Curriculum Vitae

Dr. Abhijit Chakraborty

Scientist, Geotechnical Engineering Division,

CSIR-Central Road Research Institute,

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Area of Interest

1. Geotechnical Earthquake Engineering
2. Soil Liquefaction & Ground Response Analysis
3. Soil–Structure Interaction & Computational Geomechanics
4. Ground Improvement Techniques
5. Vulnerability Assessment of Geotechnical and Earth Structures

Academic Qualification (Undergraduate Onwards)

Degree	Year	Subject	University/Institution	CGPA (out of 10)
B. Tech	2011-2015	Civil Engineering	NIT Agartala	8.86
M. Tech	2015-2017	Geotechnical Engineering	NIT Durgapur	9.06
Ph. D	2018-2023	Geotechnical Engineering	IIT Roorkee	10.0

Work Experience

SL. No.	Positions held	Name of the Institute	Duration
01.	Assistant Professor	Dr. B. C. Roy Engineering College, Durgapur	July 2017 - May 2018
02.	Postdoctoral Fellow	Indian Institute of Technology Kanpur	February 2024 - March 2025
03.	Postdoctoral Fellow	Tokyo University of Science	April 2025 – November 2025

Professional Recognition/ Award/ Prize/ Certificate

S. No	Name of Award	Awarding Agency	Year
01.	Institute Gold Medalist (Certificate No. DD/17/GOLD/PG/06)	NIT Durgapur	2018
02.	State level 5th position in CAT (II)	Tripura Chemical Society	2011

Publication Details

Journals:

1. **Chakraborty, A.** and Sawant, V. A. (2022). "Numerical Simulation of Earthen Embankment Resting on Liquefiable Soil and Remediation Using Stone Columns." ***International Journal of Geomechanics***, 22(11), 04022205:1-20 https://doi.org/10.1061/(ASCE)GM.1943-5622.0002559.
2. **Chakraborty, A.** and Sawant, V. A. (2022). "Earthquake response of embankment resting on liquefiable soil with different mitigation models." ***Natural Hazards***, 116, 3093–3117 (2023). https://doi.org/10.1007/s11069-022-05799-6.
3. **Chakraborty, A.** and Sawant, V. A. (2023). "Fragility Assessment of Highway Embankment Resting on Liquefaction-Susceptible Soil." ***Computers and Geotechnics***, 161-105568. https://doi.org/10.1016/j.compgeo.2023.105568.
4. **Chakraborty, A.**, Sawant, V. A. (2023) "Response of Embankment on Liquefiable Soil to Sequential Ground Motions Considering Mitigation Measures." ***Soil Dynamics and Earthquake Engineering***, 176-108278. https://doi.org/10.1016/j.soildyn.2023.108278.
5. **Chakraborty, A.**, Bhattacharya, K., and Sawant, V. A. (2024). "Soil Structure Interaction Effects on Multistorey Asymmetric Building Subjected to Earthquake Loading." ***Indian Geotech Journal***. https://doi.org/10.1007/s40098-024-00938-1.
6. **Chakraborty, A.** and Sawant, V. A. "Highway embankment fragility behaviour subjected to liquefaction-induced settlement." ***Japanese Geotechnical Society Special Publication***, 8th International Conference on Earthquake Geotechnical Engineering. Osaka, Japan, 2024. https://doi.org/10.3208/jgssp.v10.OS-22-05.
7. **Chakraborty, A.**, Sawant, V. A. "Dynamic behaviour of plastic and non-plastic silt interlayered liquefiable deposit." ***Indian Geotechnical Journal***. https://doi.org/10.1007/s40098-025-01338-9.

8. **Chakraborty, A.**, Ghosh, P. "Dynamic responses of embankment resting on liquefiable foundation soil under pulse and non-pulse type earthquake motions." ***International Journal of Geomechanics***, 25(8), 04025165. https://doi.org/10.1061/IJGNAI.GMENG-11437.
9. Sinchith, M., **Chakraborty, A**, Nandi, S., Ghosh, P. "Critical Slope Profile in Purely Cohesive Soil under Seismic Conditions: An Alternate Stability Criterion." ***Natural Hazards Review***, ASCE, Vol. 27(1), https://doi.org/10.1061/NHREFO.NHENG-2370.
10. Zenab, A. A., **Chakraborty, A.**, Sawant, V. A., Tyagi, A. "Influence of Embankment Properties on the Dynamic Response Considering Liquefiable Foundation Soil." ***Transportation Geotechnics***, 101667. https://doi.org/10.1016/j.trgeo.2025.101667.
11. Kumar, P., **Chakraborty, A.**, Swain, A. K., Sawant, V. A. "Effect of Vehicle-Induced Blast Loading on the Hill Road and Side Slopes." ***Journal of Vibration Engineering & Technologies***, 13: 453. https://doi.org/10.1007/s42417-025-01999-z.
12. **Chakraborty, A.**, Sawant, V. A. "Liquefaction Mitigation Methods: A Comparative Study." ***Indian Geotechnical Journal*** (Revision Submitted).

Conferences:

1. **Chakraborty, A.** and Sawant, V. A. (2023). "Calibration of UBC3D-PLM constitutive model to simulate the dynamic response of earthen embankment resting on liquefiable soil." *Proceedings of* ***17th Symposium on Earthquake Engineering*** (Vol. 3), Lecture Notes in Civil Engineering (LNCE, volume 331). Springer.
2. **Chakraborty, A.** and Sawant, V. A. (2023). "Numerical study on the behaviour of earthen embankment built on liquefiable soil." *The* ***10th European Conference on Numerical Methods in Geotechnical Engineering*** (NUMGE 2023), Imperial College London, 26-28 June, 2023. ISSMGE.
3. **Chakraborty, A.**, Bhattacharya, K., Sawant, V. A. (2021). Earthquake Response of 3D Asymmetric Building with Infill Wall Under Soil-Structure Interaction. In: Patel, S., Solanki, C.H., Reddy, K.R., Shukla, S.K. (eds) Proceedings of the ***Indian Geotechnical Conference*** **2019**. Lecture Notes in Civil Engineering, vol 138. Springer, Singapore. https://doi.org/10.1007/978-981-33-6564-3_54.
4. Jain, A., **Chakraborty, A.**, Das, S., Mittal, S. (2021). Cyclic Triaxial Test to Measure Strain-Dependent Dynamic Properties—A Comprehensive Study. In: Patel, S., Solanki, C.H.,

Reddy, K.R., Shukla, S.K. (eds) Proceedings of the ***Indian Geotechnical Conference*** **2019**. Lecture Notes in Civil Engineering, vol 138. Springer, Singapore. https://doi.org/10.1007/978-981-33-6564-3_59.

5. **Chakraborty, A.** and Sawant, V. A. "Effect of foundation liquefiable soil on the response of earthen embankment." ***Indian Geotechnical Conference***, Civil Engg. Dept. IIT Roorkee, India, December 2023.
6. Jain, A., **Chakraborty, A.**, Banerjee, S., Shekhar, S. "Behavior of Stone Column Mitigation in Silt-Interlayered Liquefiable Deposits: Finite Element Analysis." ***Proceedings of the 21st International Conference on Soil Mechanics and Geotechnical Engineering***, Vienna 2026 (Accepted).

Scholarly Reviews

- *International Journal of Geomechanics*, ASCE
- *Indian Geotechnical Journal*, Springer
- *Indian Geotechnical Conference*, Springer
- *Scientific Reports*, Nature Portfolio
- *Environmental Sustainability*, Springer

Grant/Support Awarded

- Received **ISSMGE Foundation Award** on the year 2024 to attend 8th ICEGE conference in Osaka, Japan.
- Received **International Travel Support (ITS) from SERB (DST)** to attend the 10th European Conference on Numerical Methods in Geotechnical Engineering (2023) at Imperial College London.
- Received **Departmental Development Fund (Scheme-1)** from the Department of Civil Engineering, IIT Roorkee, for attending the International Conference NUMGE 2023.
- Recipient of **Stipend and Book Grant from NEC** (North-Eastern Council Secretariat, Shillong, Government of India) during B. Tech (2011-2015).

Teaching Assistant (2019-2022)

- Numerical Methods and Computer Programming (UG)
- Soil Mechanics Theory and Practical (UG)
- Advanced Numerical Analysis (PG)
- Constitutive Models for Geological Materials (PG)

Consultancy/Research Projects Assistant

- Geotechnical Study for Designing Vertical Mining Using Grab in South-Kaliapani Chromite Mine of OMC Ltd. CED-6512/19-20 - 10.62 Lac (INR)
- Study on the response of subgrade soil of penta-rail track and means to improve the functionality requirements of track, funded by Terminal Ballistics Research Laboratory, Chandigarh. CED-1534/20-21 – 48.0 Lac (INR)

Skills

- **Programming:** FORTRAN
- **Engineering Softwares:** PLAXIS 2D, PLAXIS 3D, Abaqus, LUSAS, DeepSoil.

Current Research

- I am working on a project titled '**Effect of Vehicle-Induced Blast Loading on Hill Roads and Side Slopes**' in collaboration with Prof. Vishwas A Sawant (Dept. of Civil Engg.) and Prof. (Associate) Abinash Kumar Swain (Dept. of Mechanical and Industrial Engg.) from IIT Roorkee.
- In collaboration with Prof. Yoshimichi Tsukamoto from the Department of Civil Engineering, Tokyo University of Science, Noda (Japan), in a project titled **'Developing a next-generation platform for evaluating triggering and consequences of soil liquefaction.'**

*** Note:** I hereby declare that the information given above and in the enclosed documents is true to the best of my knowledge and belief, and nothing has been concealed therein. **