PhD, CTaM, IITB

<https://orcid.org/0000-0002-6983-4842>

**EDUCATION**

Rohan Kumar

B Tech, Civil Engineering, Gold medalist

M Tech, Environmental Engineering, NITK

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| **Year** | **Degree/Certificate** | **Institute/Board** | **CPI/Percentage/CGPA** |
| 2023-Present | PhD, Construction Technology and Management | Indian Institute of Technology, Bombay | 9.75 |
| 2021-2023 | M Tech, Environmental Engineering | National Institute of Technology Karnataka, Surathkal | 8.38 |
| 2017 - 2021 | B.Tech CivilEngineering | Institute of Infrastructure Technology Research and Management, Ahmedabad | 9.28Rank - 1 |
| 2016 | Senior secondary | Techno Mission International School, Bhagalpur | 92.8% |
| 2014 | Secondary | Delhi Public School, Bhagalpur | CGPA 10.0 |

# TRAINING/INTERNSHIP

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| **Institute** | **Date From** | **Date To** | **Major Responsibility** |
| New Mangalore Port Authority, Mangalore | 08-06-2022 | 20-07-2022 | Study of Environmental Impact Assessment (EIA), Environmental Management Programme (EMP) and Environmental Clearance (EC) of ports. |
| Bihar Rajya Pul Nirman Nigam Limited (BRPNNL), Bihar | 30-05-2019 | 21-06-2019 | Study of construction of four lane bridge with cable stayed navigational span. |
| Ahmedabad Municipal Corporation (AMC), Ahmedabad | 17-05-2018 | 06-07-2018 | Study of water distribution system, sewage treatment, solid waste management and bus rapid transient system in Ahmedabad. |

# PROJECTS

* **Major Projects**
* PhD: Design and Development of 3D-Printed Ultra-high Performance Concrete (3DP-UHPC) for Defence Applications
* M-Tech Project: Response of Linear Alkylbenzyne Sulphonate (LAS) degradation by Pseudomonas aeruginosa extracted from Paddy soil under shock load in Up Flow Multianode Tidal Constructed Wetland coupled with Microbial Fuel Cell (UMTCW-MFC).
* B-Tech Project: A study on role of Metakaolin and Alccofine as supplementary materials on strength properties of concrete
* **Minor Projects**
* Determination of Bio Methane Potential of tea waste by Anaerobic Co-digestion.
* Adsorption studies on Chromium by Banana Peel.
* Assessment of Water Quality Index of River Nandini.
* Estimation of Air Pollutants Emission (SOx, NOx and PM) around NITK campus.
* EIA of Two Lane Upgradation with Paved Shoulders of Paderu- Araku Section of NH 516 E in Andhra Pradesh
* Foundation Design of onshore wind tower
* Structural design of ground-based telecommunication tower.
* Traffic Study and Design of T-Intersection.
* Analysis of two storey building
* **Python and Machine Learning**
* Supervised Learning
* Classification
* Brain tumor detection using Convolutional Neural Network (CNN)

# RESEARCH PAPERS

* Paper published on “A study on role of Metakaolin and Alccofine as supplementary materials on strength properties of concrete.’’ Kumar R, Shah A, Tandon R, Suthar M, Iyer K. K R and Mungule M in Materials Today: Proceedings. <https://doi.org/10.1016/j.matpr.2023.04.111>
* Advancements in Microbial Fuel Cells for Wastewater Treatment: A Comprehensive Review. Rohan Kumar, Tuhin Banerji. **Manuscript accepted in 8th Indian Water Week 2024**
* Advancements in Constructed Wetland Technology: A State-of-the-art Review on Bio-Electrochemical Processes, Tidal Flow Dynamics, and Resilience to Shock Loads Rohan Kumar, Tuhin Banerji, Naresh Sharma. **Manuscript submitted to ESPR.**
* State of the art review on 3D Printed Ultra High Performance Concrete. Rohan Kumar, Nabodyuti Das, Prakash Nanthagoplan. **Manuscript under preparation.**
* Performance Evaluation of Predictive Models for High Strength Concrete. Rohan Kumar, Raghav Tandon, Aashvi Shah, Mahesh Mungule, Kannan K. R Iyer. **Manuscript submitted in ICCMS 2025.**
* Assessment of the role of Supplementary Cementitious Materials for Improving Concrete Resilience. Raghav Tandon, Aashvi Shah, Rohan Kumar, Kannan K. R Iyer, Mahesh Mungule. **Manuscript submitted in ICCMS 2025.**

# PATENT

* Provisional Indian patent ‘3D Printed Engineered Shock-Resistant Sandwich Concrete Panels’.
* Indian Patent Application No.: 202421083352 dated October 30, 2024, Corrosion protection of embedded steel reinforcement in concrete with constructed wetland integrated microbial fuel cell. Contributors: Rohan Kumar and Prakash Nanthagopalan.

# EXPERIENCE

* Teaching Assistant CE 338 Estimation and Materials Testing Laboratory

# TECHNICAL SKILLS

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| Python, C | QGIS, Surfer |
| SQL and Tableau | Revit, Bexel Manager |
| Machine Learning | Sewer Gems, Pipe Flow Expert |
| MATLAB, R | IBM SPSS |
| STAAD.Pro, Abaqus | HEC-HMS, HEC-RAS |
| AutoCAD, Tekla | Primavera, Projectlibre |
| MultiSpec, Geostatistics | Photoshop |
| ModelMuse, Primavera | Microsoft Office Applications |

# COURSES

* Audit Courses in Blast Resistant Structure and Earthquake Engineering
* Successfully completed Essentials for NX Designers from 11-01-2018 to 26-04-2018 from Siemens Centre of Excellence. IITRAM, Ahmedabad.
* Udemy courses on Lateral Earth Pressure and Retaining Wall, Design of Shallow Foundation, Design of Pile Foundation and Flexible Pavement Design (IIT PAVE).
* Udemy course on 3D Printing Workshop. How to use and maintain a 3D Printer
* Successfully completed training course MATLAB Onramp

# ACHIEVEMENTS

* Received Green Gujarat Fellowship Programme.
* Best Start up Pitch in EnPro IITB.
* Series editor for *Futuristic Trends in Construction Materials and Civil Engineering,* IIP International Publishers, USA and India.
* Received Certificate of Reviewing in recognition of the review contributed in materialtoday: PROCEEDINGS journal.
* Reviewed a journal in Environmental Science and Pollution Research.
* Secured **Gold Medal** in B. Tech program in Civil Engineering.
* Received **Gujarat Institute of Civil Engineers and Architects (GICEA) award** for 2020-21.
* **Undergraduate Research Award** felicitated for exceptional work, both in quality and quantity, carried out in the B. Tech Project evaluated by an expert committee headed by Dr.Devdas Menon, IIT Madras.
* Received Dean’s certificate for academic excellence.
* Secured **2nd state rank** in International French Language Olympiad’13 organized by French Language Teacher’s Association.
* MHRD scholarship for pursuing M. Tech and PhD.
* Secured **94.33 percentile** in Graduate Aptitude Test in Engineering (**GATE**) Civil Engineering.
* Senior Editor of College Magazine Team ‘Vichaar’.
* Secured **99.47 percentile in DPS Science and Mathematics Talent Examination** organized by DPS Society and Science Olympiad Foundation.
* Published articles in Junior Jagran, Dainik Jagran’s weekly tabloid.

# RESPONSIBILIY

* Founder AquaWattt: Portable Wastewater Treatment and Bioenergy Generation
* Senior Design Engineer, Civil Subsystem, Team SHUNYA, IITB (2023-24)
* System Administrator Hostel Council-18 (2023-24)
* Core Team Member (Public Relation) Yogastha (2023-24)
* Organising team member for International Workshop on 3D Concrete Printing: Present and Future Prospects held at IITB on 1-2 March 2024

# PARTICIPATION /WORKSHOP

* Participated in "EXTREME LOADING ON STRUCTURES - 2024" symposium on 17 December 2024 at IIT Roorkee.
* Participated in workshop on "Implementation of FRP Reinforcements in Concrete Structures - Current Trends and Future Prospects" 13th December 2024 at IITB.
* Participated in workshop "Advancing Connected Autonomous Vehicle Technologies for Indian Ecosystem" scheduled on 10th December 2024 at IITB.
* Presented paper in CONSEC24 held at IIT Madras from 24-27 September 2024.
* Participated in the one-day international workshop on “Conservation of Heritage Structures” on 21st September 2024.
* Participated in one-day international symposium on "International best practices in the design of tall buildings" on 6th August at IIT Bombay.
* Participated in online training course on “Repair and Rehabilitation of Structures of Hydro Power Projects” organised by Central Water and Power Research Station, Pune during 13-14 December 2023.
* Participating in Solar Decathlon Design Challenge (US Department of Energy).
* Participated and presented paper in “3rd International Conference on Water Technologies (ICWT 2023)” during 4-7 December 2023 at IITB.
* Participated in Axis Bank- DE&I Curriculum on ‘Building & Leading Inclusive Organizations’
* Exhibited “Portable wastewater treatment and bioelectricity generation” at Tech Expo RnD IITB.
* Volunteered students at Solar Lamp Workshop
* Participated in Innovation challenge for Effective Management of Plastic and other waste in Swachhata Pakhwada, NITK Surathkal.
* Participated and presented paper in “International Workshop on Construction Materials” during 13-17 December 2022.
* Participated in the YOGA MUDRA training session held at NITK, Surathkal organized by NITK Seva Dal in association with Student Activity Council during 24th June to 3rd July 2022.
* Instructor at Udemy with 500+ enrolled students.
* Workshop on Robotic Arm Design and Simulation.
* Workshop on introduction o photography
* Workshop on Model Rocketry by Vikram Sarabhai Space Centre, Ahmedabad.

# MEMBERSHIPS

* Student member of Institution of Civil Engineers United Kingdom.
* Student member of American Concrete Institute.
* Student Member of American Society of Civil Engineers.
* Student member of American Water Works Association.

# VOLUNTEER

* NSS
* i-care
* Yoga Club
* TEDx NITK Surathkal
* Utkrishta Bharath
* ENGI PRESS
* ENGINEER INCIDENT Publicity

# SOFT SKILLS

* **Languages Known:** English, Hindi, French (elementary proficiency)
* Leadership and Teamwork
* Quick Learning and Critical Thinking.
* Problem Solving Skills

# HOBBIES

* Reading non-fiction books
* Yoga
* Painting