

Assistant Professor

Geotechnical Engineering Specialisation, Department of Civil Engineering
Indian Institute of Technology (Indian School of Mines) Dhanbad 826004, Jharkhand, India

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Research Interests

Underground infrastructure; Geotechnical Earthquake Engineering; Constitutive Modelling; Offshore geotechnics; AI/ML applications in geotechnical engineering.

Education

- 2019–2024 **PhD in Civil Engineering**, *Indian Institute of Technology Kanpur*, Uttar Pradesh, India.
Thesis: Seismic stability analysis of circular tunnels in soils under harmonic excitation
CGPA: 9.75/10  [10.5281/zenodo.18279672](https://orcid.org/10.5281/zenodo.18279672)
- 2019–2024 **Master of Technology in Civil Engineering**, *Indian Institute of Technology Kanpur*, Uttar Pradesh, India.
Dissertation: Stability of rectangular tunnels subjected to pseudo-static earthquake loadings
CGPA: 9.75/10  [10.5281/zenodo.18279457](https://orcid.org/10.5281/zenodo.18279457)
- 2015–2019 **Bachelor of Engineering in Civil Engineering**, *PSG College of Technology*, Tamil Nadu, India.
Project: Traffic planning and site selection for ring road for Coimbatore smart city using GIS and AHP
CGPA: 9.52/10

Experience

- 2026 - till date Assistant Professor (Grade II), Department of Civil Engineering, Indian Institute of Technology (Indian School of Mines) Dhanbad.
- 2024 - 2025 FARE Postdoctoral Fellow, Department of Civil Engineering, Indian Institute of Technology Kanpur.

Journal Publications

Published

- 2026 **Gowtham, G.** and Sahoo, J.P., Discussion on “Seismic Bearing Capacity of Strip Footing on Excavations Considering Soil Strength Anisotropy Using Modified Pseudo-Dynamic and Pseudo-Static Approaches” by Shabnam Shirazizadeh, Amin Keshavarz, Majid Beygi, Mohammad Saberian, Jie Li, and Ramin Vali, *International Journal of Numerical and Analytical Methods in Geomechanics*, 0:1–15. [doi10.1002/nag.70223](https://doi.org/10.1002/nag.70223) |  Link.
- 2026 **Gowtham, G.**, and Sahoo, J.P., Significance of Primary Waves on the Seismic Stability of Underground Tunnels: A Numerical Perspective, *International Journal for Numerical and Analytical Methods in Geomechanics*, 50(5), 2516–2539. [doi10.1002/nag.70235](https://doi.org/10.1002/nag.70235) |  Link.
- 2026 **Gowtham, G.**, and Sahoo, J.P., Pseudo-Static vs Pseudo-Dynamic Methods: A General Comparison and Their Application to Underground Tunnel Stability, *Soil Dynamics and Earthquake Engineering*, 200, 109888. [doi10.1016/j.soildyn.2025.109888](https://doi.org/10.1016/j.soildyn.2025.109888) |  Link.

- 2025 **Gowtham, G.**, and Sahoo, J.P., Effect of seismic body wave propagation on the stability of piggyback twin circular tunnels, *Journal of Earthquake Engineering*, 29(10), 2175–2191. doi10.1080/13632469.2025.2515444 |  Link.
- 2025 **Gowtham, G.**, and Sahoo, J.P., Seismic active earth pressure of granular soils considering inhomogeneous wave velocities under harmonic excitation, *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 151(4). doi10.1061/JGGEFK.GTENG-12755 |  Link.
- 2024 **Gowtham, G.**, and Sahoo, J.P., Stability analysis of circular tunnels using spatiotemporal accelerations formulated considering heterogeneity of seismic wave propagation velocities, *Soil Dynamics and Earthquake Engineering*, 181. doi10.1016/j.soildyn.2024.108654 |  Link.
- 2024 **Gowtham, G.**, and Sahoo, J.P., Seismic stability analysis of square and rectangular tunnels in cohesive-frictional soils, *Natural Hazards Review*, ASCE, 25(3). doi10.1061/NHREFO.NHENG-1955 |  Link.
- 2024 **Gowtham, G.**, and Sahoo, J.P., Seismic stability of circular tunnels in anisotropic granular soil with surcharge loading based on the modified pseudo-dynamic approach, *International Journal of Geomechanics*, ASCE, 24(5). doi10.1061/IJGNAL.GMENG-9293 |  Link.
- 2023 **Gowtham, G.**, and Sahoo, J.P., Stability of square and rectangular tunnels in sand under seismic loading, *Natural Hazards*, 119, 1863–1881. doi10.1007/s11069-023-06188-3 |  Link.
- 2023 Sahoo, J.P., and **Gowtham, G.**, Stability evaluation of circular tunnels in cohesive frictional soil under earthquake loading using the modified pseudo-dynamic approach, *Soil Dynamics and Earthquake Engineering*, 166. doi10.1016/j.soildyn.2022.107740 |  Link.

Research Funding Applications

- Marie Skłodowska-Curie Postdoctoral Fellowship (**MSCA PF**) 2025 – European Commission
 Host: University of Nottingham, United Kingdom
 Project: REFOcUS – Resilient design of foundations for offshore wind structures under seismic and environmental loads
 Score: 95% | Result: **Seal of Excellence** – Not funded due to budgetary constraints

Teaching Experience

At IIT (ISM) Dhanbad:

- NCEC101 - Building Materials and Building Construction (2026-27, I)
- NCEA201 - Computational Methods in Civil Engineering (2026-27, I)

As a Teaching Assistant/Tutor at IIT Kanpur:

- TA101/TA111 - Engineering Graphics
- ESO202 - Mechanics of Solids
- CE351 - Soil Mechanics
- CE635 - Foundation Dynamics

Awards & Accolades

- 2026 Awarded the **Seal of Excellence** by the European Commission for the Marie Skłodowska-Curie Postdoctoral Fellowship (MSCA-PF) proposal with a score of 95%.
- 2025 Received the **Outstanding PhD Thesis Award**, selected from all graduating doctoral students in the Department of Civil Engineering, IIT Kanpur.
- 2024–2025 Awarded the **Fellowship for Academic and Research Excellence** (FARE) by the Department of Civil Engineering, IIT Kanpur, to conduct postdoctoral research.
- 2019–2024 Received the **Institute Assistantship** from the Ministry of Education (formerly MHRD), Government of India, for pursuing PhD at IIT Kanpur.

- 2019 Received the **Gold Medal** for ranking first in the B.E. Civil Engineering program (2015–2019 batch) from PSG College of Technology.
- 2015–2019 Awarded a **tuition fee waiver** by the Ministry of Higher Education, Government of Tamil Nadu, to support my undergraduate studies.

Journal Reviewer

- Journal of Geotechnical and Geoenvironmental Engineering, ASCE
- International Journal of Geomechanics, ASCE
- Natural Hazards Review, ASCE
- Géotechnique Letters, ICE
- Proceedings of the Institution of Civil Engineers – Engineering Sustainability, ICE
- Geotechnical Research, ICE

Technical skills

Programming MATLAB (proficient); Python and C (basic)
Modelling ABAQUS (basic)
Drafting AutoCAD 2D/3D
Documentation L^AT_EX, MS Word, MS Excel, MS PowerPoint

Languages

Tamil (Native); English (Fluent); Hindi (Working proficiency)