MOHAN KRISHNA KOLLI

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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

1. Consultant and Director, GeoSynapse Private Limited

April 2023 to Present.

Web link - www.geosynapse.in

2. Research Associate, Indian Institute of Technology Gandhinagar

February 2023 to Present.

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

3. SRF, Indian Institute of Technology Gandhinagar

February 2021 to February 2023

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

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

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

6. 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.

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

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

8. 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 (Involved in Individual Capacity)

- **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-present).
- **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
- 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., 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.