings Supported on Isolated Footings Considering Soil-Foundation-Structure Interaction. *Earthquake Engineering and Engineering Vibration (Springer)*. [Accepted, In Press]. [IF - 3.40, Q2]
- **Mittal, V.**, and Samanta, M. (2025). Performance of a Laminar Shear Box for Cohesionless Soil under Seismic Excitations. *Geotechnical and Geological Engineering (Springer)*, 43, 60; pp:1-44. DOI: <https://doi.org/10.1007/s10706-024-02973-4>. [IF 3.20, Q2]
- **Mittal, V.**, Samanta, M., and Maurya, M. C. (2025). Effect of Soil Constitutive Model and Slenderness Ratio of Piles on Seismic Performance of Moment-Resisting Frames supported on Pile Foundation Considering Soil-Pile-Structure-Interaction. *Journal of Structural Design and Construction Practice (ASCE)*, 30(2), 04025004. DOI: <https://doi.org/10.1061/JSDCCC.SCENG-1563>. [IF 2.10, Q2]
- **Mittal, V.**, Samanta, M., Dash, R. K., Falae, P. O., and Kanungo, D. P. (2023). Subsurface Explorations and Investigation of Foundation Performance for Distress Assessment of Building. *Journal of Performance of Constructed Facilities (ASCE)*, 37(2), 04023011. DOI: <https://doi.org/10.1061/JPCFEV.CFENG-4187>. [IF - 2.10, Q2]
- **Mittal, V.**, and Samanta, M. (2021). Causes of Failure and Strengthening Measures of a Pile Foundation supporting Transmission Line Tower. *Journal of Performance of Constructed Facilities (ASCE)*, 35(4), 04021034. DOI: [https://doi.org/10.1061/\(ASCE\)CF.1943-5509.0001592](https://doi.org/10.1061/(ASCE)CF.1943-5509.0001592). [IF - 2.10, Q2]
- **Mittal, V.**, and Samanta, M. Shake Table Investigations on Evaluation of Influence of Soil-Pile-Structure Interaction on Seismic Performance of Buildings. In *Journal of Structural Engineering (ASCE)*. [Under Review]. [IF - 3.80, Q1]
- MR Vinay, Kumar, Ravi CM., D.S. Ramprasad., **Mittal, V.** Geotechnical Characterization of the Shallow Subsurface in Urban Bengaluru: A Machine Learning-Assisted Approach. In *Geotechnical and Geological Engineering* [Submitted]. [IF - 3.20, Q2]
- **Mittal, V.**, and Samanta, M. Experimental Study on Seismic Performance of Soil-Foundation-Structural System with Embedded Raft Foundations. In *Structures (Elsevier)*. [To be Communicated]. [IF - 4.90, Q1]

B. INTERNATIONAL/NATIONAL CONFERENCES/BOOK CHAPTERS

- **Mittal, V.**, Samanta, M., Goel, and Rajeev Goel (2026). Evaluation of Seismic Performance of Pile-Supported Bridges considering Soil-Structure Interaction. In 18th Symposium on Earthquake Engineering (18SEE). [Abstract Accepted, Paper to be Communicated].
- Dubey, R., Subramaniam, R., **Mittal, V.** Rock Anchoring Systems for Deformation Control in Soft Rock Tunnels: A-State-of-the-Art Review. In Indian Geotechnical Conference (IGC 2026). [Abstract Accepted, Paper to be Communicated].

- MR Vinay, Kumar, Ravi CM., **Mittal, V.** Assessment of Seismic Vulnerability of Structures in Bengaluru Region considering Soil-Structure Interaction. In Indian Geotechnical Conference (IGC 2026). [Abstract Accepted, Paper to be Communicated].
- **Mittal, V.**, and Samanta, M. (2025). An Equivalent Pile Approach for Assessing the Seismic Performance of High-Rise Building Considering Soil-Pile-Structure Interaction. In, Lecture Notes in Civil Engineering, Vol. 567, B.K. Maheshwari et al. (Eds): Seismic Design and Performance of Structures, Soil-Structure Interaction. https://doi.org/10.1007/978-981-96-2096-8_25. (Presented the Paper at 8ICRAGEE, 2024, 11 - 14 December 2024, IIT Guwahati, Assam).
- **Mittal, V.**, and Samanta, M. (2025). Assessment of Influence of Spacing of Floating Pile Foundation on Seismic Performance of Buildings Considering Soil-Pile-Structure-Interaction. In: Savoikar, P., Basarkar, S.S., Shukla, J., Adimoolam, B. (eds) Deep Foundations for Infrastructure Development in India, Volume 2. DFI-India 2024. Lecture Notes in Civil Engineering, vol 644. Springer, Cham. https://doi.org/10.1007/978-3-031-90932-0_13. (Presented the Paper at DFI India Annual Conference, 2024, 19 - 21 September 2024, Panaji, Goa).
- **Mittal, V.**, Samanta, M., and Kanungo, D. P. (2024). Effect of Spacing of Piles in Piled-Raft Foundation on Seismic Response of Building Considering SSI. In Proceedings of 18th World Conference in Earthquake Engineering (WCEE), Italy. <https://proceedings-wcee.org/view.html?id=24433&conference=18WCEE>. (Presented the Paper at 18th World Conference on Earthquake Engineering, 18WCEE, 30 June - 5 July, 2024, Milan, Italy).
- **Mittal, V.**, and Samanta, M. (2024). Investigation on Influence of slenderness ratio of Pile Foundation on Seismic Response of Building Considering Soil-Structure Interaction. Japanese Geotechnical Society Special Publication, 2024, Volume 10, Issue 49, Pages 1853-1858, Released on J-STAGE June 17, 2024, Online ISSN 2188-8027. <http://dx.doi.org/10.3208/jgssp.v10.OS-38-07>. (Presented the Paper at 8th International Conference on Earthquake Geotechnical Engineering, 8ICEGE, 07 - 10 May, 2024, Osaka, Japan).
- **Mittal, V.**, Samanta, M., and Kanungo, D. P. (2024). Investigation on Influence of Pile Foundation on Seismic Response of Irregular Building Considering Soil-Structure Interaction. In: Jose, B.T., Sahoo, D.K., Shin, E.C., Choudhury, D., Joseph, A., Pai, R.R. (eds) Proceedings of the Indian Geotechnical Conference 2022 Volume 1. IGC 2022. Lecture Notes in Civil Engineering, vol 476. Springer, Singapore. https://doi.org/10.1007/978-981-97-1737-8_11. (Presented the Paper at Indian Geotechnical Conference (IGC Kochi), 15 - 17 December 2022, Kochi, India).
- **Mittal, V.**, and Samanta, M. (2024). Investigation on Influence of Embedment Depth of Foundation on Seismic Response of Building Considering Soil—Structure Interaction. In: Goel, M.D., Kumar, R., Gadve, S.S. (eds) Recent Developments in Structural Engineering, Volume 1. SEC 2023. Lecture Notes in Civil Engineering, vol 52. Springer, Singapore. https://doi.org/10.1007/978-981-99-9625-4_6. (Presented the Paper at 13th Structural Engineering Convention, SEC 2023, 07 - 09 December 2023, VNIT, Nagpur, India).
- **Mittal, V.**, and Samanta, M. (2023). Investigation on Influence of Embedment Depth of Shallow Foundation on Seismic Response of Building Considering Soil-Structure Interaction. Lecture Notes in Civil Engineering, Vol. 331, Manish Shrikhande et al. (Eds): Proceedings of 17th Symposium on Earthquake Engineering (Vol. 3). <https://doi.org/10.1007/978-981-99-1579-8>. (Presented the Paper at 17th Symposium on Earthquake Engineering, 17SEE, 14 - 17th November, 2022, IIT Roorkee, India).
- **Mittal, V.**, and Samanta, M. (2021). A Critical Review on Design Philosophies of Different Design Standards on Seismic Soil- Structure Interaction. In: Sitharam T., Palapati R.R., Kolathayar S. (eds) Seismic Design and Performance. Lecture Notes in Civil Engineering, vol 120. Springer, Singapore. https://doi.org/10.1007/978-981-33-4005-3_1. (Presented the Paper at 7th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, 7ICRAGEE, 12 - 15 July 2021, IISC Bengaluru, India).

RESEARCH AND DEVELOPMENT PROJECTS

- Title of Project:** Assessment of Seismic Response of Buildings for Different Foundation System considering Soil-Structure Interaction - **DST Funded Project for 5 Years for the Ph.D. Work**
- Title of Project:** Integrated Experimental, Numerical and AI-Based Studies for Seismic Performance Evaluation and Health Assessment of Steel and Fibre Reinforced Bridges (MLP 0002614) - **As a Task Leader**
Duration of Project: 5 Years (April 2026 to March 2031)
- Title of Project:** Assessment on Influence of Soil-Foundation-Structure Interaction on Seismic Performance of Bridges (OLP 0678) - **As a Project Leader**
Duration of Project: 22 Months (April 2026 to January 2028)
- Title of Project:** Evaluation of Response Reduction Factor (R Factor) for RC Piers Designed as per Indian Codes (OLP 0680) - **As a Co-Project Leader**
Duration of Project: 22 Months (April 2026 to January 2028)
- Title of Project:** Flexural Performance of Glass Fibre Reinforced Polymer (GFRP) Beams with and without Discrete Glass Fibre Reinforced Concrete (OLP 0681) - **As a Team Member**
Duration of Project: 22 Months (April 2026 to January 2028)
- Title of Project:** Perspective-corrected machine learning framework for crack induced distress assessment in bridges (RDS 000015) - **As a Team Member**
Duration of Project: 11 Months (April 2026 to February 2027)

SPONSORED CONSULTANCY PROJECTS

- Title of Project:** Quality Audit of Work Up-gradation from Design Km. 0+000 to Km. 69+280 of NH-931 (Pratapgarh-Amethi-Gauriganj-Musafirkhana) to two lane with paved shoulder in the state of Uttar Pradesh (CNP 3052)- **Co-Project Leader (Co-PI)**
Duration of Project: 36 Months (June 2026 - May 2029)
- Title of Project:** 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 a Co-ordinator and a Team Member**
Duration of Project: 11 Months (November 2025 - September 2026)
- Title of Project:** Third Party Structural Audit of ongoing Construction of Greenfield Connectivity to Jewar International Airport from DND-Faridabad-Ballabgarh 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 a Team Member**
Duration of Project: 24 Months (January 2026 - January 2028)
- Title of Project:** Structural investigation and recommendations for repair/rehabilitation/strengthening strategies for three distressed VUPs located on Rajgarh Bypass and Pilani Bypass of NH-709 at km 5+100, km 36+150 and km 40+595 (CNP 3054) - **As a Team Member**
Duration of Project: 24 Months (July 2026 - July 2028)
- Title of Project:** Conditions 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 a Team Member**
- Title of Project:** Vetting of Strengthening Scheme for tilted Well Foundation P7 in Kishanganj Bihar (CNP 3042) - **As a Team Member**
- Title of Project:** 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 a Team Member**

8. **Title of Project:** To carry out 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 a Team Member

9. **Title of Project:** Review of DPR's of Assam, Maharashtra, Odisha, Pondicherry, Sikkim, Tripura and Uttarakhand States NRIDA (CNP 2912) - **As a Team Member**

MEMBERSHIPS AND RECOGNITIONS

- Life Member in Indian Society of Earthquake Technology
- Reviewer in
 - Journal of Performance of Constructed Facilities (ASCE),
 - Journal of Asian Architecture and Building Engineering (Taylor and Francis),
 - Cogent Engineering (Taylor and Francis),
 - Indian Geotechnical Journal (Springer),
 - Scientific Reports (Springer),
 - Iranian Journal of Science and Technology, Transactions of Civil Engineering (Springer),
 - Measurement (Elsevier),
 - Discover Civil Engineering (Springer),
 - Journal of Hazardous Material Advances (Elsevier).
 - Case Studies in Thermal Engineering (Elsevier)
 - Next Research (Elsevier)

INTERNATIONAL VISITS

- 8th International Conference on Earthquake Geotechnical Engineering, Osaka, Japan (8ICEGE, 2024)
- 18th World Conference on Earthquake Engineering, Milan, Italy (18WCEE, 2024)

INVITED LECTURES

1. Delivered a Keynote Lecture on "**Assessment of Seismic Performance of Buildings supported on Pile Foundation Considering Soil-Pile-Structure Interaction**" on October 23, 2025 at "**3rd International Conference on Civil Engineering and Intelligent Construction (ICCEIC 2025)**".
2. Expert Lecture on "**User Material Subroutine UMAT in ABAQUS: Application to Geotechnical/Structural Engineering Problems**" at "**PIGSO Learning**" on May 17, 2025.
3. Expert Lecture on "**Computing in Geotechnical Engineering Lab: Plaxis Learning Session**" at Department of Civil Engineering in "**University Institute of Technology, Himachal Pradesh University, Summerhill - 171005**".
4. Expert Lecture on "**Seismic-Soil-Foundation-Structure Interaction of Buildings: A Numerical Approach**" at "**PIGSO Learning**" on March 1, 2025.

PHD/ M.TECH/ B.TECH DISSERTATIONS GUIDED

1. Vinay MR (Ongoing) "Seismic Vulnerability Assessment of Structures in Bengaluru Region" Ph.D. Thesis at Visvesvaraya Technological University, Belagavi, Karnataka, India
2. Raushan Kumar Dubey (Ongoing) "Tunneling in Soft Rock Conditions" PhD Thesis, AcSIR, CSIR-CRRI.
3. Fahad Seraj (Ongoing) "Seismic Vulnerability Assessment of Bridges Considering Soil-Structure Interaction" M.Tech Thesis at Central University of Haryana
4. Md. Hasnain Khan (Ongoing) "Development of Fragility Curves for Various Shapes of Tunnels subjected to Seismic Excitations" M.Tech. Internship at IIT Delhi
5. Rahul Sharma (2024) "Seismic Vulnerability Assessment of Under-ground Structures" M.Tech Thesis at IIT Delhi