Curriculum Vitae

Personal Information

NAME: **DR. SAPTARSHI KUNDU**

Place of Birth: Kolkata, West Bengal, INDIA
E-mail ID: saptarshikundu123@gmail.com
Google scholar profile:
https://scholar.google.com/citations?user=QHSWhnAAAAAJ&hl=en
Address for correspondence:
B-176, Faculty Quarter, Indian Institute of Engineering Science and Technology (IIEST), Shibpur,
Howrah - 711103, West Bengal, INDIA

Educational background

Examination Passed	*Subject / Specialization/ Title of Thesis*	*Board / Univ.*	*Div/Class.*
ICSE	Eng, Beng, History Civics, Geography, Math, Science, Phy. Ed	CISCE	1st
ISC	Science [Phy, Che, Math, Bio]	CISCE	1st
B.C.E	Civil Engineering	Jadavpur Univ.	1st
MTech	Geotechnical Engineering	IIT Bombay	1st
Ph.D.	Geotechnical Engineering	IIT Bombay	1st

Research activities/interests

- *Geotechnical Engineering and Soil Mechanics*
- *Geotechnical Physical Modelling at normal and enhanced gravity*
- *Coupled hydro-mechanical analysis of geotechnical problems*
- *Ground Improvement of Geomaterials*

Awards and Distinction

IGS-Mr. H.C. Verma Diamond Jubilee Award for "**Innovative Instrument Design**" for the entry "**Design and Development of an Actuator for Simulating Dynamic Compaction Induced Ground Remediation of Geomaterials**". Awarded in the inaugural function of IGC-2021 held on Thursday, December 16, 2021.

Teaching / Research experience

Organization	*Type of Organization*	*From*	*To*	*Total period*	*Designation*
IIEST Shibpur	Central Govt. Institute	03/2021	-	Ongoing	Temporary Faculty
IIT Bombay	Central Govt. Institute	01/2020	07/2020	6 months	Research Associate

Thesis Supervised

Academic Program	*Responsibility*	*Status of thesis*	*Number*
M.Tech	Co-Supervisor	In progress/Completed	06/03
B.Tech	Supervisor	Completed	08

Courses Taught

Academic Program	*Courses*
UG (B.Tech) & Dual Degree	• Geotechnical Engineering-I • Earth and Earth Retaining Structures • Environmental Geotechnology • Advanced Foundation Design Project • Geotechnical Engineering Laboratory • Estimation, Valuation and Project Management • Advanced Numerical Methods and Computer Programming • Civil Engineering Materials Laboratory • Estimation Practice Sessional • General Civil Engineering Problems (Minor Project) • Steel Structures Design Project • Advanced Structure Design Project
M.Tech & Ph.D.	• Environmental Geotechnics • Soil Exploration and Geo-Instrumentation • Elasticity and Plasticity • Foundation Engineering • Geotechnical Model Laboratory • Dynamics of Soils and Machine Foundations

Selected Publications

Selected Referred Journals:

1) **Kundu, S.,** and Viswanadham, B.V.S. (2021). "Centrifuge Modelling and DIC of Dynamic Compaction on sandy soils with shallow water table", **Journal of Geotechnical and Geoenvironmental Engineering, ASCE,** 147(6), 04021037-1:14. DOI: 10.1061/(ASCE)GT.1943-5606.0002524 [IF-3.659/2020]

2) **Kundu, S.,** and Viswanadham, B.V.S. (2021). "Design and development of an in-flight actuator for modelling dynamic compaction in a geotechnical centrifuge." **Geotechnical Testing Journal**, **ASTM**, 44(4), 884-911. DOI: 10.1520/GTJ20190169 [IF-1.469/2020]

3) **Kundu, S.,** and Viswanadham, B.V.S. (2020). "Numerical modelling of dynamic compaction induced settlement of MSW landfills." **International Journal of Geomechanics**, **ASCE**, 20(8), 04020125-1:12. DOI: 10.1061/(ASCE)GM.1943-5622.0001754 [IF-3.611/2020]

4) **Kundu, S.,** and Viswanadham, B.V.S. (2018). "Numerical studies on the effectiveness of dynamic compaction in loose granular deposits using shear wave velocity profiling." **Indian Geotechnical Journal,** Springer, India, 48(2), 305-315. DOI: 10.1007/s40098-018-0298-2 [IF-1.39/2020]

Selected International / National Conferences:

5) Rehman, Ul. M., **Kundu, S.,** and Bhattacherjee, D. (2022). "Numerical Analysis on the Stability of Upstream Mine Tailings Dam under Seismic Loading." **Proceedings of Indian Geotechnical Conference (IGC 2022**), 15-17 December 2022, In press, Dynamics of Soil and Modelling of Geotechnical Problems - (ISBN: 978-981-16-5604-0).

6) Gulzar, A., **Kundu, S.,** and Ghosh, A. (2022). "Mitigation of Liquefaction induced Settlements under Shallow Strip Footings using Ground Densification." **Proceedings of Indian Geotechnical Conference (IGC 2022**), 15-17 December 2022, In press

7) Tabish, Q., **Kundu, S.,** and Ghosh, A. (2022). "Analysis of Settlement Profiles of Shallow Strip Footings Resting on Geosynthetic-Reinforced Sand", **Proceedings of Indian Geotechnical Conference (IGC 2022**), 15-17 December 2022, In press

8) **Kundu, S.,** and Viswanadham, B.V.S. (2022). "Centrifuge Studies on Ground Improvement of Sandy Soil with progress of Dynamic Compaction." Proceedings of **10th International Conference on Physical Modelling in Geotechnics,** 19-23 September 2022, KAIST, Daejeon, South Korea, In print.

9) Viswanadham, B.V.S., Mulleneers H., Wammes, J., and **Kundu, S.** (2021). "Evaluation of the performance of

polymer-blended bentonite sand and clay barriers in a geotechnical centrifuge." Proceedings of **3rd Asian Conference on Physical Modelling in Geotechnics (Asiafuge)**, 18-19 November 2021, GeoSS and NUS Singapore (pubs.), pp. 268-277.

10) Viswanadham, B.V.S., and **Kundu, S.** (2021). "Studies on verification of dynamic compaction induced densification of MSW landfills using shear wave velocity profiling." Proceedings of **Geo-Environmental Engineering (GEE2021)**, 20-21 May 2021, Caen, France, Daniel Levacher and Mohamed Boutouil (Eds), ESITC University Caen (Pubs.), pp. 331-340.

11) **Kundu, S.,** and Viswanadham, B.V.S. (2020). "Centrifuge model studies on dry granular soils subjected to dynamic compaction induced tamping." **4th European Conference on Physical Modelling in Geotechnics (4ECPMG)**, 6-8 September 2020, Luleå, Sweden, Jan Laue & Tarun Bansal (Eds), Luleå University of Technology (Pubs.), Volume 1, pp. 43-48.

12) Viswanadham, B.V.S., **Kundu, S.** and Kumar, A. (2020). "Laboratory Investigation of MSW for use as a Filler material in embankments." **Geoenvironment-2020: Conference on Geoenvironment and Sustainability**, Ministry of Environment, Forest and Climate Change (sponsored), 17-19 February 2020, IIT Delhi, pp. 267-275.

13) **Kundu, S.,** and Viswanadham, B.V.S. (2018). "Influence of tamper shape on dynamic compaction of granular soil." Proceedings of the **9th International Conference on Physical Modelling in Geotechnics (9ICPMG 2018),** City, University of London, 17-20 July 2018, McNamara, Sam Divall, Richard Goodey, Neil Taylor, Sarah Stallebrass, Jignasha Panchal (Eds), Taylor & Francis Group (Pubs.), Volume 2, pp. 1205-1209.

14) **Kundu, S.,** and Viswanadham, B.V.S. (2016). "Numerical modelling of the densification of Municipal Soild Waste landfills using dynamic compaction." In **Geo-Chicago 2016, Geotechnical Special Publication No 269**, August 14-18, 2016, Chicago, Illinois, A. De, K.R. Reddy, N. Yesiller, D. Zekkos, and A. Farid (Eds), ASCE (Pubs.), pp 202-211. **[**DOI: 10.1061/9780784480144.020]

15) **Kundu, S.,** and Viswanadham, B.V.S. (2016). "Studies to evaluate the impact of tamper on the depth of improvement in dynamic compaction." **Japanese Geotechnical Society Special Publication** (ISSN: 2188-8027), 2(59), 2033-2037. **[**DOI: 10.3208/jgssp.IND-20]

16) **Kundu, S.,** and Viswanadham, B.V.S. (2014). "Centrifuge model tests on the performance of soil-nailed shoring system." **8th International Conference on Physical Modelling in Geotechnics (8ICPMG 2014)**, Perth, Australia, Gaudin & White (Eds), Taylor & Francis Group (Pubs.) Vol 2, pp. 1119-1124.

17) Viswanadham, B.V.S., Guha, A., Sudarshan, B.V., **Kundu, S.**, and Bhattacherjee, D. (2014). "Centrifuge model tests on the measurement of impact energy on bridge pier foundations embedded in sand." **8th International Conference on Physical Modelling in Geotechnics (8ICPMG 2014),** Perth, Australia, Gaudin & White (Eds), Taylor & Francis Group (Pubs.), Vol 2, 1061-1066.

18) **Kundu, S.,** and Viswanadham, B.V.S. (2012). "Some studies on the deformation behaviour of soil-nailed shoring system." **Indian Geotechnical Conference (IGC), IIT Delhi**, 13-15 December 2012, Vol 1, pp. 351-354.

Selected Book Chapters:

19) **Kundu, S.,** and Viswanadham, B.V.S. (2021). Use of dynamic compaction for densifying MSW landfills. In: Transportation, Water and Environmental Geotechnics-Proceedings of Indian Geotechnical Conference 2020**,** (Hardcover ISBN: 978-981-16-2259-5) **Lecture Notes in Civil Engineering**, N.V. Satyanarayana Reddy Chirla, S. Saride and S. Haldar (Eds.), Springer Singapore (Pubs.), Vol. 4, pp. 159-169.

20) **Kundu, S.**, and Viswanadham, B.V.S. (2021). Influence of geofoam infilled trenches in attenuation of ground vibrations induced during dynamic compaction. In: Ground Improvement Techniques – Select Proceedings of 7th ICRAGEE 2020 (Hardcover ISBN: 978-981-15-9987-3) **Lecture Notes in Civil Engineering**, T.G. Sitharam, C.R. Parthasarathy and Sreevalsa Kolathayar (Eds.), Springer Singapore (Pubs.), Vol. 118, pp. 63-72. doi.org/10.1007/978-981-15-9988-0_7

21) Viswanadham, B.V.S, and **Kundu, S.** (2021). Studies on modelling of Dynamic Compaction in a Geocentrifuge. In: Latest Developments in Geotechnical Earthquake Engineering and Soil Dynamics- **Springer Transactions in Civil and Environmental Engineering**, T.G. Sitharam, R. Jakka and S. Kolathayar (Eds.), Springer Singapore (Pubs.), pp. 373-391. doi.org/10.1007/978-981-16-1468-2_16

22) **Kundu, S.**, and Viswanadham, B.V.S. (2019). Use of dynamic compaction in constructing subgrades over reclaimed fills. In: Geotechnics for Transportation Infrastructure (Hardcover ISBN: 978-981-13-6712-0). **Lecture Notes in Civil Engineering**, R. Sundaram, J. Shahu, and V. Havanagi (Eds.), Springer, Singapore (Pubs.), Vol. 29, pp. 595-607. doi.org/10.1007/978-981-13-6713-7_47

Innovative activities and developments

- Involved actively in establishment of Advanced Dynamics Laboratory, beam centrifuge facility and related accessories and development of large scale testing facility at IIEST Shibpur
- Involved in the core committee for the design and development of a **2.2 m diameter beam centrifuge facility at IIT Bombay** with a maximum acceleration level of 300 g. The maximum allowable payload is 50 kg at 300 g. The centrifuge is adequately equipped with slip rings, rotary joints and 16 channel datalogger for accurate modeling of various field phenomena. Involved actively in the **upgradation of the existing 4.5 m radius large-beam centrifuge facility at IIT Bombay** through commissioning of multi-channel data acquisition system and sensors.
- Involved in the team for testing an **innovative landfill liner material** through series of centrifuge tests
- Design and development of an **in-flight actuator for simulating dynamic compaction** at enhanced gravities **in a geotechnical centrifuge**. The developed actuator enables modelling of pore water pressure build-up in saturated soils during tamper drop and its subsequent dissipation. Centrifuge model tests were conducted on dry soils and soils saturated with water and hydroxypropyl methylcellulose (HPMC) pore fluids using the developed actuator.

Sponsored projects

Sponsoring Agency	*Title of project*	*Amount (Rs.)*	*Status*	*Role*
Ansys Software Pvt. Ltd.	Analysis of Bridge With Hollow Core Stiffened FRP Deck under Dynamic Loading Considering Fluid-Structure and Soil- Structure Interaction	33,85,000/-	Ongoing	Co-PI
East Hooghly Poly Plast Pvt. Ltd.	Development of Bank Protection Methodologies forVarious Vulnerable Reaches of Rivers in West Bengal through Model Studies and Preparation of Design Charts and Guidelines	12,00,000/-	Ongoing	Co-PI

Consultancy projects

Sponsoring Agency	*Title of project*	*Status*	*Role*
Simplex Infrastructures Limited	Widening/ Improvement to 4 (Four) Lane with Paved Shoulder of existing single lane from Srirampur (near Bhairiguri village) to Kachukhana Harichara Paglagaunj Section (PKG -I) of Srirampur to Dhubri Road of newly declared NH-127B of existing KM 0.000 to KM28.050 (Design KM. 0.000 to KM. 27.650), (Design Length= 27.650km) on EPC Bas is in the state of Assam under JICA	Ongoing	Proof Consultant
BLAPPL-GPPL (Joint Venture)	Widening to 2 (Two) Lane with Paved shoulder of Imphal to Jiribam section of NH37 from Design Chainage 66.110 km to 101.280 Km (Existing Chainage km 67.496 to Km 103.557) (PKG-4) in the State of Manipur on Engineering, Procurement & Construction, (EPC) mode	Ongoing	Proof Consultant
Bharat Coking Coal Limited	Scientific Study for determining the Safe Method of Working, Ultimate Pit Slope and Dump Slope with Monitoring of Slope Stability of Basantimata- Dahibari Colliery Under CV AREA-XII	Completed	Design Consultant
Minsol India Private Limited	Preparation of Geotechnical report on Highwall mining at Amalgamated Amlo Dhori	Ongoing	Design Consultant

Additionally participated in consultancy projects of national importance involving the following thrust areas:

- Soil stabilization works involving soil-anchor systems and gabion walls
- Rockfall protection works and crib works
- Seepage and stability analysis of earthen dams, soil-nailed slopes etc.
- Computation of stresses and deformation analysis of retaining walls at various stages of excavation.
- Analysis of settlement problem and deformation behaviour of buried pipelines under the influence of overburden pressure and rainfall using Geostudio software.
- Numerical analysis of failure mechanism of various geotechnical structures, eg. Analysis of the shored-pile sections located near slope-failure zone in Wadala, Mumbai using Plaxis software.
- Effects of excavation of bored tunnels and excavation for underground station near Kalina-Vakola Flyover during construction of Mumbai Metro Line 3 (Colaba-Bandra-Seepz) using ABAQUS.

Reviewer of National/International Journals

- Journal of Geotechnical and Geoenvironmental Engineering (ASCE)
- International Journal of Geomechanics (ASCE)
- Indian Geotechnical Journal (Springer**)**
- Transportation Infrastructure Geotechnology (Springer**)**