CURRICULUM VITAE

Name	**Dr. PARVATHI G. S.**
Designation	Principal Scientist
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Areas of Interest

Geotechnical engineering, Ground improvement methods, Geosynthetics and Geofoam for road construction, FEM modelling, Digital image correlation, Material and Interface Characterization, AI/ML applications in Geotechnical Engineering

Education

PhD (2024), Geotechnical Engineering, Indian Institute of Technology, Delhi

M.Tech. (2011), Geotechnical Engineering, Indian Institute of Technology, Kanpur

B.Tech. (2009), Civil Engineering, College of Engineering, Trivandrum

Professional Experience

- Principal Scientist, CSIR-Central Road Research Institute, New Delhi (2022 - till date) (Pay Level 13)
- Senior Scientist, CSIR-Central Road Research Institute, New Delhi (2017 – 2022) (Pay Level 12)
- Scientist, CSIR-Central Road Research Institute, New Delhi (2014 – 2017, (PB-3, GP-6600/-, Pay Level 11)
- Scientist, CSIR-Central Building Research Institute, Roorkee (2012 – 2014) (PB-3, GP-6600/-)
- Geotechnical Engineer, Geodata India Pvt. Ltd., New Delhi (2012-2012)
- Design Engineer, Maccaferri Environmental Solutions Pvt. Ltd., New Delhi (2011 –2012)

National Committees

- EC member of International Geosynthetic Society (India Chapter)
- Member of H4 Committee of Indian Roads Congress
- Member of TXD 30 (Geosynthetics Sectional Committee) of BIS
- Member of MED 18 : P5 Panel (Construction Plant and Machinery Committee) of BIS
- Drafting Member for IRC 132 (2022) and Revision of IRC SP-102 (2025); provided assistance in IS 14458-6 and IRC 113 (2013).

Membership in Professional Bodies

- Fellow of Indian Geotechnical Society
- Life Member of Indian Roads Congress
- Member of The Institution of Engineers (India)
- Life Member of Indian Geotechnical Society Delhi Chapter
- Young Member of International Geosynthetic Society
- Member of the International Society for Rock Mechanics
- Member of Deep Foundation Institute- India
- Member of CRRI Management Council (2022-2024)
- Joint Secretary CRRI MBSQ RWC
- Life Member of IIT Kanpur and IIT Delhi Alumni Association

Achievements

1. Awards and Recognitions

- **Achievement Award for Scientist** from Construction Industry Development Council awarded during 16th CIDC Vishwakarma Awards, 2025
- Co-Author of **Best Paper** Presentation Award (awarded to M-tech student) for 9th Indian Young Geotechnical Engineers Conference held at IIT Indore by Indian Geotechnical Society, 2025.
- Elected as **Fellow** of Indian Geotechnical Society
- **Forensic Geotechnical Engineering Award** from Indian Geotechnical Society for the year 2023. This award was received for a project titled "Failure Analysis and Mitigation of Shangumukham Beach Road, Thiruvananthapuram, Kerala."
- Listed among the **75 Influential Indian-Origin Women Geotechnical Engineers** by Indian Geotechnical Society on their book 'Daughters of Indian Soil'
- Indian Geotechnical Society – Delhi Chapter **Young Geotechnical Engineer Award** for the Year 2019.
- **IRC medal** for the Year 2018. This award was received for the paper titled "Municipal Solid Waste in Road Embankment Construction - A Case Study."
- **IGS-Ferroco Young Geotechnical Engineer Award** for the Year 2018. This is the best paper award in the area of "Dam Engineering and Allied Areas."

2. Patent (filed)

Method for enhancing the bearing capacity of existing structures using steel fiber-reinforced grout column

3. Reviewer

- International Journal of Geomechanics
- Indian Geotechnical Journal.
- Geosynthetics International
- International Journal for Numerical and Analytical Methods in Geomechanics
- Indian Geotechnical Conferences

4. Developed Facilities as PI/Indenter

- Advanced testing facilities for geosynthetics (roughness profiler, cross and in-plane permeability testing machines, thickness gauge, interface shear test box, UTM up to 100 kN with temperature chamber).

- Specialized soil testing setups (large-scale consolidation apparatus for vertical drains, computerized consolidation testing system, static physical model testing tank and accessories (50 kN)).
- Laboratory support equipment (digital microscope, PH resistivity, temperature & humidity meters, weighing machines, density apparatus, acrylic tanks, Geofoam testing grips and accessories, workstation units).
- Computational facilities (Digital image correlation system, high-performance mobile workstations, interactive panels).
- Licensed software suites (Geo5 MSEW, MSEW+, Soilworks, GTS NX, ArcGIS, Surfer, Grapher, Origin Pro).

5. Research Projects

Sl. No.	Title of the Project	Duration		Sponsoring Agency
		Start	End	
As Principal Investigator				
1.	Development of 'Biodegradable Prefabricated Vertical Drain' by Moulding Technique– A Sustainable Solution for Road Construction Over Soft Soil	2024	Ongoing	CSIR-FBR
2.	Development and Field Testing of 'Natural Prefabricated Vertical Drain' - A Sustainable Solution for Road Construction Over Soft Soil	2025	Ongoing	National Technical Textiles Mission (NTTM)
3.	Sustainable Geocomposite Drainage-Root Barrier	2022	2024	CSIR-FTT
4.	Hill road widening using lightweight fills-An alternative to hill cutting and filling	2020	2023	NHIDCL
5.	Ground Improvement of Sub-Soil Below Existing Structures Using Steel Fibre Reinforced Grouting	2016	2019	CRRI
6.	Engineering of Disaster Mitigation and Health Monitoring for Safe & Smart Built Environment-Task 2.2 - "Seismic behaviour of piles under dynamic lateral loading"	2012	2017	CSIR (12th FYP)
7.	Development of sandwiched soil technology for Geosynthetic Reinforced Earth walls	2013	2014	CBRI
As Team Member				
8.	Behaviour of red mud waste material under cyclic loading	2023	Ongoing	CRRI
9.	Delhi Cluster- "Delhi Research Implementation and Innovation" (DRIIV), Theme Solid Waste Management, WP-6 Use of construction & demolition wastes, incinerated residues in road construction.	2021	2023	IIT-Delhi
10.	Upgradation of R &D and testing facilities in the area of geotechnical Engineering	2016	2018	CRRI
11.	Engineering of Disaster Mitigation and Health Monitoring for Safe & Smart Built Environment-Task1.6 - "Comprehensive geo-investigation and control measures for a landslide in Chamoli-Joshimath region of Garhwal Himalaya."	2012	2017	CSIR (12th FYP)

6. Industry Sponsored Projects

Sl. No.	Title of the Project	Duration		Sponsoring Agency
		Start	End	
As Principal Investigator				
1.	Failure Analysis and Design of Remediation Works for Rehabilitation of Retaining Wall, CRPF Campus, Srinagar	2024	2025	CPWD
2.	Failure analysis and Design of Remediation works for Silewani Ghati hill road	2021	2022	NHAI
3.	Feasibility study of utilization of dredged material from Banganga River catchment of Ramgarh dam	2020	2021	Water Resource Department, Rajasthan
4.	Design of Road Remediation and erosion protection works for the reconstruction of flood-damaged Shangumugham Beach Road, Thiruvananthapuram.	2019	2020	Kerala PWD
5.	Investigation and the design of Landslide Remediation measures in Nilambur-Gudalloor Road, Kerala	2019	2020	Kerala PWD
6.	Design of ground Improvement Measures and Pavement Design for Setting up of MMLP Container Terminal at Paradip, Orissa	2018	2018	Ircon ISL
7.	Ground Improvement Measures Over Soft Organic Soil in the Northern Campus of NIT Manipur, Langol, Imphal.	2016	2017	CPWD
As Team Member				
8.	Design, Construction, Supervision and Pavement performance evaluation of road constructed by using red mud	2023	Ongoing	Hindalco Industries
9.	Quality Audit of Six Laning Shamlaji to Motachiloda section, NH-8, Ahmadabad, Gujarat	2022	2023	NHAI
10.	Utilization of Red mud for Road and Structural fill applications	2021	2022	Hindalco Industries
11.	Recycling of Ghazipur Municipal Solid wastes for Road Embankment and subgrade construction	2021	2022	Invest India
12.	Ground Granulated Blast Furnace Slag (GGBFS) as a soil stabilizer for Road construction	2020	2021	JSW cements
13.	Stability Analysis and Design of Embankment for Red Mud Disposal Pond	2020	2021	Hindalco and NEERI
14.	Performance study of a mix of jarofix-zinc slag as a retained fill in reinforced retaining wall	2019	2020	Hindustan Zinc Ltd
15.	Investigation, Analysis and Design of Remedial Measures of Landslides at Pambai Valley, Dharchulla, Uttarakhand	2019	2019	CPWD
16.	Quality Audit of Under Construction Four Laning of Ludhiana-Talwandi Section from 92.000 Km to 170.000 Km of N.H-95	2018	2019	NHAI
17.	Feasibility of municipal solid wastes (MSW) from Ramana dump site, Varanasi for Road embankment construction	2016	2017	NHAI

18.	Detailed investigation of existing bridge flyovers regarding the structural stability security Audit in New Town, Kolkata	2016	2017	West Bengal Housing Infrastructure Development Corporation
19.	Design of single span two-lane bridge on Gurgaon canal at RD 2245m connecting sector-3 and 8 village Sihi in Faridabad	2016	2017	Irrigation Department Haryana
20.	Utilization of Municipal Solid Wastes at Ghazipur for embankment construction in proposed widening of NH-24	2016	2016	NHAI
21.	Vetting of Pavement design of Agartala-Udaipur section from km 6.800-Km-55.00 of NH-44 in Tripura	2016	2016	Kolkata Metro Construction Limited
22.	Feasibility Study of Chrome Slag for embankment, subgrade and sub base layer of road pavement	2016	2017	Balasore Alloys Ltd.
23.	Embankment Protection and Capacity Augmentation Methods for Red Mud Pond-4 at Muri, Ranchi	2012	2013	Hindalco Industries
24.	Comprehensive study for rehabilitation of people affected by max pond level of 1108m Joshiyara Barrage, Uttarkashi	2012	2013	Central Water Commission

7. Research Publication

a. Journals

1. **Parvathi, G.S**., Dayana, M. PJ., & Sinha, A. K. (Accepted). Characterization of River Dredged Material for Sustainable Reuse in Road Construction. *Marine Georesources & Geotechnology*. (SCI IF: 2.7)
2. **Parvathi, G.S**., Dayana, M. PJ., Havanagi, V. G., & Sinha, A. K. (2025). Geotechnical and geophysical evaluation and remediation of hill road failure: a case study. *International Journal of Disaster Resilience in the Built Environment*. https://doi.org/10.1108/IJDRBE-04-2024-0045 (SCI IF: 1.5)
3. **Parvathi, G.S.**, Bansal, D. & Ramana, G.V. Interface Shear Behavior of Geofoam-Sand: A Comprehensive Laboratory Investigation. *Int. J. of Geosynth. and Ground Eng.* **10**, 88 (2024). https://doi.org/10.1007/s40891-024-00599-3 (SCI IF: 2.3)
4. Sinha, A.K., Havanagi, V.G. & **Parvathi, G.S.** Recycling of Stabilized Copper Slag Waste for Sustainable Road Embankment Construction: A Pilot Study. *Iran J Sci Technol Trans Civ Eng* (2024). https://doi.org/10.1007/s40996-024-01622-3 (SCI IF: 1.7)
5. **Parvathi, G. S.**, Pant, A. & Ramana, G.V. (2024) Parametric evaluation and prediction of design parameters of geofoam using artificial neural network and extreme gradient boosting models. Innov. Infrastruct. Solut. 9, 282. https://doi.org/10.1007/s41062-024-01606-2 (SCI IF: 2.4)
6. SaiMadhu, K., Sasidharan, D., Kadiroli, Bharath G.; **Parvathi G. S.**; Solanki A. J. (2024). Mechanical characterization of Rice Husk Ash incorporated bituminous concrete. Innov. Infrastruct. Solut. 9, 267. https://doi.org/10.1007/s41062-024-01587-2 (SCI IF: 2.4)
7. Bhatt, P., Sinha, A. K., Dayana PJ, M., Hasan, M., & **Parvathi, G. S.** (2024). Performance Evaluation of Zinc Tailing Waste Material for Embankment Construction: Experimental and Numerical Investigation. Journal of Mining and Environment. Article in Press. https://doi.org/10.22044/jme.2024.13368.2459 (SCI IF: 0.3)

8. **Parvathi, G. S.,** Vangla, P., and Ramana, G. V. (2024). Image-aided physical and compression characterisation of EPS geofoam. Geosynthetics International, 31(3), 283-295. https://doi.org/10.1680/jgein.22.00363 (SCI IF: 4.565)
9. **Parvathi, G. S.**, Ramana, G. V., Nohawar, P. S. (2023) Assessing the flexural characteristics of geofoam using digital image correlation technique. Indian Journal of Engineering and Materials Sciences, 30(4), 523-529. https://doi.org/10.56042/ijems.v30i4.642 (SCI IF: 0.615)
10. Dayana, M., **Parvathi, G. S.**, & Sinha, A. K. (2023). Investigation of Hillslope Failure and Mitigation: A Case Study of Sillewani Ghat, Chhindwara, India. Journal of the Geological Society of India, 99(5), 621–634. https://doi.org/10.1007/s12594-023-2363-4 (SCI IF: 1.459)
11. Havanagi, V.G., Sinha, A.K., and **Parvathi, G. S.** (2022). Failure Investigation and Design of Remedial Measures for Reinforced Earth Wall-A Case Study. Indian Highways, 50 (7), 38-48
12. **Parvathi G. S.**, Sinha, A.K., Havanagi, V.G., & Dayana, M. (2022). Failure analysis and mitigation of Shankumugham beach road, Kerala, India—a case study. Arabian Journal of Geosciences, 15(14), 1-14. https://doi.org/10.1007/s12517-022-10536-1.
13. Sinha, A.K., Havanagi, V.G., **Parvathi, G. S.**, & Chandra, S. (2022). Geotechnical characterisation of zinc tailing waste material for road construction. Geomechanics and Geoengineering, 17(6), 1984-2004. https://doi.org/10.1080/17486025.2021.1990420 (SCI IF: 1.3)
14. Sinha A. K., Havanagi V. G., and **Parvathi G. S.** (2019). Utilisation of waste materials in Road Construction. Journal of New Building Materials & Construction World (NBM&CW), New Delhi, Vol. 25(3) pp 78 – 88.
15. **Parvathi G.S.**, Sinha A.K., Havanagi V.G. (2019). Red Mud - Fly Ash Mix as an Embankment Fill Material. Indian Highways 47 (3), pp 20-25. Post Conference International Symposium on Geotechnics for Transportation Infrastructure (ISGTI 2018) In Sundaram R., Shahu J., Havanagi V. (eds) Geotechnics for Transportation Infrastructure. Lecture Notes in Civil Engineering, vol 29. Springer, Singapore. https://doi.org/10.1007/978-981-13-6713-7_20
16. **Parvathi G. S.**, Vasant. G. Havanagi, Vijay Kumar Kanaujia, Anil Kumar Sinha (2018). Ground Improvement for the Construction of Road Over Soft Organic Soil: A Case Study. The Bridge and Structural Engineer, 48 (2), pp: 70-80
17. **Parvathi G. S**., Basudhar P. K. (2020). Flexural Response of Beams on Visco-Elastic Foundations with Predictions beyond the Loading Area. International Journal of Geotechnical Engineering, Taylor and Francis Group Publications, 14 (4), 442-451. https://doi.org/10.1080/19386362.2018.1450700 (SCI IF: 1.9)
18. V.G. Havanagi, A.K. Sinha, **G.S. Parvathi**, S. Chandra (2017). Paper Discussion on Municipal Solid Waste in Road Embankment Construction - A Case Study. Journal of the Indian Roads Congress, 79(1), pp 64
19. V.G. Havanagi, A.K. Sinha, **G.S. Parvathi**, S. Chandra (2017). Municipal Solid Waste in Road Embankment Construction - A Case Study. Journal of the Indian Roads Congress, 78(2), pp 79-90

b. Conferences and Book Chapters

1. Bhutle V.V., **Parvathi G. S**., Anirban Mandal, Srinivaasan V. (2025) "Numerical Analysis of Highway Embankments with Lightweight Fill on Indian Soft-Soils", Proceedings of International Conference, Geotech Asia 2025, October 07-10, 2025, Goa, India https://doi.org/10.1201/9781003645931-100
2. Rohan Pokale, **Parvathi G. S**., Srinivasan V (2025). "Reinforced Soil Structures: A Review of Soil Polymeric Reinforcement Interactions". Proceedings of Indian Young Geotechnical Conference – 2025, IIT Indore, India

3. Mayuresh Ghule, **Parvathi G. S.**, Srinivasan V. (2025). "Forensic Evaluation of Retaining Wall Failure on Clay Slopes: A Case Study". Proceedings of Indian Young Geotechnical Conference – 2025, IIT Indore, India
4. Rohan Pokale, **Parvathi G. S**., Srinivasan V. (2025). "AI-ML Enabled Prediction of Interaction Coefficients of Geogrid and Geostrap with various In-fill Materials". Proceedings of iGrip Conclave 2025, IIT Gandhinagar, India
5. Mayuresh Ghule, **Parvathi G. S**., Srinivasan V. (2025). "Failure Analysis of Retaining Wall on Clay Slopes and their Remediation: A Case Study". Proceedings of iGrip Conclave 2025, IIT Gandhinagar, India
6. Mariya Dayana P. J., Nisna Nizar, **Parvathi G. S.** and Bhupendra (2024). "Rainfall Induced Hillslope Failure: A Case Study". Proceedings of Indian Geotechnical Conference – 2024, Aurangabad, India
7. Bhutle V.V., **Parvathi G. S**., Anirban Mandal, Srinivaasan V. (2024). "Numerical Analysis of Highway Embankment constructed using lightweight fill: A case Study". Proceedings of GeoMandu-2024, Kathmandu, Nepal
8. **Parvathi, G. S.** and Ramana, G. V. (2023). Roughness based prediction of geofoam interfaces with concrete. In Geosynthetics: Leading the Way to a Resilient Planet (pp. 580-585). CRC Press. https://doi.org/10.1201/9781003386889-61
9. Kumar, A., **Parvathi, G. S.** (2024). Comparison of Different Ground Improvement Techniques for the Road Construction Over Kuttanadu Clay Strata. In: Jose, B.T., Sahoo, D.K., Puppala, A.J., Reddy, C.N.V.S., Abraham, B.M., Vaidya, R. (eds) Proceedings of the Indian Geotechnical Conference 2022 Volume 4. IGC 2022. Lecture Notes in Civil Engineering, vol 479. Springer, Singapore. https://doi.org/10.1007/978-981-97-1753-8_14
10. **Parvathi, G.S.**, Mariya Dayana, P.J., Sinha, A.K., Havanagi, V.G. (2024). Three-Dimensional Finite Element Analysis of Shankumugham Beach Road Due to Rainfall-Induced Storm Surge. In: Jose, B.T., Sahoo, D.K., Shukla, S.K., Krishna, A.M., Thomas, J., Veena, V. (eds) Proceedings of the Indian Geotechnical Conference 2022 Volume 7. IGC 2022. Lecture Notes in Civil Engineering, vol 491. Springer, Singapore. https://doi.org/10.1007/978-981-97-2700-1_6
11. Sinha A. K., Havanagi V. G., and **Parvathi G. S.** (2019). Phosphogypsum waste material for road construction. National seminar on alternative highway construction material, Ranchi, Jharkhand.
12. Havanagi V. G., Sinha A. K., and **Parvathi G. S.** (2018). Characterization of Phosphogypsum waste for Road construction. Proceedings of the Indian Geotechnical Conference, Bengaluru, 13-15th December 2018
13. **Parvathi G. S.,** Sinha A. K. and Havanagi V. G. (2018). Analysis of Distressed Geosynthetic Reinforced Soil Wall-A Case Study. Proceedings of International Conference on Pavements and Computational Approaches, CSIR-Central Road Research Institute, pp: 25-32
14. Havanagi V. G., Sinha A. K., **Parvathi G. S.**, and Chandra (2017). Characterisation of Municipal Solid Waste for Road Embankment Construction. National Conference on New Technology for Road Construction, Lucknow, India, pp: 64-78
15. **Parvathi G. S.**, Ghosh A. (2016). Reinforced Soil Wall Construction using Red Mud, an Industrial waste. Young Scientists Conclave of India International Science Festival, New Delhi
16. **Parvathi G. S**., Ghosh A. (2016). Capacity Augmentation of Red Mud Pond using Industrial Waste. Proceedings of International Geotechnical Engineering Conference on "Sustainability in Geotechnical Engineering Practices and Related Urban Issues", Mumbai, India

17. **Parvathi G. S.**, Basudhar P. K. (2013). Visco Elastic Foundation Model Parameter Estimation Using Inverse Analysis Technique. Proceedings of the Indian Geotechnical Conference, Roorkee, India

8. Events Organized

a. International Events

- Scientific Member – *UL International Conclave on Sustainable Construction – "Innovative Technologies and Practices"*, IIIC Kerala (Dec 5–7, 2024), organized by ULCCS Ltd. & IIIC.
- Organizing Team Member – *International Workshop on Advances in Roadway and Railway Applications using Geosynthetics*, IIT Hyderabad (Oct 3, 2024), organized by Indian Chapter of IGS, CBIP & IIT Hyderabad.
- Organizing Team Member – *International Symposium on Geotechnics of Transportation Infrastructure*, IIT Delhi (Apr 7–8, 2018), organized by IGS Delhi Chapter.
- Organizing Team Member – *Indian Geotechnical Conference on Geotechnical Advances and Novel Geo-Mechanical Applications*, IIT Roorkee (Dec 22–24, 2013), organized by IGS.

b. National Workshops & Training

- Organizing Team Member – *Workshop on "Reinforced Soil Walls: Distresses and Remedies"*, CBIP, New Delhi (Apr 5–6, 2024), organized by Indian Chapter of IGS & CBIP.
- Co-organizing Secretary – *International Webinar on 'Ground Improvement Techniques on Highway Construction'*, CRRI (May 29–30, 2020), organized by CRRI.
- Organizing Secretary – *Hands-on Training Program on 2D Finite Element Software*, CRRI (Feb 4–8, 2020), organized by CRRI.
- Organizing Team Member – *National Workshop on "Engineering Geophysics for Civil Engineering and Geo-Hazards"*, CBRI (Nov 22–23, 2012), organized by CBRI.