Dr. Kundan Meshram
(Assistant Professor)

Qualifications

Centre/School/Special: School of Studies in Engineering and Technology

Department: Civil Engineering

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Personal Webpage Link: https://www.researchgate.net/profile/Kundan-Meshram

- **PhD** (Civil Engineering), Maulana Azad National Institute of Technology, Bhopal

  Thesis Title: *Swelling Behavior of Expansive Soils Reinforced with Granular Pile*
- **M. E.** (Transportation Engineering), S.G.S.I.T.S., Indore

  Thesis Title: *Effect of Shape of Aggregate on Pavement Quality Concrete*
- **B.E.** (Civil Engineering), G.E.C., Rewa

Area of Interest: Transportation Geotechnics, Stone Column/Granular Pile, Application of Artificial Intelligence/Machine Learning/Deep Learning in Civil Engineering

Experience: 1. Assistant Professor (Stage-II, Level-11) 24/02/2024 to till date
2. Assistant Professor (Stage-I, Level-10) 24/02/2020 to till date 23/02/2024

Awards and Honors:

- Best Paper Award for paper entitled *"Environmental impact assessment of lithium ion battery employing cradle to grave. Sustainable Energy Technologies and Assessments"* received from IQAC, GGV Bilaspur, 2023.
- **International Innovative Researcher in Civil Engineering**, RULA Peace Award, 2019.
- **CPWD Medal and Award for Best Paper on Maintenance** for paper entitled '*Pavement Deterioration Modeling for Low Volume Roads*' from Indian Road Congress, 2015.
- Received Fellowship by **COIR BOARD, Kochi** during Ph.D. (2012-2015) in Maulana Azad National Institute of Technology, Bhopal (M.P.)

- **Best Project award** entitled, "Quantity of Mica in Water of Lamta" in M.P. State children's Science Congress supported by National Council for Science & Technology Communication, DST Govt. of India, New Delhi, held from 28-30/11/2000 at Indore.

Research Projects:

1. Member, State Technical Agency (STA, Chhattisgarh State) of Pradhan Mantri Gram Sadak Yojana Sponsored by National Rural Infrastructure Development Agency (NRIDA) New Delhi. (Ongoing)

International Collaboration/Consultancy: 04 (completed)

PATENT

(a) International Patent

S.N.	Name of Inventor(s)	Title of the Patent	Country	Year	Status	Patent No.
1.	**Kundan Meshram**	Tracking and Alerting Traffic Management System Using IoT For Smart City	USA	2022	Granted	US 11,288,954
2.	Dr. Dolly Thankachan and **Dr. Kundan Meshram**	A system for effectively predicting yield from plant leaf imagery	South Africa	2022	Granted	2022/07783
3	**Kundan Meshram**	A Device and Method to Improve the Efficiency of Construction Sites Using IoT Enabled Digital Twins	Australia	2021	Granted	2021102807

(b) National Patent

S.N.	Name of Inventor(s)	Title of the Patent	Country	Year	Status	Patent No.
4.	**Kundan Meshram** and Pradeep Kumar Jain	Method of Reducing the Swelling Pressure of the Expansive Soils by Reinforcing it with the Granular Pile	India	2018	Granted	293046

5.	**Kundan Meshram** and Sunil Kumar Ahirwar	Cellular Reinforcement Supported on Expansive Soil	India	2024	Granted	515625
6.	**Kundan Meshram**	Method of Reducing the Swelling of Expansive Soils Reinforced with the Granular Pile	India	2024	Granted	492813
7.	Prashant Lahre, **Dr. Kundan Meshram**, Prof. Shailendra Kumar, Prof. Rajendra Kumar Choubey, and Dr. Balbir Kumar Pandey	Integrated mass spring damper and liquid-circular angular accelerometer system for structural strength analysis	India	2024	Granted	520507
8.	Chatrabhuj, **Kundan Meshram,** and Sunita Devi	Integrated Structural Monitoring Drone System	India	2025	Granted	566198

Research Supervision

Ph.D. Guided : 01(Awarded), 01(ongoing)

S.N.	Name of Student	Main Guide	Co-guide, if any	Broad Area	Status
1.	Mr. Chatrabhuj	Dr. Kundan Meshram	-	Application of Machine Learning for Soil and Water Areas	PhD Awarded

M.Tech. Guided: 10 (Awarded)

List of Publication:

International Journals

- Chatrabhuj, **Kundan Meshram**, Umank Mishra, Upaka Rathnayake (2025). Application of Artificial Intelligence in Agri-Tech, Environmental and Biodiversity Conservation. *Array, Elsevier*. https://doi.org/10.1016/j.array.2025.100412
- Syed Altaf Hussain, Manoj Panchal, **Kundan Meshram**, R Srinivas, Upendra Rajak, Rajan Kumar & Manish Gupta (2025). Turning GFRP composites with multi-response optimisation using TOPSIS method. *Int J Interact Des Manuf.,* 19(2), 1327-1339. https://doi.org/10.1007/s12008-024-01762-w
- Chatrabhuj, **Kundan Meshram** (2025). Proposed design of an augmented deep learning model for estimation of sustainable development goals via satellite image analysis. Environ Dev Sustain. https://doi.org/10.1007/s10668-023-04360-0
- Prashant Lahre, **Kundan Meshram**, Umank Mishra, Ahmed Zubair Jan and ·Ashhad Imam (2025). "Performance evaluation of the strength properties of sustainable concrete utilizing waste marble dust and glass fbre employing artifcial neural network and particle swarm optimization algorithm". *Innovative Infrastructure Solutions,* 10, 57. http://dx.doi.org/10.1007/s41062-025-01868-4
- Ankur Mudgal, Raju Sarkar, Amit Kumar Shrivastava, Umank Mishra, **Kundan Meshram**, Ashhad Imam & Anoop Narain Singh (2025). "Settlement in geosynthetic reinforced *square* footing over cohesive soil". *International Journal of Geotechnical Engineering,* 1-11, https://doi.org/10.1080/19386362.2025.2458497
- Anoop Narain Singh, Maya Rajnarayan Ray, Umank Mishra, Kruti B. Jethwa, Nishant Yadav, Nisha Shankhwar, Gulab Singh Chauhan, **Kundan Meshram** (2025). "Assessment of Garbage Enzyme as a Bioremediation Method for the Wastewater Treatment". *Biotechnology and Applied Biochemistry,* 1-11. https://doi.org/10.1002/bab.2720
- Banchhor, Sonal, Tarun Kumar Sahu, **Kundan Meshram**, Umank Mishra, and Ashhad Imam (2025). "Effect of dolomite & glass fiber on properties of self-healing concrete." *Cleaner Waste Systems* : 100204. https://doi.org/10.1016/j.clwas.2025.100204

- Chatrabhuj, and **Kundan Meshram** (2024). Incremental learning model for sustainable agricultural land assessment using multimodal satellite data. *International Journal of Remote Sensing*, *45*(22), 8622–8648. https://doi.org/10.1080/01431161.2024.2403628
- Chatrabhuj, **Kundan Meshram**, Umank Mishra, and Padam Jee Omar (2024). "Integration of remote sensing data and GIS technologies in river management system." *Discover Geoscience* 2, no. 1: 67. https://doi.org/10.1007/s44288-024-00080-8
- Chatrabhuj, **Kundan Meshram** (2024). Design of an Iterative Method for Environmental-Sustainable Development: Integrating Bioinspired Computing Techniques. *Environmental Development*, 101045. https://doi.org/10.1016/j.envdev.2024.101045
- Chatrabhuj, **Kundan Meshram** (2024). Use of geosynthetic materials as soil reinforcement: an alternative eco-friendly construction material. *Discov Civ Eng* **1**, 41. https://doi.org/10.1007/s44290-024-00050-6
- Chatrabhuj, **Kundan Meshram** (2024). Design of an Efficient Satellite Image Analysis Model for Identification of Sustainable Construction Areas via Ground Subsidence Monitoring and Infrastructure Monitoring Operations. Indian Geotech J., 54, pp. 1136–1151. https://doi.org/10.1007/s40098-024-00907-8
- Upendra Rajak, Prem Kumar Chaurasiya, Tikendra Nath Verma, Abhishek Dasore, Ümit Ağbulut, **Kundan Meshram**, CAhamed Saleel, Shaik Saboor, Erdem Cuce & Zhibao Mian (2024). Optimizing soybean biofuel blends for sustainable urban medium-duty commercial vehicles in India: an AI-driven approach. *Environmental Science and Pollution Research*, *31*(22), 32449-32463. https://doi.org/10.1007/s11356-024-33210-3
- Prashant Lahre, **Kundan Meshram**, Shailendra Kumar, Rajendra Kumar Choubey, Rajan Kumar & Arvind Kumar Patel (2024). Unveiling advanced modelling and analysis: the integrated system and formula for mass–spring–damper with hydraulic damper systems. *Multiscale and Multidiscip. Model. Exp. and Des.*7(3), pp.2189–2205. https://doi.org/10.1007/s41939-023-00317-y
- A. Shukla, B. K. Pandey, R. Ingale, A. K. Vivek & **K. Meshram** (2024). Effect of Construction Time on the Behavior of Embankment Constructed on ESC-Improved Clayey Soil. *Indian Geotech J.* 54, pp. 1538–1548. https://doi.org/10.1007/s40098-023-00830-4
- Bawankar, S., Dwivedi, G., Nanda, I., Macedo, V.D.J., Kesharvani, S., **Meshram, K.**, Jain, S., Mishra, S., Singh, V.P. and Verma, P. (2023). Environmental impact assessment of

lithium ion battery employing cradle to grave. Sustainable Energy Technologies and Assessments, 60, 103530. https://doi.org/10.1016/j.seta.2023.103530 **(Received best paper award)**

- **Kundan Meshram** (2023), Integrating machine learning with ITS for effective traffic management under road development conditions. International Journal of Heavy Vehicle Systems, 30(6), pp. 781-733. http://dx.doi.org/10.1504/IJHVS.2023.134705
- Hao, Y., George, M., Selvaraj, R., **Meshram, K.**, Al-Mohaimeed, A.M., Capangpangan, R.Y., Alguno, A.C. and Al-Bahrani, M., (2023). Buckling, bending and dynamic analyses of laminated three-phase polymer/graphene/carbon fiber composite rectangular plates. In *Structures Elsevier, 57,105129*. https://doi.org/10.1016/j.istruc.2023.105129
- Pawar, A., Jolly, A., Pandey, V., Chaurasiya, P. K., Verma, T. N., & **Meshram, K.** (2023). Artificial Intelligence algorithms for prediction of Cyclic Stress Ratio of soil for Environment Conservation. *Environmental Challenges*, 100730. https://doi.org/10.1016/j.envc.2023.100730 2667-0100
- **Kundan Meshram** (2022). Estimation of field CBR from DCP for subgrade soils. *Arab J Geosci* **15,** 898 . https://doi.org/10.1007/s12517-022-10048-y
- **Kundan Meshram**, Hassan M. Rangwala, H.S. Goliya and Paresh Sawanliya (2016), "On-field Assessment of Sub-Grade Uniformity using DCP", Geotechnical Testing Journal, ASTM International, Vol. 39, No. 3, pp. 447-451. https://doi.org/10.1520/GTJ20150148

International Conference

- Chatrabhuj, **Kundan Meshram** (2024). "Machine Learning process for extraction of land use pattern" 7th International Conference Challenges and Opportunities for Innovation in India (COII-2024), Ambalika Institute of Management and Technology, Lucknow, 23-24 February 2024.
- Chatrabhuj, **Kundan Meshram** (2024). "Remote Sensing for Sustainable Development for Indian Cities by Land Use Pattern" 7th International Conference Challenges and Opportunities for Innovation in India (COII-2024), Ambalika Institute of Management and Technology, Lucknow, 23-24 February 2024.
- Prashant Lahre, **Kundan Meshram**, Shailendra Kumar, Rajendra Kumar Choubey (2023). "Investigation of suitability of mass damper system for structural strength analysis", 3rd Int.

con. on Advancement in Materials Processing Technology (AMPT-2023) held at National Institute of Technology Jamshedpur on during 13 -14 July 2023.

- **Kundan Meshram** and Jasmeet Singh Chhabra (2023), "Development Of Parking Demand Model And On-Street Parking Management For Indore City" Second International Conference On Innovations in Clean Energy Technologies (ICET2023) at Energy Centre, Maulana Azad National Institute of Technology, Bhopal, Madhya Pradesh, India from 8th-10th April 2023.
- Chatrabhuj and **Kundan Meshram** (2023), "An Overview of Bio-Inspired and Deep Learning Model for Extraction of Land Use Pattern," 6th International Conference on Information Systems and Computer Networks (ISCON), Mathura, India, 2023, pp. 1-5, doi: https://doi.org/10.1109/ISCON57294.2023.10111962
- **Kundan Meshram** and Dhanjay (2023), "Improvement in Geometric Design of SH-18:A Case Study", 1st International Conference on Sci/Tech and Engineering(ICSTE-2023), NIT Manipur, from 17-18/02/2023.
- Chatrabhuj and **Kundan Meshram** (2022), "An Empirical Study on Machine Learning Based Process for Continuous Sustainable Growth Development for Land Use Pattern", International Conference on Civil Engineering Trends and Challenges for Sustainability (CTCS-2022), organized by NMAM Institute of Technology, NITTE Udipi, Karnataka, during 22-23/12/2022.
- Baswehwar S. Jirwankar and **Kundan Meshram** (2020), "Urban Planning in India - Treasure out the challenges & solutions for Indian cities", First International Conference on Challenges and Opportunities for Development of Smart Cities 2020 (ICCODS 2020).
- **Kundan Meshram,** and P.K. Jain (2015), "Ground Improvement Techniques: Recent Advances", International Conference on status of Science and Technology in Chhattisgarh State , 19-20 March 2015, held at Bhilai Institute of Technology, Durg (C.G.).

National Conference

- **Kundan Meshram** and P.K. Jain (2015), "Prediction Of Swelling Pressure For Expansive Soils", National Conference on "Strategic Perspectives and Advancements in Civil Engineering", 13th April 2015, held at JIT Borawan, Khargone, pp. 46-48.

- **Kundan Meshram,** Aparna, Rakesh Kumar and P.K. Jain (2014), "Swelling Behavior of Expansive Soil Reinforced with Granular Pile", National Conference On Recent Advancements & Innovations In Civil Engineering held at T.I.T. (Excellence) Bhopal, on 27, 28 and 29 June 2014.
- **Kundan Meshram,** S.K. Mittal, P.K. Jain and P.K. Agarwal(2013), "Application of Coir Geotextile in Rural Roads Construction on BC Soil Subgrade", National Conference on Emerging Trend in Human Computer Interaction in Engineering held at Jawaharlal Institute of Technology Borawan, on 5 October 2013.
- **Kundan Meshram,** S.K. Mittal, P.K. Jain and P.K. Agarwal(2013), "Application of Coir Geotextile for Road Construction: Some Issues", National Conference on "Advances in Engineering Research & Applications" held at Oriental College of Technology, Bhopal on 14-16 March 2013, pp. 476-480.

Books

- **Kundan Meshram** (2024), "Urban Transportation Systems: Sustainability and Future Development", Willey and Scrivener Publishing, USA. (ISBN 9781394228249). http://dx.doi.org/10.1002/9781394228416
- **Kundan Meshram** (2024), "Machine Learning Applications in Civil Engineering", Elsevier, (ISBN:978-0-443-1564-8) . https://doi.org/10.1016/C2022-0-01428-8
- Dr. Binu Sukumar, **Dr. Kundan Meshram**, Dr. Vrajesh Patel and Mr. Prakash Abhiram Singh (2024), Futuristic Trends in Construction Materials & Civil Engineering, Volume 3 Book 4, Iterative International Publishers, Chikmagalur, Karnataka, India. ISBN: 978-93-6252-426-3
- Markanday Giri, Sagar Jamle and **Kundan Meshram (2020), "Response Spectrum Analysis**", LAP LAMBERT Academic Publishing, Mauritius, ISBN: 978-620-0-32633-1.
- Nidhi Gupta, Rohit Sahu and **Kundan Meshram** (2015), "Building Design and Drawing", Ardent Publications (ISBN: 978-93-81481-12-7).

Book Chapters/Monographs etc.

- Chatrabhuj and **Kundan Meshram** (202X) "Geo-AI for irrigation management systems in a smart way" Elsevier, (In Press)
- Chatrabhuj and **Kundan Meshram** (2025) "Remote sensing for sustainable development for Indian cities by land use pattern" http://dx.doi.org/10.1201/9781003606260-25
- Chatrabhuj and **Kundan Meshram** (2024) "Environmental Intelligence Mapping the Transforming Landscape through Artificial Intelligence and Satellite Data" CRC Press, Taylor & Francis. http://dx.doi.org/10.1201/9781032718323-7
- Chatrabhuj, **Kundan Meshram** (2024) "An Overview of waste materials used as Soil Stabilizers for Sustainable Development" IIP publications. Vol (3), Month: May, Year: 2024 pp. 1-16, e-ISBN:978-93-5747-676-8, DOI/Link: https://www.doi.org/10.58532/V3BICE4P1CH1
- Prashant Lahre, **Kundan Meshram**, Shailendra Kumar, Rajendra Kumar Choubey (2024). "Evaluating Mass Spring Damper System and Model for Reinforcing Engineering Designs: A Qualitative and Quantitative Approach ", Industrial and Manufacturing Designs, Willey and Scrivener Publishing, USA. (ISBN: ISBN 978-1-394-21174-6) https://doi.org/10.1002/9781394212668.ch6
- **Kundan Meshram,** Dhananjay Pandya(2024). Improvement in Geometric Design of SH-18: A Case Study. In: Swain, B.P., Dixit, U.S. (eds) Recent Advances in Civil Engineering. ICSTE 2023. Lecture Notes in Civil Engineering, vol 431. Springer, Singapore. https://doi.org/10.1007/978-981-99-4665-5_15 (ISBN: 978-981-99-4664-8)
- **Meshram K.**, Reddy N.G. (2022) Development of a Machine Learning-Based Drone System for Management of Construction Sites. In: Reddy K.R., Pancharathi R.K., Reddy N.G., Arukala S.R. (eds) Advances in Sustainable Materials and Resilient Infrastructure. Springer Transactions in Civil and Environmental Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-16-9744-9_5 (ISBN: 978-981-16-9743-2)
- **Kundan Meshram** (2022), "Design of Optimum Construction Site Management Architecture: A Quality Perspective Using Machine Learning Approach". In: Mahmood, M.R., Raja, R., Kaur, H., Kumar, S. and Nagwanshi, K.K. (eds.) Ambient Intelligence and

Internet Of Things: Convergent Technologies. John Wiley & Sons (ISBN: 978-1- 119-82123-6). https://doi.org/10.1002/9781119821847.ch13

- **Kundan Meshram** (2021), **"**Design of an adaptive & flexible green computing architecture for multi-domain social applications via artificial intelligence", In: Sanjay Kumar, Rohit Raja, Alok Kumar Singh Kushwaha, Saurabh Kumar, Raj Kumar Patra (eds) Green Computing and its Applications. Nova Science Publisher (Scopus Index). https://doi.org/10.52305/ENYH6923 (ISBN: 978-1-68507-357-2)

Administrative Responsibilities

Working in various committees at Department, School and University level in GGV, Bilaspur

SHORT TERM TRAINING PROGRAMME/WORKSHOP etc. ORGANIZED

1. Online National Workshop on **"Intellectual Property Rights (IPR) - Patent & Designs Process"** organized by Department of Civil Engineering, Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) in association with RGNIIPM Nagpur (M.H.) under National Intellectual Property Awareness Mission on 09/02/2022.
2. Online Webinar on **"Strategies of Cracking Gate for Civil Engineering"** organized by Department of Civil Engineering, Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) on 27/01/2022.
3. National Workshop on **"Scheme for Facilitation Intellectual Property Protection"** Organized by GGU, Bilaspur, (CG.) India, October 18- 23, 2021.
4. National Workshop on **"Skill Development In Technology Transfer"** Organized by GGU, Bilaspur, (CG.) India, September 13-18, 2021.
5. National Workshop on "**Intellectual Property Rights**" Organized by GGU, Bilaspur, (C.G.) India, November 28, 2020.
6. One day workshop on **"Conceptual Framework of Intellectual Property Rights",** held at Oriental University, Indore on 12th October, 2019.
7. STTP on "**Application of SPSS in Multidisciplinary Research**", January 6-10, 2016 at M.A.N.I.T. Bhopal.
8. STTP on "**IPR Issues: Patent Drafting & Processing of Patent Application**", March 14-18, 2015, at M.A.N.I.T. Bhopal.

9. STTP on "**Research Methodology and Applications of SPSS in Multidisciplinary Research**", January 04-08, 2015, at M.A.N.I.T. Bhopal.

Additional Information

PROFESSIONAL MEMBERSHIP

1. Institute of Urban Transport (IUT) – M1556
2. Indian Roads Congress (IRC) – LM 33906
3. Indian Geotechnical Society (IGS) – LM3873

REVIEWER

Journal

- Scientific Reports, Springer
- Journal of Mountain Science, Springer
- Journal of Institution of Engineers Series A, Springer
- Multiscale and Multidisciplinary Modeling, Experiments and Design, Springer
- Discover Civil Engineering, Springer
- Discover Applied Sciences, Springer
- Environmental Earth Sciences, Springer
- International Journal of Digital Earth, Taylor & Francis

FDP/FIP/MOOCS/STTP/WORKSHOP/WEBINAR etc. ATTENDED : 113