Sukrityranjan Samanta, Ph.D. student

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Education

Virginia Tech Aug 2023 - Present
Ph.D. in Geotechnical engineering (GPA: 3.64/4.00) *Blacksburg, Virginia*

- **Technical Coursework:** Soil behavior, Foundation engineering I & II, Geotech earthquake engineering, Numerical methods, Seepage & earth structures, Risk analysis in Geotech Engr, Geological engineering, ML application in CEE, Soil and site improvements, and Statistics in research.
- **Future Professoriate Graduate Certificate:** Preparing future professoriate, Contemporary pedagogy, and Communicating science.

National Taiwan University Apr 2021 - Jun 2023
Masters of Science in Geotechnical engineering (GPA: 3.95/4.30) *Taipei, Taiwan*

National Institute of Technology Jul 2013 - Jun 2017
Bachelors of Technology in Civil engineering (GPA: 8.41/10.00) *Raipur, India*

Experience

Virginia Tech Aug 2023 – Present
Graduate research assistant *Blacksburg, Virginia*

- ERDC Project: Numerical analysis of progression and collapse of underground cavities in levees (Jan'26 - Present).
- VTRC project: Design Adequacy Analysis of the Poplar Creek Box Culverts (May'25 - Dec'25).
- NSF project: Transformation Understanding of Rainfall-Triggered Landslides from a Climate Change Perspective: Initiation and Consequences (Aug'24 - Apr'25).
- CGPR project: Controlling Settlement Due to Adjacent Loading Using Sheet-Pile Walls: Insights from Finite Element Analysis. (Aug'23 - Jul'24).

National Taiwan University Apr 2021 – Jun 2021
Graduate research assistant *Taipei, Taiwan*

- Conducted model tests on geosynthetic encased column (GEC)-stabilized slopes subjected to seepage.
- Performed fully coupled flow–deformation finite element analyses and validated the hydro-mechanical behavior.
- Designed and instrumented narrow geosynthetic reinforced soil (NGRS) structures with sensors to monitor deformation, pore water pressure, and long-term field performance.

KEC International Limited Jul 2017 – Feb 2021
Project Engineer *Kabul, Afghanistan*

- Project: 220kV transmission line from Ghazni to Kandahar, and 500kV transmission line CASA-1000 Lot-2.
- Prepared FIDIC documents for competitive bid preparation, financial modeling of projects, operating with baseline schedule.
- Coordinated with the client for any technical issue resolution and deal with a cross-functional decision-making team for the successful completion of multi-million-dollar projects.

Professional Service During Ph.D.

Education Chair, Geotechnical Engineering Student Organization Jan 2024 – Dec 2024

- Organized student engagement activities for graduate students in geotechnical engineering.
- Participated in ASCE outreach events and school visits to demonstrate geotechnical engineering concepts and hands-on activities to K–12 students.

Publications During Ph.D.

- **Samanta, S.**, Hosseini, R., and Yerro, A. (2026). Controlling Settlement Due to Adjacent Loading Using Sheet-Pile Walls: Insights from Finite Element Analysis. *Geotechnical and Geological Engineering*, 44(1), 44.
- Karam, C., Yerro, A., and **Samanta, S.** (2026). Studying Underground Cavity Progression and the Effects under Levees: A Numerical Investigation Using the Material Point Method. In *Proceedings of Geo-Congress 2026* (pp. 229–239).
- **Samanta, S.**, Yerro, A., and Dhakal, S. (2025). A Data-Driven Approach to Predicting the Stability of Root-Reinforced Slopes under Extreme Rainfall Conditions. In *Proceedings of Geo-Extreme 2025* (pp. 182–193).
- **Samanta, S.**, Yerro, A., and Hosseini, R. (2025). A Numerical Study on the Effectiveness of Driven Sheet-Pile Walls as Barriers to Reduce Settlement in Preexisting Structures due to Adjacent Loading. In *Proceedings of Geotechnical Frontiers 2025* (pp. 163–173).

Technical Skills

Languages: MATLAB, Python, FORTRAN.
Technologies: Auto CAD, Staad.Pro, PTV.Vissim, PLAXIS- 2D/3D, SAP 2000, Settle3D, SLIDE2D, Geostudio package, Rocscience package, Metashape.
Licenses: Chartered Engineer - “The Institution of Engineer (India)”, OSHA-30 Hour Construction Safety Certification, Associate Professional Engineer - “Engineering Council of India”, NCEES – Fundamentals of Engineering (FE) and Principles & Practice of Engineering (PE) Examinations Passed; Licensure pending due to degree requirements..