

AAYUSH KUMAR (SMASCE, MDFI, MIGS)

Assistant Professor, CED, Integral University Lucknow

Former Assistant Professor (Contract, Guest Faculty), CED, M.M.M.U.T

Ph.D in Civil Engineering (Submitted)

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DOB: 05th September 1999 Status: Unmarried

Correspondence Address: Ward No. 12, Majhauri Raj,
Badwa Tola, Salempur, Deoria, U.P, India Pin code- 274506,

Portfolio: <https://sites.google.com/view/info-aayush> ; <https://sites.google.com/view/aayush-infra-build/>

Area(s) of Interest: Rock Engg, Underground Space Technology, Geotechnical Engg Earthquake Engg



ACADEMIC QUALIFICATION

Educational Qualifications	Year	Board/ Institution	CGPA / %
Ph.D. (Geotechnical Engineering)	2025	MMMUT, Gorakhpur-273010	9.23 in course work
M. Tech (Seismic Design and Earthquake Engineering)	2021	MMMUT, Gorakhpur-273010	7.78
B. Tech (Civil Engineering)	2019	Institute of Technology and Management Gida Gorakhpur Affiliated to AKTU Lucknow	74.24
Diploma (Civil Engineering)	2016	Mahamanav Gautam Buddha Polytechnic Gorakhpur Affiliated to BTEUP Lucknow	71.00
Matriculation (X)	2013	Uttar Pradesh State Board of High School and Intermediate Education	82.66

ADDITIONAL ACADEMIC QUALIFICATION

Course Name	Year	Board/ Institution	CGPA / %
Underground Space Technology	2024	NPTEL (SWAYAM) IIT Roorkee	55
Rock Engineering	2023	NPTEL (SWAYAM) IIT Roorkee	67 (Elite)

CERTIFICATION COURSES

Course Name	Year	Board/ Institution	Grade
Course on Computer Concepts (CCC)	2020	National Institute of Electronics and Information Technology	'D'
AutoCAD (Civil Engineering)	2017	ACME Computer Institute	'A'

TRAINING COURSES

Course Name	Year	Board/ Institution	Grade
'C'- Certificate-National Cadet Crops (NCC)	2016	Ministry of Defence	'A'
'B'- Certificate-National Cadet Crops (NCC)	2015	Ministry of Defence	'A'
'A'- Certificate-National Cadet Crops (NCC)	2013	Ministry of Defence	'A'

INTERNSHIPS

Training	Year	Organisation	Durations
Summer Internship (B.Tech)	2018	PWD Siddharth Nagar	4 Weeks
Summer Internship (Diploma)	2015	PWD Gorakhpur	4 Weeks

PROJECTS

Curriculum	Topic
Ph.D.	Numerical Stability Assessment of Rock Tunnels: Impact of Overlying Foundations, Excavation Damage, Support Systems, and Ground Inclination
M.Tech	Numerical Simulation of the Seismic Response and Soil-Pile-Structure Interaction for a High-Rise RCC Building
B.Tech	Effective Utilization of Waste Plastic with Partial Replacement of Bitumen in Flexible Pavement"
Diploma	Design of the Proposed hostel Building



SKILLS

Software's	OPTUM G-2 & G-3	MATLAB	GEO5	E-TAB'S	SAP- 2000	Rocscience
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EXPERIENCE

- **Assistant Professor on contract (Guest faculty) (from 21/07/2025 till date)**
Civil Engineering Department, Madan Mohan Malaviya University of Technology, Gorakhpur-273010
- **Research Scholar cum Teaching Fellow (RCTF) (from 22/09/2022 to 10/06/2025)**
Civil Engineering Department, Madan Mohan Malaviya University of Technology, Gorakhpur-273010
- **Working as Principal Chief Executive Officer at AAYUSH INFRA BUILD & GROUP OF CONSULTANTS – India | Hybrid | (June 2016 – till date) Website: AAYUSH-INFRA-BUILD.COM**



PROJECT ASSISTANTSHIP

- Project assistant under the project of C/NRRL in civil engineering department of **Indian Institute of Technology, Kharagpur (IITKGP)**

LIST OF PUBLICATIONS

INTERNATIONAL JOURNALS

1. **Aayush Kumar**, Vinay Bhushan Chauhan, Piyush Kumar; Akhilesh Kumar Chauhan, and Pradeep Singh "Interplay of Tunnel Geometry and Shallow Foundation Stability in Rock: Comparative Insights into Failure Modes" *International Journal of Geomechanics, ASCE*, 24(9), 04024185 (2024). <https://doi.org/10.1061/IJGNAL.GMENG-9815>. **SCIE**, Impact factor: **3.5** (5Years) **Q1** Journal
2. **Aayush Kumar** and Vinay Bhushan Chauhan " Evaluating the impact of eccentric loading on strip footing above horseshoe tunnels in rock mass using adaptive finite element limit analysis and machine learning" *Earth Science Informatics* **17**, 4441–4471 (2024) <https://doi.org/10.1007/s12145-024-01380-w> Indexing: **SCIE** Impact factor: **3.0** (5Years) **Q2** Journal
3. **Aayush, Kumar**, Vinay Bhushan Chauhan, and Piyush Kumar. "Integration of AFELA and machine learning for analysis of shallow foundation over horseshoe tunnel in rock mass." *Modeling Earth Systems and Environment* **10**, 651–670 (2024). <https://doi.org/10.1007/s40808-023-01802-6> **ESCI**, Impact factor: **3.0** (5Years) **Q1** Journal
4. **Aayush, Kumar**, and Vinay Bhushan Chauhan. "Advanced finite element limit analysis and machine learning for assessing the stability of square tunnels in rock slope." *Transportation Infrastructure Geotechnology* **11**, 1928–1962 (2024). <https://doi.org/10.1007/s40515-023-00338-7> Indexing: **ESCI**, Impact factor: **2.6** (5Years) **Q2** Journal
5. **Aayush, Kumar**, and Vinay Bhushan Chauhan "Stability Analysis of Unlined Circular Tunnels in Sloping Rock Mass Using Adaptive Finite Element Limit Analysis" *Indian Geotechnical Journal* **55**, 1–29 (2025) <https://doi.org/10.1007/s40098-024-00903-y>. Indexing: **ESCI** Impact factor: **1.5** (5Years) **Q2** Journal
6. **Aayush Kumar** and Vinay Bhushan Chauhan "Influence of Eccentrically Inclined Loading on Foundations Above Tunnels: A Combined Finite Element Analysis and Machine Learning Approach" *Transportation Infrastructure Geotechnology*. **12**, 69 (2025) <http://dx.doi.org/10.1007/s40515-024-00512-5>. Indexing: **ESCI**, Impact factor: **2.6** (5Years) **Q2** Journal
7. Piyush Kumar, Vinay Bhushan Chauhan, **Aayush Kumar**, "Assessing Foundation Behaviour under Complex Loading Near Tunnels: FEM Analysis, Insights, and Recommendations" *Journal of Mountain Science*. **21**, 3503–3520 (2024) <http://dx.doi.org/10.1007/s11629-024-8757-y>. Indexing: **SCIE**, Impact factor: **2.6** (5Years) **Q2** Journal
8. Nimisha Dwivedi, Vinay Bhushan Chauhan, **Aayush Kumar**, Sagar Jaiswal, and Trisha Singh. "Enhancing strip footing bearing capacity on soil slopes with geogrid reinforcement: insights from finite element analysis and machine learning." *Innovative Infrastructure Solutions* **9**, 440 (2024). <http://dx.doi.org/10.1007/s41062-024-01769-y>. Indexing: **ESCI**, Impact factor: **2.2** (5Years) **Q2** Journal
9. **Aayush Kumar** and Shriram Chaurasia. "Numerical Simulation for Seismic Response of Soil-Foundation-Structure Interaction on Seismic Design of High-Rise RC Building." *i-Manager's Journal on Civil Engineering* **11**(2) (2021) <https://doi.org/10.26634/jce.11.2.18040>.



10. **Aayush Kumar**. "Seismic hazard assessment of uttar pradesh local and active seismic gaps" *International Journal of Engineering Applied Sciences and Technology*, 4(11): 151-159 (2020). <https://www.ijeast.com/papers/151-159.Tesma411,IJEAST.pdf> (ISSN No. 2455-2143).
11. **Aayush Kumar**. "Seismic Isolation & Energy Dissipation System for Earthquake Resistant Design" *International Journal of Engineering Applied Sciences and Technology*, 4(12) 362-372, (2020). <https://www.ijeast.com/papers/362-372.Tesma412,IJEAST.pdf> (ISSN No. 2455-2143).

NATIONAL CONFERENCE'S

12. Piyush Kumar, Vinay Bhushan Chauhan, **Aayush Kumar**, "Stability Analysis of Strip Footing Above Circular Tunnels in Rock under Various Load Conditions" *Indian geotechnical conference* (2024) **Paper ID- 270**, Accepted for publication in Scopus indexed book chapter as lecture note in civil engineering.

COMMUNICATED

13. **Aayush Kumar** and Vinay Bhushan Chauhan "Numerical Investigation and Design Recommendations for Steel Linings in Single and Multiple Tunnels Under Surcharge Loading" Communicated in *Geotechnical and Geological Engineering*; Manuscript ID: **GEGE-D-25-00745, Received Major Revision**
14. **Aayush Kumar** and Vinay Bhushan Chauhan "Analysis of Excavation Damage Zone Around Horseshoe Shaped Tunnels Below Shallow Foundation Using FELA and ML" communicated in *Journal of Geomechanics ASCE*; Manuscript ID: **GMENG-13070**
15. **Aayush Kumar** and Vinay Bhushan Chauhan "A Synergistic Approach for Analyzing Tunnel Support Systems in Multiple Horseshoe-Shaped Tunnels in Rock Mass Using AFELA" communicated in *Journal of Mountain Science*; Manuscript ID: **25-9720 Received Major Revision**
16. **Aayush Kumar** and Vinay Bhushan Chauhan "Adaptive FEA and Machine Learning-Based Analysis of Strip Footing Behavior on the Single Lined Horseshoe Shaped Tunnel in Rock Mass under Uniform Distributed Load" *Transportation Infrastructure Geotechnology*; Manuscript ID: **TRIG-D-25-00384**
17. Samreen Bano, Vikas Singh, Aayush Kumar and Zishan Raza Khan "High-Volume Recycling of Construction and Demolition Waste in Paver Block Production" communicated in *Journal of Materials in Civil Engineering*; Manuscript ID: **MTENG-23059**
18. Vikash Singh, Samreen Bano, Vinay Bhushan Chauhan, Aayush Kumar and Madan Chandra Maurya "Sustainable Stabilization of Silty Sand Soil Using Plant-Based Enzyme Terrazyme" communicated in *Indian Geotechnical Journal* Manuscript ID: **IGTJ-D-25-00607**

YET TO BE COMMUNICATED

19. **Aayush Kumar** and Vinay Bhushan Chauhan "Potential Utilization of Structural Skirts Under Concentric & Eccentric Loading to Enhance the Bearing Capacity of Shallow Foundation over Reinforced Sand Using FELA" will be communicated in *Journal of Geomechanics ASCE*.

PEER-REVIEWED INTERNATIONAL JOURNALS' REVIEWER

S. No.	Journal Name	Library	ISSN	Impact Factor/ Indexing
1.	Scientific Reports	Nature	ISSN 2045-2322 (online)	3.8 (5 years) Q1 SCIE
2.	International Journal of Geomechanics	ASCE	ISSN (print): 1532-3641 ISSN (online): 1943-5622	3.5 (5 years) Q1 SCIE
3.	Environmental Earth Science	Springer	ISSN (print): 1866-6299 ISSN (online): 1866-6280	3.0 (5 years) Q2 SCIE
4.	Geotechnical and Geological Engineering	Springer	ISSN (print): 1573-1529 ISSN (online): 0960-3182	2.0 (5 years) Q1 ESCI
5.	Discover Civil Engineering	Springer	ISSN (online): 0960-3182	-

WORKSHOP/ FACULTY DEVELOPMENT PROGRAMME / SHORT TERM PROGRAMME

- Attended online training program on Become a Smart Researcher: Essential Tips to navigate Springer Nature Platforms Organised by Springer Nature for One Nation One Subscription (ONOS) member institutions on 15th July 2025.



- Attended online training program on “Navigate the World of Scientific Article Writing: From Manuscript Structure to publication” Organised by Springer Nature for One Nation One Subscription (ONOS) member institutions on 15th May 2025.
- Attended online training program on “Become a Smart Researcher: Essential Tips and Step-by-Step to ONOS and Springer Nature Platforms” Organised by Springer Nature for One Nation One Subscription (ONOS) member institutions on 17th April 2025.
- Attended online training program on “How to Navigate Springer Nature Platforms to access all journals” Organised by Springer Nature for One Nation One Subscription (ONOS) member institutions on 19th March 2025.
- Attended faculty development program on "*Sustainable Construction and Materials and Green Technologies in Civil Engineering*" organized by Department of Civil Engineering, Integral University Lucknow in association with SERB India on August 24, 2024.
- Attended Indian Geotechnical Conference 2023 on "*Geotechnical Advances in sustainable Infrastructure Development and Risk Reduction*" organized by IIT Roorkee UP India held on 14-16 December 2023.
- Attended one day workshop on "*Empowering through Standards: A comprehensive sensitization workshop*" organized by University Standard Club (USC) MMMUT & Bureau of Indian Standards (BIS) on 8th December 2023.
- Attended faculty development program organized by ISRO-DMS Capacity Building Programme Awareness workshop on "*Geotechnical Engineering Revolution: Harnessing Geospatial Techniques*" in MNNIT, Prayagraj, Uttar Pradesh, India held on October 31, 2023.
- Attended Academic and Professional Development Webinar Series-2023 on "*Deep foundation construction for modern bridges*" organized by Deep foundation institute of India held on 20th April 2023.
- Attended Academic and Professional Development Webinar Series-2023 on "*A Review of Ground Anchors: Design and Construction*" for modern bridges" organized by Deep foundation institute of India held on 17 March 2023.
- Participation in the “National IP Awareness Mission” (NIPAM) held on 15/12/2022 Sponsored by Govt. of India, Ministry of Commerce and Industry, Department for Promotion of Industry, and Internal Trade.
- Attended AICTE Sponsored one-week faculty development programme on "*Technological Advancements in Civil Engineering*" organized by Department of Civil Engineering MMMUT Gorakhpur, Uttar Pradesh, 273001 Held in between 05/12/2022 to 9/12/2022.
- Attended one day National Workshop on "*Sustainable Technology Development for Energy & Water Sector*" (STDEWS-2022) organized jointly by Mechanical and civil engineering departments, KIPM engineering college and Indian Desalination Association (InDA) in association with AKTU Lucknow and MMMUT, Gorakhpur on 24th November 2022.
- Attended one week Faculty Development Program on "*Laboratory Experiments Using Virtual Lab in Civil Engineering*" organized by Department of Civil Engineering Madan Mohan Malaviya University of Technology (MMMUT) Gorakhpur, Uttar Pradesh, India held on 21 to 25 September 2020.
- Attended an international webinar on "*Earthquake early warning system: Its relevance for India*" organized by Indian society of earthquake technology (ISET), IIT Roorkee, U.K, India held on 27th June 2020.
- Attended an international webinar on "*Supplemental Damping and Energy dissipation Devices*" organized by Indian society of earthquake technology (ISET), IIT Roorkee, U.K, India held on 20th June 2020.
- Attended an international webinar on "*Seismic Response of Retaining Walls*" organized by Indian society of earthquake technology (ISET), IIT Roorkee, U.K, India held on 6th June 2020.
- Participated in National Level E-Quiz on Engineering Certification(S) on "*Hydrology & Irrigation Engineering*" Organized by Institution of engineers in association with Institute of technology & Management (ITM) securing 88%. Held on 6th – 13th June 2020.
- Attended an international webinar on "*Engineering Preparedness for Earthquake Disaster Mitigation*" organized by Indian society of earthquake technology (ISET), IIT Roorkee, U.K, India held on 3rd June 2020.
- Attended seminar on "*Advance Professional Writing workshop*" jointly organized by Humanities and Management Science Department, Madan Mohan Malaviya University of Technology (MMMUT) Gorakhpur, U.P, India & IEEE India council on May 12, 2020.
- Attended one-week short term training program under twinning activity of TEQIP-III on "*Performance Evaluation for Improved Design and Engineering of Buildings*" organized by Department of Civil Engineering Madan Mohan Malaviya University of Technology (MMMUT) Gorakhpur, Uttar Pradesh, India held on 16th – 20th September 2019.

AWARDS & RECOGNITIONS

S. N	Award Type	From	Date
1.	Primer Research Award	MMMUT, Gorakhpur	7 th April 2025



2.	Commendable Research Award	MMMUT, Gorakhpur	7 th April 2025
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Note: Received all the research award by **Chief Minister** of Uttar Pradesh **Shri Yogi Aditya Nath Ji Maharaj** with a price money of **90000/-** Rupees.

- Qualified written exam and appeared in interview for position of *Assistant Professor* in civil engineering department, MMMUT Gorakhpur.

SKILLS & APPRICIATION

- Served as Event Coordinator for the college fest “ASTITVA 2021” at Mahamanav Gautam Buddha Polytechnic.

MEMBERSHIPS

- Senior Member (S.M. ASCE), American Society of Civil Engineers (ASCE), Member ID: 12355786.
- Individual Member, Deep Foundations Institute (MDFI), Membership ID: MBR-13527
- Life membership of Indian Geotechnical Society (IGS Membership No.:6035)

RESEARCH PROFILE LINKS

Web of Science	Researcher ID: AEC-2193-2022 https://www.webofscience.com/wos/author/record/AEC-2193-2022
ORCID ID	https://orcid.org/0000-0002-6939-885X
ResearchGate	https://www.researchgate.net/profile/Aayush-Kumar-12
Google Scholar ID	https://scholar.google.com/citations?user=aeqGkCgAAAAJ&hl=en Total Citations: 50+; h-index: 4; i10-index: 4 (01/07/2025)

PERSONAL DETAILS

Date of Birth	05- September- 1999
Gender	Male
Mother's Name	Mrs. Suman Devi
Father's Name	Mr. Nagendra Nath
Nationality	Indian
Languages	English (S/R/W); Hindi (S/R/W)
Status	Unmarried
Category	OBC

REFERENCES

Name	Position	Address.	Contact No.	E-mail
Dr. Vinay Bhushan Chauhan	Assistant Professor	Block-I CED, MMMUT, Gorakhpur U.P, India-273010	+91 7977947285	vbce@mmm.ut.ac.in Chauhan.vinaybhushan@gmail.com
Dr. Ravi Prakash Tripathi	Assistant Professor	Block-II CED, MMMUT, Gorakhpur U.P, India-273010	+91 9792925104	rptce@mmm.ut.ac.in
Dr. Piyush Kumar	Assistant Professor	Block-I CED, MMMUT, Gorakhpur U.P, India-273010	+91 8574940445 +91 8756224005	Piyushkumar199126@gmail.com pkced@mmm.ut.ac.in
Dr. Madan Chandra Maurya	Assistant Professor	Block-II CED, MMMUT, Gorakhpur U.P, India-273010	+91 9451800047	mcmce@mmm.ut.ac.in
Shri. Rishabh Kashyap	Assistant Professor	CED, REC, Kannauj U.P, India	+91 9506358914 +91 6394523491	rishabhkashyap1993@gmail.com

I do hereby declare that the information and facts stated here in above are true, correct and complete to the best of my knowledge and belief.

Place: **Salempur**
Date: / / **2025**


AAYUSH KUMAR



Media Coverage

Honoured and humbled to share that I've received the "Premier Research Award" & "Commendable Research Award" 2025 for excellence in research and innovation from Hon'ble CM Yogi Adityanath Maharaj Ji. This recognition from Madan Mohan Malaviya University of Technology, Gorakhpur marks a proud milestone in my academic journey.

सौ शिक्षकों व शोधार्थियों को सीएम ने किया पुरस्कृत
सीएम ने उत्कृष्ट शोध व पेटेंट के लिए सम्मानित किया। इलेक्ट्रॉनिक्स इंजीनियरिंग के विभागाध्यक्ष प्रो. एसके सोनी को सर्वाधिक 1,36,800 रुपये की पुरस्कार राशि प्रदान की। इनके अलावा केमिस्ट्री के प्रो. राजेश यादव, भौतिकी के प्रो. डीके द्विवेदी, इलेक्ट्रॉनिक्स की डा. पूजा लोहिया, सिविल के डा. विनय भूषण चौहान व मैकेनिकल इंजीनियरिंग के डा. देवेश कुमार को फैकल्टी प्रीमियम रिसर्च अवार्ड से सम्मानित किया। शोधार्थियों शोफाली मिश्रा, आयुष कुमार, रामजी त्रिपाठी, सुषमा स्वराज, अमित शर्मा और प्रज्ञा मिश्रा को भी सीएम ने सम्मानित किया। एमएमयूटी के करीब 100 शिक्षकों को उत्कृष्ट शोध व पेटेंट के लिए पुरस्कृत किया गया। विश्वविद्यालय द्वारा शुरू किए गए 'टैलेंट इंसेंटिव स्कीम' के तहत इन शिक्षकों व विद्यार्थियों को करीब 12.78 लाख रुपये की पुरस्कार राशि प्रदान की गई।



कंधार को सीएम योगी अतिथित करने के बाद कंधार एमएमयूटी में विभिन्न परियोजनाओं का निरीक्षण व विलान्यास किया।



कंधार को एमएमयूटी ने इस्वीएल बस को हरी झंडी दिखाकर 'कंधार करो सीएम योगी की ओर' अभियान चलाया।

91.22 करोड़ रुपये की लागत से 13 विकास कार्यों के लोकार्पण-शिलान्यास कार्यक्रम में सीएम योगी आदित्यनाथ का आह्वान

एमएमयूटी देश के टॉप 50 संस्थानों में आए: योगी

संबोधन
मोरारजी, जिन संभवतः माना। मुख्यमंत्री योगी आदित्यनाथ ने कंधार में कंधार एमएमयूटी के विभागाध्यक्ष प्रो. एसके सोनी को सर्वाधिक 1,36,800 रुपये की पुरस्कार राशि प्रदान की। इनके अलावा केमिस्ट्री के प्रो. राजेश यादव, भौतिकी के प्रो. डीके द्विवेदी, इलेक्ट्रॉनिक्स की डा. पूजा लोहिया, सिविल के डा. विनय भूषण चौहान व मैकेनिकल इंजीनियरिंग के डा. देवेश कुमार को फैकल्टी प्रीमियम रिसर्च अवार्ड से सम्मानित किया। शोधार्थियों शोफाली मिश्रा, आयुष कुमार, रामजी त्रिपाठी, सुषमा स्वराज, अमित शर्मा और प्रज्ञा मिश्रा को भी सीएम ने सम्मानित किया। एमएमयूटी के करीब 100 शिक्षकों को उत्कृष्ट शोध व पेटेंट के लिए पुरस्कृत किया गया। विश्वविद्यालय द्वारा शुरू किए गए 'टैलेंट इंसेंटिव स्कीम' के तहत इन शिक्षकों व विद्यार्थियों को करीब 12.78 लाख रुपये की पुरस्कार राशि प्रदान की गई।



कंधार को सीएम योगी अतिथित करने के बाद कंधार एमएमयूटी में विभिन्न परियोजनाओं का निरीक्षण व विलान्यास किया।



कंधार को एमएमयूटी ने इस्वीएल बस को हरी झंडी दिखाकर 'कंधार करो सीएम योगी की ओर' अभियान चलाया।

एमएमयूटी देश के टॉप 50 संस्थानों में आए: योगी



कंधार को सीएम योगी अतिथित करने के बाद कंधार एमएमयूटी में विभिन्न परियोजनाओं का निरीक्षण व विलान्यास किया।

