

CURRICULUM VITAE

Dr. SARAT KUMAR DAS, M.Tech (IIT Kanpur, India), Ph.D (IIT Kanpur, India)

Professor, Civil Engineering Department,

Indian Institute of Technology (ISM), Dhanbad, Jharkhand-826004, India

Bureau of Indian standard (BIS) Chair Professor, IIT Dhanbad Chair

Dr. Sarat Kumar Das is Professor of Civil Engineering Department, IIT(ISM) Dhanbad, India. He has completed his M.Tech and Ph D from IIT Kanpur and post-doctoral under Endeavour Fellowship, Government of Australia. Prof. Das over 20 years of research, teaching and consulting experience within the broad fields of civil, geotechnical, and geoenvironmental engineering. His research expertise includes: Valorization of Industrial and mining waste, life cycle assessment and sustainable engineering, artificial intelligence and optimization methods. His research is funded by the Department of Science & Technology, Ministry of Education, Government of India, Tata Steel, Coal India, ESL Vadanta, etc. His research includes laboratory studies leading to practical solutions to the real-world problems. Dr. Das has been granted one patent and published more than 85 journal papers, 3 edited books and conference proceedings, 9 book chapters, and more than 25 full conference papers. As part of other assignment he has served as Independent Director of Jharkhand Infrastructure development corp (JUIDCO), Govt of Jharkhand and Building advisory committee of NIFFT, Ranchi, Jharkhand.

The list of **International Collaborative Research** includes:

- (i) Geotechnical and Geoenvironmental issues of Coal mine overburden, **SPARC Project, University of Illinois, Chicago** sponsored by MHRD, Govt of India.
- (ii) GREEN SOIL – The Sustainable Option for Infrastructure Growth, with **University of Manchester, UKIERI- DST**
- (iii) Valorization of Industrial wastes, with **University of Vigo, Spain**, Under GIAN- Govt of India
- (iv) Bilateral Student/researcher program with **TUM, Germany as part of DAAD & PECFAR**

Duo Fellowship awarded for the year 2020 for collaboration with University College London.

Prof. Das has guided 6 Ph.D research scholars on valorization and sustainable aspects of industrial and mining wastes. One of the patent has been granted and in the process of commercialization. He has executed research and consultancy projects of more than 20 million Indian rupees.

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=57218269147>

Google Scholar: <https://scholar.google.com/citations?user=7tj5VekAAAAJ&hl=en>

Academic honours

- (i) **Endeavour Research Fellowship award, Govt of Australia**, Department of Education, Employment and Workplace relationship for 2009
- (ii) **Editorial Board Member**
 - 1. Environmental Geotechnics, ICE, London
 - 2. International Journal of Geotechnical Engineering, Taylor & Francis
 - 3. Indian Geotechnical Journal
 - 4. Guest Editor- Sustainability
- (iii) **Reviewer of Journals: Total 75 Nos**

Nature Scientific Report, Journal of Geotech. & Geoenvironmental Engineering, ASCE, International Journal of Geomechanics, ASCE, Journal of Computing in Civil Engineering,

ASCE, Journal of Materials in Civil Engineering, ASCE, Geotechnique ICE, Soils and Foundation, Japanese Geotech Society, Computer and Geotechnics, Engineering Geology, Elsevier, International Journal of Rock Mech. & Mining Sc., Elsevier, Journal of Cleaner Production; Automation in construction, Engineering Structure, Engineering and Computational Mechanics, Marine Georesources & Geotechnology, Neurocomputing, INAE Letters, FUEL, Journal of Mountain science, Soft computing, Springer, Earthquake Science, Springer, Journal of cleaner Production, Elsevier, Advanced Engineering Informatics, Journal of Hazardous Materials, Earth Science Informatics

- (iv) **Top 2% (Carrer) Scientist worldwide Stanford university for all the years**
- (v) **Technical committee (TC 221) member on “Tailing and Mine Wastes” of ISSMGE, for the year 2022-202.**
- (vi) **Technical committee member (B-3), Indian Roads Congress, New Delhi.**
- (vii) **Executive Member (Co-opted), Indian Geotechnical Society, New Delhi, 2019-2020.**
- (viii) **Director (Independent), Jharkhand Infrastructure development Corp (JUIDCO), Govt of Jharkhand since 2018.**
- (ix) **Building advisory committee- NIFFT, Presently NIAMT, Ranchi.**
- (x) **Key Note Speaker- Indian Geotechnical Conference 2023, Roorkee.**
- (xi) **Theme Speaker- Asian Regional Conference of ISSMGE**

PATENT Granted –

01. **Das, Sarat Kumar**, Garanayak, Lasyamayee, Mahamaya, Mahasakti (2020) A corrosion resistant cementitious material from industrial waste, Inventors:, Patent No. 329880. **Granted on 22.01.2020.**

Patent Filed:

1. **Das, Sarat Kumar**, Nayak, Ganesh, Jain, Surabhi (2025) “A composite material for a particle board and a process for the preparation thereof“, Application No.: 202431041041.
2. **Das, Sarat Kumar**, Sharma, K. (2025) UCS Soil Compactor with Integrated Pressure Gauge and Sample Extruder Mechanism. Application No.: 202531066822.
3. **Das, Sarat Kumar**, Sharma, K. (2025) Mortar Cube Assembly, Semi-Circular Knapp Joint. Application No.: 202531064480.

Socio-Academic activities: *Founding Convenor* | *AGERP Lecture Series* (www.age-rp.com)

An online lecture series aimed at coupling and disseminating the learnings from academia and industry on several key topics in the discipline of Geotechnical Engineering to the global geotechnical community. Starting since August 2020, with 50 video, 2.37K subscribers, around 79k views.

PUBLICATIONS

Journal Publications: *International Journal*

1. Dixit, A., Mishra, A., Singh, A.K., Das, S.K.(2025) Experimental and Modeling Studies for Deformation Characteristics of Coal Mines' Overburden Soil under Cyclic Loadings in Construction of Haul Roads. ***International Journal of Geomechanics, ASCE***, 2025, 25(3), 06025001.

2. Mishra, P.N., Verma, H., Tiwari, S., Olaya, S.Q., Zhao, Z. and Das, S.K. (2025) Hydromechanical and Electromagnetic Properties of Xanthan Gum–Treated Kaolin. ***Journal of Geotec. & Geoenv. Engg. ASCE***, Vol 151(11) <https://doi.org/10.1061/JGGEFK.GTENG-13134>
3. Mishra, A., Dixit, A., Singh, A.K., Das, S.K.. (2024), Strength, deformation, and environmental impact assessment of cement stabilized mine overburden soil. ***Journal of Cleaner Production***, 447, 141475
4. Dixit, A., Das, S.K.(2025) Mechanical, microstructural, and durability assessment of cement slurry waste and coal combustion ash mixture as a sustainable subgrade construction material: Experimental and mechanistic modeling approach. ***Construction and Building Materials***, 458, 139550.
5. Dixit, A., Das, S.K.(2025) Fly ash stabilised red mud as a one-part alkali-activated sustainable material for pavement subgrade: Strength, durability and life cycle assessment analysis. ***Road Materials and Pavement Design***, <https://doi.org/10.1080/14680629.2025.2454027>.
6. Alam, S., Das, S.K. (2025) Characterization of Phosphogypsum Blended Red Mud as Geo-material. ***Periodica Polytechnica Civil Engineering***, 2025, 69(1), pp. 231–238.
7. Tiwari, S. and Das, S.K. (2025) Explainable Artificial Intelligence-Driven Ensemble Learning for Liquefaction Susceptibility Analysis. ***Transportation Infrastructure Geotechnology***, 12(6), 171. <https://doi.org/10.1007/s40515-025-00628-2>
8. Tiwari, S., Das, S.K. & Mohanty, M. (2025). A critical performance assessment of the machine learning algorithms for slope stability analysis. ***Neural Comput & Applic*** . <https://doi.org/10.1007/s00521-024-10471-0>.
9. Mohanty, M., Sarkar, R. & Das, S.K. Effects of spatial heterogeneity on pseudo-static stability of coal mine overburden dump slope, using random limit equilibrium and random finite element methods: A comparative study. ***Earthq. Eng. Eng. Vib.*** 24, 83–99 (2025). <https://doi.org/10.1007/s11803-025-2303-y>.
10. Mishra, A., Raviteja, K.V.N.S., Das, S.K., Reddy, K.R. (2025).Assessing the sustainability of composite liner systems for municipal solid waste landfills. ***Journal of Environmental Engineering and Science***, , 20(3), pp. 179–186
11. Mahamaya, M., Alam, S., Kumar Das, S. (2024) Development and characterization of alkali activated controlled low strength material using mining waste. ***Construction and Building Materials***, 452, 138928. <https://doi.org/10.1016/j.conbuildmat.2024.138928>.
12. Kumar, A., Nainegali, L., Das, S.K., Reddy, K.R., Mishra, A. (2024) Slope stabilization of coal mine overburden dumps: life cycle environmental sustainability assessment of alternatives. ***Environmental Earth Sciences***, 83(13), 385. IF-2.8
13. Mishra, A., Das, S.K., Reddy, K.R.(2023) Life cycle triple bottom line sustainability assessment of coal mine overburden sand versus river sand. ***Resources Policy***, 2023, 86, 104140 **IF- 10.4**. <https://doi.org/10.1016/j.resourpol.2023.104140>.

14. Mishra, P.N., Tiwari, S.K Das, ...Scheuermann, A., Bore, T. (2023) Biological perspectives in geotechnics: theoretical developments Jain, S., **Reviews in Environmental Science and Biotechnology**, 2023, 22(4), pp. 1093–1130, **IF-14.4**
15. Mishra, P.N., Tiwari, S.K Das, ...Scheuermann, A., Bore, T. (2023) *Biological perspectives in geotechnics: Application and monitoring*. **Journal of Rock Mechanics and Geotechnical Engineering**, 2023, **IF- 7.4**
16. Mishra, A., Das, S.K., and Reddy, K.R. (2023), “Life cycle assessment of processing alternate sands for sustainable construction: Coal mine overburden sand versus manufactured sand,” **Journal of Building Engineering**, Elsevier, pp. 107042. <https://doi.org/10.1016/j.jobbe.2023.107042>, **IF- 6.4.**
17. Mishra, A., Das, S.K., Reddy, K.R.(2023) Characterization and environmental sustainability of open pit coal mine overburden waste rock as pavement geomaterial. **Transportation Geotechnics**, 2023, 42, 101094. <https://doi.org/10.1016/j.trgeo.2023.101094>. **IF- 5.3.**
18. Kumar, A., Das, S.K., Nainegali, L., Reddy, K.R. (2023) Effect of grass species root for enhanced slope protection in amended coalmine overburden dump soil. **Plant and Soil**, **IF- 4.9, Q1.**
19. Tiwari, S., Das, S.K. (2023) Intelligent Prediction of Critical State Parameters for Non-plastic Tailings and Soils Using Evolutionary Algorithms, **Mining, Metallurgy and Exploration**, **IF-1.9, Q2**
20. Mishra, A., Das, S.K., Reddy, K.R.(2024) Potential Use of Coal Mine Overburden Waste Rock as Sustainable Geomaterial: Review of Properties and Research Challenges. **Journal of Hazardous, Toxic, and Radioactive Waste(ASCE)**, 28(1), 04023039 , **IF- 2.7**
21. Madhumita Mohanty, Rajib Sarkar, Sarat Kumar Das (2023) Effect of blast induced vibration on coal mine overburden dump slope through discrete element method, **Structures**, Volume 56, <https://doi.org/10.1016/j.istruc.2023.105013>. **IF- 4.1**
22. Kumar, A., Das, S.K., Nainegali, L., Reddy, K.R. (2023) Investigation of root traits of *Dendrocalamus strictus* cultivated on organically amended coalmine overburden and its potential use for slope stabilization. **International Journal of phytoremediation**. <http://dx.doi.org/10.1080/15226514.2023.2208235> . **IF-4.00**
23. Kumar, A., Das, S.K., Nainegali, L., Reddy, K.R. (2023) Phytostabilization of coalmine overburden waste rock dump slopes: current status, challenges, and perspectives. **Bulletin of Engineering Geology and the Environment**, 82(4), 130. <https://doi.org/10.1007/s10064-023-03159-7>, **IF- 4.130**
24. M.,Mohanty, R., Sarkar, S.K. Das, (2023). Seismic Performance of Coal Mine Overburden Dump Slope using Extended Finite Element Method based Voronoi Tessellation Scheme. **International Journal of Geomechanics, ASCE**. DOI: [10.1061/IJGNAI/GMENG-8634](https://doi.org/10.1061/IJGNAI/GMENG-8634). **IF- 3.918.**
25. Mishra, A., Das, S.K., Reddy, K.R.(2023) Valorization of Coalmine Overburden Waste Rock as Fine and Coarse Aggregate of Mortar and Concrete: Corrosion Resistance Evaluation. **Waste and Biomass Valorization**, <https://doi.org/10.1007/s12649-023-02102-x>. **IF-3.449.**

26. Kumar, A., Das, S.K., Nainegali, L. et al. Probabilistic Slope Stability Analysis of Coal Mine Waste Rock Dump. **Geotech Geol Eng** (2023) Vol. <https://doi.org/10.1007/s10706-023-02541-2>, **IF- 1.7**
27. Anshumali Mishra; Sarat Kumar Das; Krishna R Reddy (2023) Use of Coalmine Overburden as Sustainable Fine Aggregate in Cement Mortar , **Journal of Materials in Civil Engineering, ASCE**, **Q2**.
28. Mahasakti Mahamaya; Surabhi Jain; Sarat Kumar Das; Rajdeep Paul (2023) Engineering Properties of Cementless Alkali Activated CLSM using Ferrochrome Slag. Journal of Materials in Civil Engineering, ASCE, DOI [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0004620](https://doi.org/10.1061/(ASCE)MT.1943-5533.0004620) **Q2**.
29. Surabhi Jain, Sarat Kumar Das (2023) Influence of size and concentration of carbonate biomineral on biocementation and bioclogging for mitigating soil degradation. Biogeotechnics. 1-8, <https://doi.org/10.1016/j.bgtech.2023.100021>
30. A.Mishra, , S.K., Das, K.R. Reddy, (2022) Processing Coalmine Overburden Waste Rock as Replacement to Natural Sand: Environmental Sustainability Assessment **Sustainability** (Switzerland), , 14(22), 14853, <https://doi.org/10.3390/su132111937>, **IF- 3.889**
31. M.,Mohanty, R., Sarkar, S.K. Das, (2022), Probabilistic assessment of effects of heterogeneity on the stability of coal mine overburden dump slopes through discrete element framework. **Bulletin of Engineering Geology and the Environment**, 81(6), 228. **Q2**
32. M.,Mohanty, R., Sarkar, S.K. Das, (2022), In-situ investigation on coal mine overburden dump slope and its seismic stability considering heterogeneity. **European Journal of Environmental and Civil Engineering**, <https://doi.org/10.1080/19648189.2022.2144952>. **IF- 2.187**
33. M.,Mohanty, R., Sarkar, S.K. Das, (2022), In-situ investigation on coal mine overburden dump slope and its seismic stability considering heterogeneity. **European Journal of Environmental and Civil Engineering**.**Q3**
34. Khatri, V.N., Nainegali, L., Sarkar, R., Das, S.K. (2022). Assessment of overburden dump and highwall slope stability for Jambad open cast coal mine, West Bengal, India, using in situ and laboratory testing. **Current Science**, 123(2), pp. 184–193 **Q3**
35. Mahamaya, M. **Das, S.K.**, S. Jain , Reddy, K.R. (2021) Interaction of biopolymer with dispersive geomaterial and its characterization: An eco-friendly approach for erosion control, **Journal of Cleaner Production**, <https://doi.org/10.1016/j.jclepro.2021.127778>. **Q1**.
36. Verma, S., Chowdhury, R., Das, S.K., Franchetti, M.J., Liu,G. (2021), Sunlight intensity, photosynthetically active radiation modelling and its application in algae-based wastewater treatment and its cost estimation. **Sustainability** Switzerland, 13(21), 11937
37. S.K. Das, M. Mahamaya and K. R. Reddy (2020). Coal mine overburden soft shale as a controlled low strength material. **International Journal of Mining, Reclamation and Environment**. DOI: 10.1080/17480930.2020.1721043.**Q2**
38. Reddy, P.S., Reddy, N.G., Serjun, V. **S.K. Das**, K.R. Reddy, B.H. Rao(2020). Properties and Assessment of Applications of Red Mud (Bauxite

- Residue): Current Status and Research Needs. **Waste Biomass Valorization** .
<https://doi.org/10.1007/s12649-020-01089-z>. **Q2/Q3**
39. **Das, S.K.**, Mohanty, R., Mohanty, M. and M. Mahamaya (2020). Multi-objective feature selection (MOFS) algorithms for prediction of liquefaction susceptibility of soil based on in situ test methods. **Nat Hazards**. <https://doi.org/10.1007/s11069-020-04089-3>. **Q2**
 40. B. Paikray, **S.K. Das** and B.G. Mohapatra (2020) Effect of reinforcement layout on interference effect of square footings on reinforced crusher dust. **International Journal of Geotechnical Engineering**. doi.org/10.1080/19386362.2020.1712531.
 41. P.K.Gupta, P. Rajhans , S.K.Panda, S. Nayak, **S. K. Das** (2019) Mix design method for self-compacting recycled aggregate concrete and its microstructural investigation by considering adhered mortar in aggregate. **Journal of Materials in Civil Engineering, ASCE**. DOI 10.1061/(ASCE)MT.1943-5533.0003014. **Q2**
 42. Shamsad Alam, Sarat Kumar Das, B. Hanumantha Rao, (2019) Strength and durability characteristic of alkali activated GGBS stabilized red mud as geomaterial. **Construction and Building Materials** 211, 932–942, **Q1**
 43. Ranajeet Mohanty and **Sarat Kumar Das** (2018) Settlement of Shallow Foundations on Cohesionless Soils Based on SPT Value Using Multi-Objective Feature Selection, **Geotechnical and Geological Engineering**, 36(6), 3499-3509. **doi:10.1007/s10706-018-0549-0**
 44. Shamsad Alam, Bijaya Kumar Das and **Sarat Kumar Das** (2018) Dispersion and Sedimentation Characteristics of Red Mud. **Journal of Hazardous, Toxic, and Radioactive Waste, ASCE**, 22(4), 04018025.
 45. Mahasakti Mahamaya and Sarat Kumar Das (2018) “Characterization of Ferrochrome Slag as a Controlled Low Strength Structural Fill Material. **International Journal of Geotechnical Engineering**, doi.org/10.1080/19386362.2018.1448527.
 46. Shamsad Alam, Sarat Kumar Das, B. Hanumantha Rao, (2017) Characterization of Coarse Fraction of Red Mud as a Civil Engineering Construction Material. **Journal of Cleaner Production**, Vol 168, 679-691, **Q1**
 47. Mahasakti Mahamaya and **Sarat Kumar Das** (2017)“Characterization of Mine Overburden and Fly Ash as a Stabilized Pavement Material”, **Journal of Particulate Science and Technology**, , Vol 35(6), 660-666. **DOI: 10.1080/02726351.2016.1194344, Q3**
 48. P.N. Mishra, **S, K, Das** and R. Mohanty (2017) Electrical Conductivity of microbially treated Geomaterials and Industrial Wastes”, **Journal of Hazardous, Toxic and Radioactive waste, ASCE**, , Volume 21 (4), 04017009.
 49. S. Bhattacharya, Pavani, Sarat Kumar Das, (2017) Prediction of uplift capacity of suction caisson in clay using functional network and multivariate adaptive regression spline, **Scientia Iranica**, , Accepted. Available Online from 13 August 2017 , DOI: 10.24200/sci.2017.4192. **Q3**.
 50. Shakti Suman, **Sarat Kumar Das** and Ranajeet Mohanty, (2017)“Prediction of vertical pile capacity of driven pile in cohesionless soil using artificial intelligence techniques” **International Journal of Geotechnical Engineering, Taylor Francis**, DOI: 10.1080/19386362.2016.1269043
 51. Ipsita Panda, Surabhi Jain, **Sarat Kumar Das**, R, Jayabalan, (2017) Characterization of red mud as a structural fill and embankment material using

- bioremediation. **International Biodeterioration & Biodegradation**, , Vol 119, 368-376., **Q1/Q2**
52. P.N. Mishra, Shakti Suman, S, K, Das, (2017) “Experimental investigation and prediction models for Thermal conductivity of bio-modified buffer materials for Hazardous waste disposal” **Journal of Hazardous, Toxic and Radioactive waste, ASCE**, , Vol 21(2), 04016011, DOI: 10.1061/(ASCE)HZ.2153-5515.0000327.
 53. Shakti Suman, Ranajeet Mohanty and **Sarat Kumar Das**, (2017) Modelling the pullout capacity of ground anchors using multi-objective feature selection. **Arabian Journal for Science and Engineering, (SCI)**, , Vol 42(3), 1231-1241, DOI :10.1007/s13369-016-2361-6, **Q2**
 54. Shakti Suman, S.Z. Khan, S.K. Das, S.K. Chand. (2016), Slope stability analysis using artificial intelligence techniques, **Natural Hazards**, 84(20), 727-748, DOI:10.1007/s11069-016-2454-2 **Q2**
 55. Shakti Suman, **Sarat Kumar Das** and Ranajeet Mohanty “Prediction of friction capacity of driven piles in clay using artificial intelligence techniques”, **International Journal of Geotechnical Engineering, Taylor Francis**, 2016, 10(5), 468-475. **DOI: 10.1080/19386362.2016.1169009**
 56. Shakti Suman, Mahasakti Mahamaya and Sarat Kumar Das, (2016) “Prediction of maximum dry density and unconfined compressive strength of cement stabilised soil using artificial intelligence techniques”, **Int. Journal of Geosynthetic and Ground Improvement, Springer**, , 2: 11. doi:10.1007/s40891-016-0051-9
 57. S. Z. Khan, S. Suman, M. Pavani and **S.K. Das**, (2016) “Prediction of the residual strength of clay using functional network.” **Geoscience Frontier**, , Vol 7 (1), 67-74. **Q1**
 58. Pradyut Kumar Muduli, **Sarat Kumar Das**, Pijush Samui and Rupashree Sahoo (2015). Prediction of uplift capacity of suction caisson in clay using extreme learning machine. **Ocean Systems Engineering An International Journal**, , Vol.5, No.1, pp.41-54, DOI: <http://dx.doi.org/10.12989/ose.2015.5.1.041>
 59. S. Suman and **S.K. Das** (2015) Prediction of Lateral Load Capacity of Pile in Clay Using Multivariate Adaptive Regression Spline and Functional Network., **Arabian Journal for Science and Engineering**, Volume 40(6), pp 1565-1578. **(SCI). Q2**
 60. P.K. Muduli and **S.K. Das** (2015) Model uncertainty of SPT-based method for evaluation of seismic soil liquefaction potential using multi-gene genetic programming, , **Soils and Foundation**, Volume 55, Issue 2, Pages 258-275. **Q2/Q3**
 61. P.K. Muduli and **S.K. Das** (2015) “First order reliability method for probabilistic evaluation of liquefaction potential of soil using genetic programming.” , **International Journal of Geomechanics** , **ASCE** , Volume 15, Issue 3, 1 June, Article number 04014052. DOI: 10.1061/(ASCE)GM.1943-5622.0000377 **Q2**
 62. P.K. Muduli, **S.K. Das** “Evaluation of liquefaction potential of soil based on standard penetration test using multi-gene genetic programming model”, **Acta Geophysica**, 2014, Vol 62(3), 529-543. DOI: 10.2478/s11600-013-0181-6, **Q3**
 63. P.K. Muduli, **S.K. Das**, and S. Bhattacharya CPT-based probabilistic evaluation of seismic soil liquefaction potential using, multi-gene genetic programming, **Georisk**, 2014. Vol 8(1), 14-28. **DOI: 10.1080/17499518.2013.845720 Q2**
 64. P.K. Muduli, **S.K. Das** and M.R. Das “Uplift Capacity of Suction Caisson in Clay Using Artificial Intelligence Techniques”, **Marine Georesources & Geotechnology**, 2013 , Vol 1(4), 375-390. **Q3/Q2**

65. P.K. Muduli and **S.K. Das** “SPT-Based Probabilistic Method for Evaluation of Liquefaction Potential of Soil Using Multi-Gene Genetic Programming” *International Journal of Geotechnical Earthquake Engineering*, (2013), Vol 4(1), 42-60.
66. P.K. Muduli, **S.K. Das** and M.R. Das, “Prediction of lateral load capacity of piles using extreme learning machine” *International Journal of Geotechnical Engineering* , 2013, Vol 7 (4), pp 388-394.
67. Pijush Samui, Dookie Kim, **Sarat Das**, and Gil Lim Yoon, Determination of compression index for marine clay: a relevance vector machine approach. *Marine Georesources & Geotechnology* Volume 30 (4), 2012, pp. 263-273. **Q3/Q2**
68. **S. K. Das**, Pijush Samui and A K Sabat Prediction of Field Hydraulic Conductivity of Clay Liners Using Artificial Neural Network and Support Vector Machine *International Journal of Geomechanics*, ASCE 2012, Vol 12(5) 606-611. **Q2**
69. **Sarat Kumar Das**, Pijush Samui, S.Z. Khan and N. Sivakugan , “Machine learning techniques applied to prediction of residual strength of soil" *Central European Journal of Geoscience*, 2011; Vol 3(4), 449-461, DOI: 10.2478/s13533-011-0043-1 **Q4**
70. Pijush Samui, **Sarat Das** and Dookie Kim, “Uplift capacity of suction caisson in clay using multivariate adaptive regression spline” *Ocean Engineering*, 2011, Vol 38, (17–18), pp. 2123-2127. **Q1**
71. **S. K. Das** , R. K. Biswal, N. Sivakugan, B. Das, Classification of slopes and prediction of factor of safety using differential evolution neural networks *Environmental Earth science*, 2011, 64 (1). pp. 201-210. **Q2**
72. **S. K. Das**, P Samui, and A K Sabat, Application of Artificial Intelligence to Maximum Dry Density and Unconfined Compressive Strength of Cement Stabilized Soil, *Geotechnical and Geological Journal : An International Journal*., 2011, 29 (3), pp. 329-342
73. **S.K. Das**, and P.K. Basudhar Parameter Optimization of Rock Failure Criterion Using Error-In-Variables Approach, , (2011) *International Journal of Geomechanics*, ASCE. 2011, 11 (1), pp. 36-43. **Q2**.
74. **S. K. Das**, P Samui, A K Sabat and T. G. Sitharam “Prediction of swelling pressure of soil using artificial intelligence techniques”, , *Environmental Earth science* (2010) Vol 61 (2), 393-403-**Q2**
75. **S.K. Das** and P.K. Basudhar, “Comparison of intact rock failure criteria using various statistical methods” *Acta Geotechnica*, Vol. 4 (3), 2009, pp. 223-231. **Q1**
76. **S.K. Das** and P.K. Basudhar “Utilization of self-organizing map and Fuzzy Clustering for Site Characterization Using Piezocone data” *Computer and Geotechnics* ,2009, 36 (1-2), pp. 241-248. **Q1**
77. **S.K. Das** and P.K. Basudhar. “Prediction of Residual Friction Angle of Clays Using Artificial Neural Network “*Engineering Geology*, 2008, Vol 100(3-4), 142- 145. **Q1**
78. **S.K. Das** and Yudhbir, “A simplified model for prediction of pozzolanic characteristics of fly ash, based on chemical composition. *Cement and Concrete Research*, 2006, October Vol 36(10), 1827-1832. **Q1**
79. **S.K. Das** and P.K. Basudhar, “Undrained lateral load capacity of piles in clay using artificial neural network” *Computer and Geotechnics* 2006, Vol 33(8), 454-459. **Q1**
80. **S.K. Das** and P.K. Basudhar, “Comparison study of parameter estimation techniques for rock failure criterion models.” *Canadian Geotechnical Journal*, 2006, July, 43(7), pp. 764-771. **Q2**
81. **S.K. Das** and Yudhbir, “Geotechnical properties of low calcium and high calcium fly ash”, *Geotechnical and Geological Journal : An International Journal*, 2006, April, pp. 249-263.

82. **S.K. Das** and Yudhbir, “Geotechnical Characterization of some Indian Fly ashes”, *Journal of Materials in Civil Engineering, ASCE*, 2005 , 17(5), pp. 544- 552. Q2

Journal National

1. Das, S.K., Jain, S., Mishra, A., Dixit, A. (2024) Present Status and Future Challenges in Evaluation of Industrial By-products and Mine Tailings as a Geomaterial. *Indian Geotechnical Journal*, , 54(5), pp. 1779–1798
2. Manas Ranjan Das, Sandip Purohit , **Sarat Kumar Das**, “Multi-objective Optimization of Reinforced Cement Concrete Retaining Wall”, *Indian Geotechnical Journal*, 2016, Vol 46 (4), 354-368, DOI,10.1007/s40098-015-0178-y
3. Sujata Priyadarshini, Mahasakti Mahamaya and **Sarat Kumar Das**, Characterization and Design of coal reject as a pavement material, *Journal of Indian Highways*, 2015, Vol 44 (04),
4. **S.K.Das** and P.S. Parhi, “Suitability of alkali activated fly ash binder as a stabilizing agent for highly expansive soil”, *Journal of Indian Highways*, Vol 43 (12), Dec 2015, pp. 21-26.
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9. S.K. Das, S. Rout and T Sahoo, “Design of High Embankment Using Red Mud”, *Journal of Indian Highways* , March, 2013
10. **S.K. Das** and M.R. Das, “Optimum design of RCC cantilever retaining wall using a simple optimization tool”, *Journal of Indian Highways*, February 2011.
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BOOKS

1. Geoenvironmental and Geotechnical Issues of Coal Mine Overburden and Mine Tailings. **S.K. Das**, Krishna Reddy, Lohitkumar, N and S. Jain. Springer Singapore, 2023, ISBN: 9819962935
2. Soft computing in Geotechnical Engineering, P Samui, **S. K. Das**, and T. G. Sitharam, VDM publications, ISBN: 978-3-639-31125-9
3. Design of rigid pavement using High Volume fly ash concrete”, **S. K. Das**, and J. Mohanty, VDM publications, ISBN: 978-3-639-23626-2

Book Chapter

1. Evaluation of liquefaction potential of soil based on shear wave velocity using multi-gene genetic programming.” Muduli P.K., **Das S.K.**, **Chapter 12 in Handbook of Genetic Programming Applications**, A.H. Gandomi et al., (Eds.), Springer, New York, NY, (2015), ISBN: 978-3-319-20882-4 (Print) 978-3-319-20883-1 (Online), pp 309-344.
2. Artificial Neural Networks in Geotechnical Engineering: Modeling and Application Issues” **Chapter 10. S.K. Das, Metaheuristics in Water, Geotechnical and Transport Engineering (2013)**, Editors. X. Yang, A.H. Gandomi, S. Talatahari, A.H. Alavi, *Elsevier, London*, ISBN: 978-0-12-398296-4, Page 231-270.
3. Site Characterization Model using Machine Learning (pp. 175-186), **Chapter 6. Sarat Das**, Pijush Samui, D.P. Kothari, (2011) - **Machine Tools: Design, Reliability and Safety**, Editor, Scott Anderson, **Nova Science Publishers, USA**.
4. The Biopolymer Stabilization of Fly Ash and Coal Mine Overburden for Erosion Resistance , **Chapter 11**, Mahasakti Mahamaya and Sarat Kumar Das, **Biopolymers, Structure, Performances And Applications (2017)**, **Nova Science Publishers, New York**
5. Modeling the Axial Capacity of Bored Piles Using Multi-Objective Feature Selection, Functional Network and Multivariate Adaptive Regression Spline, **CHAPTER 16** Ranajeet Mohanty, Shakti Suman, Sarat Kumar Das, **Handbook Of Neural Computation**, P. Samui, S.S. Roy, and V. E. Balas, (2017) Elsevier, Academic Press, London.
6. Prediction of Compressive Strength of Geopolymers Using Multi-objective Feature Selection, **Lasyamayee Garanayak, Sarat Kumar Das and Ranajeet Mohanty Big Data in Engineering Applications**, Springer, Singapore. (2018) **Editors: Roy, S.S., Samui, P., Deo, R., Ntalampiras, S.**
7. Multi-Objective Optimization of Slope Stability Using Wedge Analysis and Genetic Algorithm, Sarat Kumar Das, Chapter 10. Handbook of Research on Predictive Modeling and Optimization Methods in Science and Engineering, IGI Global Publication, (2018). Editors: Dookie Kim, S.S.Roy, Tim Länsivaara, Ravinesh Deo and Pijush Samui.

8. Chapter 8 - Multi-objective optimum design of geosynthetic reinforced soil foundation using genetic algorithm. Manas Ranjan Das, Madhumita Mohanty and Sarat Kumar Das, Modeling in Geotechnical Engineering, Editors- Pijush Samui, Sunita Kumari, Vladimir Makarov and Pradeep Kurup. 2021. Pages 151-164.
9. Sulfate Resistant Mortar Using Coarse Fraction of Red Mud as Fine Aggregate. Anshumali Mishra, Bajaya K. Das, Shamshad Alam & Sarat Kumar Das, 2022, Advances in Sustainable Materials and Resilient Infrastructure, Chapter-18, 265–278.

Important International Conference Publications (cited)

1. **S.K. Das**, B.Manna and D.K. Baidya An Artificial Neural Network approach for Prediction of Dynamic Pile-Soil-Pile Interaction under Vertical Motion,. **ASCE Special Publication** GSP - DOI:10.1061/41165(397).
2. Das, S.K.; Manna, B.; Baidya, D.K. “Prediction of pile-separation length under vertical vibration using ANN” 14th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, International Society for Soil Mechanics and Foundation Engineering (**ISSMGE**) Year: 2011
3. Das, S.K.; Samui, P.Applicability of statistical learning algorithms for seismic attenuation prediction 12th International Conference on Computer Methods and Advances in Geomechanics, **IACMAG** 2008 Volume: 3 Pages: 1627-1633
4. Prediction of liquefaction potential based on CPT data : A relevance vector machine approach Author(s): Das, S.K.; Samui, P. Conference: 12th International Conference on Computer Methods and Advances in Geomechanics, **IACMAG** 2008 Volume: 4 Pages: 2856-2861
5. Samui, P.; Bhattacharya, G.; Das, S.K.Support vector machine and relevance vector machine classifier in analysis of slopes, 12th International Conference on Computer Methods and Advances in Geomechanics, **IACMAG** 2008 Volume: 6 Pages: 4667-4674
6. Das, S.K.; Sabat, A.K.Swelling pressure of soil : Artificial intelligence technique approaches 12th International Conference on Computer Methods and Advances in Geomechanics, **IACMAG** 2008 Volume: 3 Pages: 1880-1884
7. Shamshad Alam, Sarat Kumar Das and B.H. Rao, “Particle Shape Analysis of Coarse Fraction of Red Mud as a Construction Material”, Compendium of **Transportation Research Board, 96th Annual Meeting, 8-12 January 2017**, Washington, USA.
8. Mahamaya, M., Suman, S., Anand, A. and Das, S. K. (2015). “Prediction of UCS and CBR Values of Cement Stabilized Mine Overburden and Fly Ash Mixture.,” **Procedia Earth and Planetary Science., Elsevier**, Vol. 11, 294 – 302. doi: 10.1016/j.proeps.2015.06.064.
9. Das, S. K., Mahamaya,M., Panda,I. and Swain, K.(2015). “Stabilization of Pond Ash Using Biopolymer.,” **Procedia Earth and Planetary Science., Elsevier**, Vol 11,254 – 259. doi: 10.1016/j.proeps.2015.06.033.
10. Mahamaya,M., Mishra,P.N., Suman.S. and Das, S. K.(2015).”Estimation of Thermal Migration Around Buried Coolant Ducts with Engineered Backfill

- Material.,” **Procedia Earth and Planetary Science, Elsevier** 11, 410 – 417. doi: 10.1016/j.proeps.2015.06.040.
11. Parhi,P.S., Garanayak.L., Mahamaya,M. and Das, S. K.(2017). “Stabilization Of An Expansive Soil Using Alkali Activated Fly Ash Base Geopolymer.,” **Advances in Characterization and Analysis of Expansive Soils and Rocks, Springer**,. DOI 10.1007/978-3-319-61931-6_4.
 12. Kajal Swain, Mahasakti Mahamaya, Shamshad Alam,and Sarat Kumar Das (2017) Stabilization of Dispersive Soil Using Biopolymer GeoMEast, **Springer**, pp 132- 147.
 13. Dash H.J., Das S.K. (2017) Characterization of Dredged Sand from Chilka Lake as a Geo Material With and Without Biopolymer. In: Singh D., Galaa A. (eds) Contemporary Issues in Geoenvironmental Engineering. GeoMEast 2017. Sustainable Civil Infrastructures. Springer, Cham, 10.1007/978-3-319-61612-4_30
 14. Rao, B.H., Sahu, R.L., Das, S.K. (2014) Correlations between swelling and suction properties of expansive soils, **14th International Conference of IACMAG** 2014; Kyoto; Japan; 22-25 September 2014, 465-470.

Doctoral Programme Guidance:

b. Ph.D. Degree Awarded: 07+01

Name of the Scholar	Guide(s)	Title of the Thesis	Status	Remarks	University
Ashutosh Kumar	S.K. Das, N. Lohitkumar	Root Reinforcement Potential of Vegetation for Slope stabilization of Coal Mine Overburden Dumps	Submitted	Jan 2024	IIT(ISM) Dhanbad
Anshumali Mishra	S. K. Das K.R Reddy	Characterization of Coal Mine Overburden as Sustainable Geomaterial in Civil Engineering Applications	Completed	Nov 2023	IIT(ISM) Dhanbad
Mahasakti, M	S.K. Das	Development and characterization of sustainable geomaterial using mining and industrial waste	Completed	Dec 2018	NIT, Rourkela
S. Alam	S.K. Das	Characterization for effective management and utilization of red mud	Completed	Dec 2018	NIT, Rourkela
L. Garanayak	S.K. Das	Development and characterization of alkali activated red mud – slag cementitious material.	Completed	Dec 2017	NIT, Rourkela
P.K. Muduli	S.K. Das	Evaluation of liquefaction potential of soil using genetic programming.	Completed	Feb 2014	NIT, Rourkela
M. R Das	S. K. Das	Application of evolutionary optimization to some stability problems in geotechnical engineering	Completed	Feb 2015	Utkal University
S.K. Rout	S K Das	Engineering characterization and utilization of red mud as pavement material.	Completed	Sept 2014	Utkal University

Research and Consultancy Projects

Name of the Project	Organization	Amount (Rs) Lakhs	Remarks
Corrosion potential of Industrial waste as a geomaterial using Inverse dielectric spectroscopy	SERB, DST, Govt of India	32.71	Continuing
Geotech & Geoenv. Issues of Coal Mine Overburden	SPARC (MHRD)	43.92	Continuing
Feasibility Study of M-Sand from Coal OB	Tata Steel, Jamshedpur, India	20.53	Continuing
Utilization of Cement Slurry Waste	ESL Steel Limited Siyaljori, PO Jogidih, Bokaro, Jharkhand		Continuing
Scientific study of ultimate slope of pit and dumping slope stability of working of Jambad OCP, Kajora Area, ECL	ECL, Kajora	8.26	Completed
Characterization and Utilization of red mud as a Structural fill and Embankment Material	SERB, DST, Govt of India	36.7	Completed
Construction of New WTPs/ STPs/ DETPs and Up-gradation/ Renovation of Existing WTPs/ STPs/ DETPs in different areas of CCL	Central Coal field Ltd	20.0	Complete
MCL Quarry No. 8 raising for TKSTPS	NTPC, Kaniha	14.16	Continuing
Auditing on Ash Utilisation for JSW Steel Ltd and JSW Energy Ltd. Vijaynagar Dist Bellary Karnataka	JSW, Karnatak	6.35	Complete
Auditing on Ash Utilisation for Durgapur Projects Ltd	DPL, Durgapur	4.05	Complete
Design Rationalisation of Bridge support for Railway Siding”	BPCL, Bokaro	5.90	Complete
Vetting Of Design And Drawing For Msv, Civil Buidlings, Sheds, Road & Drains Along With Allied Structural Items At Bokaro Lpg Plant	BPCL, Bokaro	8.732	Complete
Vetting Of Design And Drawing For Civil Buidlings, Structural Sheds, Road & Drains And Boundary Wall At Bpcl, Radhagaon Pol Depot, Bokaro	BPCL, Bokaro	8.732	Complete

Study on Red mud storage pond of HINDALCO industries Ltd. At Muri. Jharkhand	HINDALCO Muri	2.59	Complete
Geotechnical and Material Testin for Mohammadganj Barage Canal	WAPCOS Ltd. Gurgaon	34.45 (Co-CI)	Complete
Additional Geotechnical and Material Testin for Mohammadganj Barage Canal	WAPCOS Ltd. Gurgaon	6.4 (Co-CI)	Complete
Providing third party quality control and quality assurance for Civil, Electrical, Mechanical 7 all other allied works for redevelopment of GPRA colony at Naoroji Nagar, New DELhi	NBCC Ltd.	Total (192) 80	Completed after 2 years, due to delay in project execution
Scientific Study of Red Shale from Fujairah (UAE) as a Sustainable Brick Making Material	Powergen Technical services Pvt Ltd., Kolakata	2.0	Completed
Investigation of in-situ and borrow area soil for construction Haldia Earth dam, Subranrekha of Irrigation Project, Baripada.	Department of water resources, Govt of Odisha	28.7	Completed
Stabilization of ash dump at Village Nawarangpur, Raigarh, Chhatishgarh	Monnet Ispat and Energy Limited, Raigarh, Chhatishgarh.	5.80	Completed
Scrutiny of the for rural pipe water supply to Village Champua, Keonkhar, Odisha	Essel Mining Industries Ltd. Barbil, Odisha.	7.62	Completed
Design of Elevated stoarage reservoir of different capacity, height on the soils of bearing capacity 50kN/m ² , 100 kN/m ² and 150 kN/m ² . Design of Office building Chief Engineer, RWSS at Bhubaneswar	Rural Water supply and Sanitation Department, Governemnt of Odisha	4.30	Completed
Proof checking of Design of road overbridge for obtaining railway approval and Stability study of Reniforced wall	M/S L & T Limited, Jharsuguda	2.40	Completed
Design of Impervious lining of Ash disposal area at Essar Power Orissa Ltd, Paradeep	Essar Power Orissa Ltd, Paradeep	2.30	Completed
Capacity Building of Staff Involved In MGNREGA Works	Ministry of Rural Developmenet, Govt. of India	20.81 (Co-cordinator)	Completed
Third Party evaluation of Civil works in 30 Districts of Orissa, under SSA	Director, OPEPA, Govt of Odisha	64.20 (Co-PI)	Completed
Slope Stability of Dump along with fly ash at Jindal Power open cast coal mines	Jindal Power Limited, Raigarh	3.44 (Co-PI)	Completed

Slope Stability of Dump along with Fly ash at Jindal open cast coal mines # 1, Dongamauha	Jindal Steel & Power Limited, Raigarh	3.93(Co-PI)	Completed
Slope Stability of Dump along with 25% fly ash at Jindal Power open cast coal mines through model study	Jindal Power Limited, Raigarh	3.04 (Co-PI)	Completed
Slope stability and River training works at Bridge No. 102, Manoharpur	RVNL, Manoharpur	2.02 (Co-PI)	Completed
Study on the Ultimate Pit Slope Stability at Unchabali Iron and Manganese Mines	M/S. Smt. Indrani Patnaik Iron Ore Mine	2.02 (Co-PI)	Completed
Scientific study of drainage pattern and management of surface runoff at South Kaliapani Mine	Odisha Mining Corporation, Bhubaneswar	Rs 4.88 (Co-PI) July 2016- June 2017	Completed
Scientific study on rain water harvesting and recharging of ground water in five opencast mines of OMC.	Odisha Mining Corporation, Bhubaneswar	Rs 29.02 (Co-PI), April 2017- March 2019	Completed

Other awards

Name of awards / prizes	Year	Awards / prizes received from
Institution award	2017	Institution of Engrs (Odisha Chapter)
Indian Geotech Society- Institution of Engineers(I), Odisha Chapter	2015	Felicitaton for contribution in geotechnical engineering
Institution award	2014	Institution of Engrs (Odisha Chapter)
Artabandhu Jena Memorial Award	2011	Institution of Engrs (Orissa Chapter)
Sayed Mamtaj Ali Memorial award	2008	Institution of Engrs (Orissa Chapter)
Civil Engg Division award	2008	Orissa Engineering Congress
Madhab Jena Memorial award	2007	Orissa Engineering Congress
Muaralidhar Satapathy Memorial Award	2005	Institution of Engrs (Orissa Chapter)
Santok Singh Memorial award	2001, 2003, 2004,	Orissa Engineering Congress

The Information is true to best of my knowledge

30th April 2025

Sarat Kumar Das