

Dr. Akhil Avchar

Department of Mining Engineering, NITK, Surathkal-575025

Phone: 8208193139 Email: akhilav4nitk@gmail.com

Education

Doctor of Philosophy (Ph.D.) in Mining Engineering (2015-2019)
University: IIT (ISM) Dhanbad, India.

Master of Technology (M.Tech.) in Mining Engineering (2007-2009)
University: Indian Institute of Technology, Kharagpur, India.

Bachelor of Engineering (Mining Engineering) (2003-2007)
University: MPUAT, Udaipur, Rajasthan, India

Industrial Experience

Deputy Manager (Mines) ACC Ltd. 3 years
Deputy Manager (Mine planning) TATA Power Ltd. 6 Months

Teaching Experience

Assistant Professor (Mining) in NITK Surathkal 3 Years
Assistant Professor (Mining) in NIT Rourkela 6 Month
Assistant Professor (Mining) in CTAE, MPUAT, Udaipur, Rajasthan 3 Years 9 Months
Assistant Professor (Mining) in Goa College of Engineering, Goa 4 Years 7 Months
Assistant Professor (Mining) in GEC Bhuj, Gujarat 6 Months

Research/Teaching Interest

Rock Excavation Engineering, Rock Mechanics, Mining Methods, Mine Legislation and Safety, Mining Machinery, Control Blasting, Slope Stability.

Publication

1. A Hybrid Random Forest Optimized with the Dolphin Swarm Algorithm for Predicting P-Wave Velocity of Igneous Rocks Using Ball Mill Grinding Characteristics, Sahas V. Swamy; N. Channabassamma; Bijay Mihir Kumar; Karra Ram Chandar; Amrites Senapati; Springer Proceedings in Earth and Environmental Sciences, 2026.. DOI: 10.1007/978-3-032-09929-7_31 (Int. Conference)
2. A Hybrid XGBoost Combined with Bio-inspired Ant Colony Optimization for Estimating Burden Rock Velocity Using Geotechnical and Blasting Parameters, N. Channabassamma; Akhil Avchar; Sahas V. Swamy; N. Sangamesh, Springer Proceedings in Earth and Environmental Sciences, 2026, DOI: 10.1007/978-3-032-09929-7_76 (Int. Conference)
3. A Marble-Specific Rock Mass Classification Framework Integrating Empirical Parameters and Machine Learning Validation, sinha, Shambhavi; Tripathi, Anup; Avchar, Akhil; kumar, Mritunjay, Journal of Mining and Environment, 2026, Journal article, DOI: 10.22044/jme.2026.17326.3432 (ESCI-WoS)
4. A mechanics-based stress-energy framework for pillar-burst hazard classification in underground marble room-and-pillar mines, Mritunjay Kumar; Akhil Avchar; Shambhavi Sinha, Journal of Engineering and Applied Science, 2026-12, Journal article, DOI: 10.1186/s44147-026-01115-2 (ESCI-WoS)

5. Mechanics-consistent interpretation of non-stationary rock mass deformation using SSR monitoring and regime-based analysis, Akhil Avchar; Mritunjay Kumar; Shambhavi Sinha, *Natural Hazards*, 2026-11, Journal article, DOI: 10.1007/s11069-026-08428-8 (ESCI-WoS)
6. A multi-dimensional assessment of critical mineral security in India: integrating trade analytics, criticality modelling, and strategic evaluation (2025–2040), Mritunjay kumar; Akhil Avchar; Shambhavi Sinha, *Mineral Economics*, 2026-09, Journal article, DOI: 10.1007/s13563-026-00707-x (ESCI-WoS)
7. Image processing technique to find the burden rock velocity and its interdependency on bench blasting parameters – a case study, Channabassamma N; Akhil Avchar; Sahas V Swamy; Vedala Rama Sastry; Hemant Agrawal, *Journal of Sustainable Mining*, 2026, Journal article, DOI: 10.46873/2300-3960.1496 (ESCI-WoS)
9. Influence of Angle of Internal Friction and Slope Face Angle on Kinematic Failures in Marble Mines: A Predictive Approach, Shambhavi Sinha, Anup Kumar Tripathi, Akhil Avchar & Mritunjay Kumar, *Indian Geotech Journal*, DOI: 10.25303/185da82091 (2025) (ESCI-WoS)
10. A State-of-the-Art Review on the Applications of Sensors in the Mining Industry, Mohan Himanshu and Avchar Akhil, *Disaster Advances*; Vol. 18(5); 209-215; doi: [https://doi.org/10.25303/185da2090215\(2025\)](https://doi.org/10.25303/185da2090215(2025)). (Scopus)
11. Application of Laubscher MRMR classification system in the design of open-pit chromite mines – A case study, Kumar Dinesh, Avchar Akhil, Modak Kunal and Kushwaha Abhishek Kumar, *Disaster Advances*; Vol. 18(5); 216-221; doi: <https://doi.org/10.25303/185da2160221>; (2025). (Scopus)
12. Production enhancement with dragline planning with real time topography, Sandhu Maninder Singh, Avchar Akhil, Kumar Mritunjay, Pandey Deepak Chandra and Choudhary Sanjay, *Disaster Advances*; Vol. 18(5); 126-132; doi: <https://doi.org/10.25303/185da1260132>; (2025). (Scopus)
13. Predicting Burden Rock Velocity in Limestone Mines using Artificial Neural Network Models, Channabassamma N., Avchar Akhil, Sastry Vedala Rama, Swamy V. Sahas and Kolkar Ranjit, *Disaster Advances*; Vol. 18(5); 133-138; doi: <https://doi.org/10.25303/185da1330138>; (2025) (Scopus)
14. Influence of Stiffness Ratio and Powder Factor on Burden Rock Movement in Blasting Operations: A Case Study on Limestone Mines, Channabassamma N., Avchar Akhil and Sastry Vedala Rama, *Disaster Advances*; Vol. 18(5); 82-91; doi: <https://doi.org/10.25303/185da82091>; (2025) (Scopus)
15. Parametric Analysis of Mine Bench Blasting using High Speed Video Camera, Channabassamma N., Avchar Akhil, Sastry Vedala Rama, Tripathi Anup Kumar and Sahana P., *Disaster Advances*; Vol. 18(5); 18-23; doi: <https://doi.org/10.25303/185da18023>; (2025) (Scopus)
16. Subsidence Analysis for Old Abandoned Board and Pillar Coal Mines Using ANSYS and Monte Carlo Simulation, Akhil Avchar, Samir Kumar Pal, Anup Kumar Tripathi & Gyandeep Kumar, *Journal of Mining Science* 60, 387–396 (2024). [https://doi.org/10.1134/S1062739124030049\(2024\)](https://doi.org/10.1134/S1062739124030049(2024)) (ESCI-WoS)
17. Prediction of the specific energy requirement of hydraulic rock breaker based on laboratory impact hammer - a case study. Samir Kumar Pal; Akhil Avchar; Abhishek Vyas; Anup Kumar Tripathi, *International Journal of Mining and Mineral Engineering (IJMME)*, Vol. 15, No. 2, [https://doi.org/10.1504/IJMME.2024.140075\(2024\)](https://doi.org/10.1504/IJMME.2024.140075(2024)) (Scopus)
18. Comparison of model study with field implementation of gravity blind backfilling method to control subsidence induced disaster in abandoned underground coal mines. Pal Samir Kumar, Avchar Akhil and Tripathi Anup Kumar; *Disaster Advances*; Vol.16(5); 10-18; doi: <https://doi.org/10.25303/1605da010018> ; (2023) (Scopus)
19. Ripper production prediction for laterite excavation in iron ore mines. Avchar Akhil, Choudhary, B.S.; *Journal of Mining Science* 57, 66–75. <https://doi.org/10.1134/S1062739121010087>. (2021) (ESCI-WoS)
20. A Numerical Method Approach for Analyzing the Effects of Joint Orientation on Stability of Open-stope in Metalliferous Mines. Rajeev Verma, Ashok Jaiswal, Akhil Avchar; Page 129-134; DOI [https://doi.org/10.18280/acsm.430211\(2019\)](https://doi.org/10.18280/acsm.430211(2019)) (Scopus)
21. Effect of rock properties on Rippability of laterite in Iron Ore mines of Goa. Akhil Avchar Bhanwar S. Choudhary Gananand Budi Ulhas G. Sawaiker; Page: 108-115, DOI [https://doi.org/10.18280/mmep.050208\(2018\)](https://doi.org/10.18280/mmep.050208(2018)) (Scopus)
22. Applicability of Size-strength Rippability Classification System for Laterite Excavation in Iron Ore Mines of Goa. Akhil Avchar Bhanwar S. Choudhary Gananand Budi Ulhas G. Sawaiker; *Modelling, Measurement and Control C*, 73-3, Page 378-391, [https://doi.org/10.18280/mmc_c.780309\(2017\)](https://doi.org/10.18280/mmc_c.780309(2017)) (Scopus)

Research and Consultancy

1. Scientific Research Study on Controlled Blasting at the Nawabpet–Talamanchipatnam Limestone Deposit (R&D; PI)
2. Blasting and vibration monitoring, M/s Akkavila Sajeenan Aggregates (Consultancy; Co-PI)
3. Subsidence study, South Eastern Coalfields Limited (Consultancy; Co-PI)
4. Blast Vibration Monitoring Study, Mohammad Shereef Quarry (Consultancy; Co-PI)
5. Preparation of Safety Management Plan, M/s. Minerals and Metals Mumbai (Consultancy; Co-PI)
6. Illumination study in Mines, Zuari Cement Limited (Consultancy; Co-PI)
7. Development of a Safety Management Plan (SMP), JSW Steel Limited, Goa (Consultancy; Co-PI)
8. Slope & Dump Stability Study of Parthipura Limestone Mine of M/s. The India Cements Limited (Consultancy; Co-PI)
9. Study of Nethraband Iron Mines (Blast vibration study and Pit & dump slope stability study) JSW Sambalpur Steel Limited (Consultancy; Co-PI)
10. Dust survey in Mines, Zuari Cement Limited (Consultancy; Co-PI)
11. Blast Vibratory study & Pit & Dump Slope Stability, Bhushan Power & Steel Limited (Consultancy; Co-PI)
12. Development of a Comprehensive Safety Management Plan, DBL Pottangi Bauxite Mines Private Limited (Consultancy; Co-PI)
13. Scientific Study of Slope Stability, DBL Pottangi Bauxite Mines Private Limited (Consultancy; Co-PI)
14. Scientific study for controlled blasting, Sushee Chandragupt Coal Mine Private Limited (Consultancy; Co-PI)
15. Scientific study for controlled blasting, Tokisud Mining Private Limited (Consultancy; Co-PI)
16. Slope Stability Study of Quarry, Sapana Ceramics Pvt Ltd (Consultancy; Co-PI)
17. Blast Vibration Monitoring Study, Kunnur District Black Rock Crushers & Sand Making Industries Pvt. Ltd (Consultancy; Co-PI)
18. Blast Vibration Monitoring Study, M/s Bhagwati Stone Industries (Consultancy; Co-PI)
19. Scientific Study of Blast Vibration Study for quarry at Mancode Village, Kollam District, Kerala M/S. Chithara Crusher Metal, Chithara (Consultancy; Co-PI)
20. Geotechnical Investigation and Scientific Slope Study for Gurhar Pahar Gold Deposit hosted in sheared Quartzitic Phyllite, Kundan Gold Mines Private Limited, (Consultancy; PI)
21. Study on the Impact of Ground Vibrations Due to Blasting, Shree Gurukrupa Enterprises (Consultancy; Co-PI)
22. Applicability of Surface Miner & Blast Vibration Study of Proposed Sandi Limestone Block, Shree Cement Limited- Chhattisgarh (Consultancy; Co-PI)
23. Applicability of Surface Miner & Blast Vibration Study of Proposed HPB-19 Block, Shree Cement Limited – Rajasthan (Consultancy; Co-PI)
24. Underwater Drilling & Controlled Blasting work at coastal berth of Jawharlal Nehru Port Authority, Mumbai, Knowledge Marine & Engineering Works (Consultancy; Co-PI)
25. Rock slope stability study of Talawane Iron Ore Mine of M/s. Minerals & Metals, M/s. Minerals and Metals, Mumbai (Consultancy; Co-PI)
26. Consultancy for Inspection of Drilling (Back filling) Project for Hutti Gold Mine Ltd. (HGML), The Hutti Gold Mines Company Limited (PSU) (Consultancy; PI)
27. HGML-TCL Third Party Consultant for UG-Survey Work-Extension, The Hutti Gold Mines Company Limited (PSU) (Consultancy; PI)
28. Scientific study on excavation of a Ventilation Shaft based on cost analysis & Safety measures with Site inspection at Hira Buddinni Gold Mine (HBGM) of Hutti Gold Mine Ltd. (HGML) The Hutti Gold Mines Company Limited (PSU) (Consultancy; PI)
29. Feasibility Study of Deploying Surface Miner in the Limestone Mine of Renuka Cement, Renuka Cement Limited- Telangana, (Consultancy; Co-PI)
30. Scientific Pit Slope stability study at Sirigao Iron Ore Mines, Goa, Rajaram Bandekar (Shrigao) Mines Pvt Ltd, (Consultancy; PI)
31. HGML-Teknomin Underground Decline & Ancillary work Survey Work at Hutti Gold Mine, The Hutti Gold Mines Company Limited (PSU) (Consultancy; PI)
32. Scientific Slope Stability Assessment of A. Narayani Iron Ore Mines, Chitradurga: Evaluating Geo-Mining Conditions with Focus on Altered Phyllite, Jinharsh Industrial Solutions Private Limited (Consultancy; PI)
33. Slope Stability Study for Sondenahalli Mine, Tumkur Minerals Pvt Ltd (Consultancy; PI)
34. Feasibility study of laterite quarry at Ananthayoor, Kerala, K A Latex Private Limited, (Consultancy; PI)

35. Scientific Study for controlled blasting at Mangampet Barytes Mine of M/S APMDCL Ltd. , The Andhra Pradesh Mineral Development Corporation Limited (Government of Andhra Pradesh) (Consultancy; PI)
36. Scientific Slope study of Morwad Marble Mines (JK Arora), RMES Consultancy, Udaipur Rajasthan (Consultancy; PI)
37. HGML-TCL Third Party Consultant for UG-Survey Work, The Hutti Gold Mines Company Limited (PSU) (Consultancy; PI)
38. Scientific Slope study at Rishabhdev Serpentine Mine (ML No. 04/2000), RMES Consultancy, Udaipur Rajasthan (Consultancy; PI)
39. Scientific slope stability studies at Neeralakere Dolomite Mines, Bagalkot (ML No.2442/23.18 Acres) of Karnataka State Minerals Corporation limited. Karnataka State Minerals Corporation Ltd. (Consultancy; PI)
40. Scientific Slope study at Hiremagi Sulebhavi Aihole Iron Ore Mine, Bagalkot (30.33 Ha), Doddanavar Brothers Mine Owners, (Consultancy; PI)

Achievements

1. Manuscript Review activity for Bulletin of engineering geology and the environment.
2. Manuscript Review activity for Indian geotechnical journal.
3. Manuscript Review activity for Mining, metallurgy & exploration.
4. Appointment by the Kerala Public Service Commission as Examiner for Scrutinizing Complaints (Mining Engineering Discipline)
5. Appointment by the Rajasthan Public Service Commission as Examiner for Assistant Mining Engineering (In the department of Mining and Geology)
6. Paper setting Eduquity Career Technologies P Ltd, Koramangala, Bangalore (DGMS, MoLE, GoI)
7. Examiner for the Interview for the post of Management Trainee (Mining and Exploration)
8. Expert lecture in One day workshop on future trends in technological solutions to address challenges of pit & dump slope stability in opencast mines organized by Directorate General Of Mines Safety (DGMS), Ministry of Labour and Employment (GoI), Udaipur, Rajasthan.
9. Member of INTER-NIT Faculty and Staff cricket team 2024-25 & 2025-26.

Books/Book Chapter

1. Book chapter “Stabilization of Sand Using Sugarcane Bagasse, Yeast, Human Hair Fibers, and Lime” Book Sustainable Innovation, Edition 1st Edition, First Published 2026, Imprint CRC Press, Taylor & Francis Group.

Research Scholars

1. PhD Completed- 01
2. PhD On-going- 04