

MOHAN KRISHNA KOLLI



Ph Nos: +91 8500441687; +91 6302690903

mohan.kolli1@gmail.com : <https://orcid.org/0000-0001-5339-1656> : DOB: 08/11/1992

EDUCATION

Doctor of Philosophy, Indian Institute of Technology Gandhinagar

August 2017 – July 2023 (CGPA: 9.41/10)

Thesis Topic: Development of Design Tools for Serviceability Design of Rigid-Faced GRS Walls

Advisor: Dr. Amit Prashant

Masters of Technology, Indian Institute of Technology Gandhinagar

July 2015 - August 2017 (CGPA: 8.8/10)

Dissertation Title: Simplified 1-D Modeling of Duo-Pile Foundation System

Advisor: Dr. Amit Prashant and Dr. Dhiman Basu

Bachelor of Technology, VR Siddhartha Engineering College (JNTUK)

June 2011 - April 2015 (CGPA: 9.8/10)

Project Title: Analysis and Design of Pre-Cast Buildings

PROFESSIONAL EXPERIENCE

Consultant and Director, GeoSynapse Private Limited

April 2023 to Present.

Web link - www.geosynapse.in

Research Associate, Indian Institute of Technology Gandhinagar

February 2023 to Present.

Project: Supervision, Inspection and Audit of Ahmedabad-Dholera Expressway.

SRF, Indian Institute of Technology Gandhinagar

February 2021 to February 2023

Project: Geosynthetic Reinforced Soil Walls and Abutments for High-Speed Railway Systems by NHRCL (Phase-1).

Member of BIS Panel on Reinforced Soil Structures, TXD-30.

Member of BIS Panel on Reinforced Soil Structures for Railways, TXD-30.

Teaching Experience, Indian Institute of Technology Gandhinagar

- Co-Instructor: Geosynthetics: Post-graduate course: Even Semester (January-April) in 2024.
- Co-Instructor: Focus School: Geotechnical Infrastructure Design: Even Semester (January-April) in 2024.

Teaching Assistant, Indian Institute of Technology Gandhinagar

- Geosynthetics: Post-graduate course: Even Semester (January-April) in 2019, 2020.
- Slope Stability and Retaining Structures: Post-graduate course: Odd Semester (August-November) in 2019.
- Soil Mechanics: Under-graduate course: Odd Semester (August-November) in 2018.

Graduate Teaching Fellow (GTF), Indian Institute of Technology Gandhinagar

- Geosynthetics: Post-graduate level course: Even Semester (January-April) in 2021.

Assistance in Writing Research Proposals, Indian Institute of Technology Gandhinagar

August 2017 – July 2023

- Sanctioned project of “Geosynthetic Reinforced Soil Walls and Abutments for High-Speed Railway Systems” by High-Speed Railway Innovation Center Trust.
- “Application of Geosynthetic Reinforced Soil Walls for Indian Railways” submitted to National Textile Mission, Ministry of Textiles.

PROJECTS (Individual Capacity and Geosynapse)

- **Planning and Review of Geotechnical Investigation; Recommendation of foundation systems** for multi-storeyed buildings (January-April 2024)
- **Auditing of expressway project** – Auditing of designs, QA/QC, construction of pavements, GRS walls, embankments, bridge/flyover foundations and retaining walls (February 2023-present).
- **Rectification of 15 m high distressed GRS walls** – Self driven nails/anchors solutions. Involved in distress analysis, design of rectification measures, nail pull-out tests witness, discussions/meetings with clients and report drafting (August 2023-February 2024).
- **Ground improvement strategy for liquefaction mitigation and Foundation solutions for substation buildings and power transmission towers** – Involved in design of stone column solution for liquefaction mitigation, foundation design/analysis and report drafting (August 2023-present).
- **Health assessment of ash dyke and solutions to seepage/piping issues** - Involved in health assessment analysis of ashdyke, design of solutions for seepage issues, sustainable ashdyke utilization schemes and report drafting (August 2023 – December 2023).

- **Rehabilitation of Canal Slopes and Retaining Walls** – Reinforced soil and Gabion solutions. Involved in design of reinforced soil slopes, gabion wall, erosion control measures and report drafting (2022-2023).
- **Rehabilitation of Flexible Pavement** – Geocell & Geogrid Stabilization Solutions. Involved in distress analysis, design of flexible pavements with geocells/geogrids and report drafting (2020).
- **Economic Feasibility of Pile Foundations for Solar Panels** - Solar Park Foundations. Involved in design and analysis of foundation alternatives and report drafting (2019).

RELEVANT COMPUTER SKILLS

Programming Languages: MATLAB

Software Packages:

Finite Element: OpenSEES, Abaqus

Design tools: Geo5, Geostudio, Slide, MSEW, ReSSA, SAP2000.

Seismic analysis tools: DeepSoil, SHAKE 2000, SeismoSignal,

Drawing: AutoCAD.

RESEARCH INTEREST

- Geosynthetic Applications; Locally Available Sustainable Resources as fill materials.
- Modeling and Instrumentation of Geotechnical Structures.
- Seismic Design of Geotechnical Structures; Site Response Analysis; Random Vibration Theory.

PROFESSIONAL MEMBERSHIPS

- International Geosynthetics Society, IGS
- Indian Geotechnical Society
- Deep Foundation Institute, India
- Indian Road Congress

ACHIEVEMENTS

- Recipient of three Institute Gold medals for highest CPI in B.Tech, highest CPI in civil engineering department and highest CPI in structural analysis subjects.
- Recipient of the Gold medal for highest CPI in Civil Engineering Department in M.Tech.
- Placed among the top 1% in Graduate Aptitude Test in Engineering-2015, India.

PUBLICATIONS

1. **Kolli, M. K.**, & Prashant, A. (2024). Influence of toe condition on mechanical response of rigid-faced GRS walls. *Acta Geotechnica*, 1-23.
2. **Kolli, M. K.**, & Prashant, A. (2024). Deformation behaviour of rigid faced GRS walls in numerical simulation with bonded and frictional soil-reinforcement interfaces. *International Journal of Geotechnical Engineering*, 1-20.
3. Rao, G. V., **Krishna, K. M.**, Prashant, A., & Dixit, A. (2023). Test Methods for Evaluation of Benefits of Geosynthetic Reinforcements for Flexible Pavement Design—A Critical Appraisal for Indian Scenario. *Indian Journal of Geosynthetics and Ground Improvement*, 12(2), 4-17.
4. **Kolli, M. K.**, Basu, D., & Prashant, A. (2022). Simplified 1D elastic modeling of duo-pile foundation system incorporating the Interaction mechanisms prevailing under lateral loads. *Journal of Bridge Engineering*, 27(4), 04022014.
5. **Krishna, K. M.**, & Prashant, A. (2022). Simulating mechanical response of GRS walls with different construction methods. In IOP Conference Series: Materials Science and Engineering (Vol. 1260, No. 1, p. 012015). IOP Publishing.
6. **Kolli, M. K.**, & Bora, S. S. (2021). On the use of duration in random vibration theory (RVT) based ground motion prediction: a comparative study. *Bulletin of Earthquake Engineering*, 19(4), 1687-1707.
7. **Kolli, M. K.**, Prashant, A., & Rao, G. V. (2021). Geosynthetic stabilized flexible pavements: a critical appraisal for Indian scenario. *Indian Journal of Geosynthetics and Ground Improvement*, 10(1), 3-25.
8. **Kolli, M. K.**, & Prashant, A. (2020). Simplified 1-D equivalent linear analysis for lateral response of Duo-pile foundation system with nonlinear soil. *Journal of Bridge and Structural Engineer*, 50(3), 66-76.
9. Pal, H. S., & **Kolli, M. K.** (2020). Effect of fascia gravity on the design of reinforced soil walls. In *Advances in Computer Methods and Geomechanics* (pp. 709-716). Springer, Singapore.
10. Thanushan, K., **Krishna, K. M.**, & Prashant, A. (2020). A Comparative Study on the Design of Flexible Faced and Rigid Faced Geosynthetic Reinforced Soil Walls. In *Advances in Computer Methods and Geomechanics* (pp. 441-452). Springer, Singapore.
11. **Kolli, M. K.**, Prashant, A., & Basu, D. (2019). Challenges in Simplified Modelling of Duo-Pile Foundation System. In *Proceedings of The 1st Eurasian Conference On Opensees: Opensees Days Eurasia* (pp. 263-270). Hong Kong Polytechnic University, Kowloon, Hong Kong SAR, China.
12. **Kolli, M. K.**, & Prashant, A. (2018). Simplified One-Dimensional Models for Pile-Soil-Pile Interactions of a Duo-pile System. In *Proceedings of 8th Conference on Deep Foundation Technologies for Infrastructure Development in India*, Gandhinagar, India.