Curriculum Vitae

Personal information

- Name: Dr. Ajeet Yadav
- Deisgnation: Assistant Professor
- Address: Department of Mining Engineering, Faculty Chamber 27, IIT (ISM) Dhanbad
- Mobile: +91-7607222169
- E-mail: ajeet@iitism.ac.in, ajeetyadav.203@gmail.com
- Nationality: Indian
- Gender: Male

Research interest

- Rock mechanics and ground control
- Numerical modeling of geotechnical structures
- Continuum and Dis-continuum analysis of geo-materials
- Rock mass characterization and their design implications
- Mine Ventilation, CFD Modelling

Teaching interest

- Rock Mechanics
- Underground Coal Mining
- Mine Planning and Design
- Mining Machinery
- Ground Control Engineering
- Numerical Methods in Geotechnical Engineering
- Mine Surveying
- Modelling and Analysis of Geospatial Data
- Mine Surveying

Education and Training

Dates	July 2016- July 2022
Title of qualification awarded	**PhD, "Rock Mechanics and Ground Control". CGPA: 9.6/10** **Thesis: Design of chain pillars for deep longwall workings in Indian geo-mining conditions.**
Principal subjects	Rock Mechanics Principles, Applied Rock Mechanics in Design, Underground Mining Methods, Mine Planning and Design, Rock Mechanics Lab, Data Analytics, Reliability Engineering
Name of the organization	Department of Mining Engineering, **Indian Institute of Technology (B.H.U) Varanasi, India**
Dates	July 2012 - May 2016
Title of qualification	**Bachelor of Technology in "Mining Engineering", In the top 5 in**

awarded	**the batch of 126 students**
Principal subjects	Engineering Mechanics, Basic Surveying, Basic Electrical Engineering, Basic Electronics, Operation Research, Numerical Methods in Engineering, Underground Coal Mining, Geo- mechanics, Underground Metal Mining, Opencast Mining, Geo-mechanics Lab
Name of the organization	Department of Mining Engineering, **Indian Institute of Technology (B.H.U) Varanasi, India**

Publications

Journal Publications

1. **Yadav A.,** Behera B., Singh G.S.P and Sharma S.K. (2024) Numerical modelling of post-failure behaviors of coal specimens. *Journal of Rock Mechanics and Geotechnical Engineering*, 16; 514-531. (SCI, Impact Factor: 9.40, Q1)
2. **Yadav A.**, Singh G.S.P and Behera B., (2023) A machine learning model for evaluation of chain pillar stability in deep longwall workings in India. Mining, Metallurgy and Exploration, 40, 2119-37. (SCIE, Impact Factor: 1.50, Q2)
3. Behera B., **Yadav A.**, Singh G.S.P and Sharma S.K. (2021) Assessment of excavation damage and spalling potential at a mechanized longwall face: a numerical modelling study. *Geomechanics and Geophysics for Geo-energy and Geo-resources*, 7, 104; 1-40. (SCIE, Impact Factor: 3.90, Q1)
4. **Yadav A.**, Behera B., Sahoo S.K., Singh G.S.P and Sharma S.K. (2020) An approach for numerical modelling of gob compaction process in longwall mining. *Mining, Metallurgy and Exploration*, 37, 631-649. (SCIE, Impact Factor: 1.50, Q2)
5. Behera B., **Yadav A**., Singh G.S.P and Sharma S.K. (2020) Numerical modelling study of the geo-mechanical response of strata in longwall operations with particular reference to Indian geo-mining conditions. *Rock Mechanics and Rock Engineering*, 53; 1827-56. (SCI, Impact Factor: 5.50, Q1)
6. Behera B., **Yadav A.**, Singh G.S.P and Sharma S.K. (2020) A numerical modelling approach for evaluation ofspalling associated face instability in longwall workings under massive sandstone roof. *Engineering Failure Analysis*, 117, 104927. (SCI, Impact Factor: 4.40, Q1)
7. **Yadav A.**, Behera B., Sahoo S.K., Singh G.S.P and Sharma S.K. (2020) Numerical analysis of the gob stress distribution using a modified elastic model as the gob constitutive model. *J. Inst. Engg. Ser D*, 101, 127-139. (Scopus, Q3)
8. Behera B., **Yadav A.**, Singh G.S.P and Sharma S.K. (2020) Design of an optimum longwall face for improvedground control: a Review. *J. Inst. Engg. Ser D*, 101, 151-164. (Scopus, Q3)
9. Sahoo S.K., Behera B., **Yadav A.**, Singh G.S.P. and Sharma S.K. (2020) Plain-strain modeling of progressive goaf compaction in a depillaring working. *J. Inst. Engg. Ser D*, 101, 233-245. (Scopus, Q3)

Conference Papers

10. **A. Yadav**, B. Behera, S.K. Sahoo, G.S.P. Singh and S.K. Sharma (2020) Performance evaluation of potential constitutive models for simulation of longwall goaf compaction using modulus updating technique. *Recent practices and advancement in mineral industry*, VNIT, Nagpur, 21-22 February, 2020.
11. S.K. Prajapati, **A. Yadav**, B. Behera, S.K Sahoo, G.S.P. Singh and S.K Sharma (2020) An innovative

methodologyfor improved simulation of goaf compaction in longwall workings using FLAC3D. *Fifth International ItascaSymposium*, February 17-20, Vienna, Austria, 2020

12. **A. Yadav**, G.S.P. Singh, and U.K Singh (2016) Assessment of chain pillar stability in complex longwall workings. *Indorock*, IIT Bombay, Mumbai, June 17-18, 2016

Teaching experience

1. First-Year U/G Mining engineering course "Applied Rock Mechanics" (Class of 125 students, Winter 2019)

2. First-Year PG Mining engineering course "Ground Control Engineering" (Class of 30 students, Fall 2018)

3. Second-year U/G Mining engineering course "Surface Mining" (Class of 120 students, Winter 2015)

Research experience

Research Project

1. Assessment of Safe Parting Thickness and Optimum Goaf-Edge Support Requirement for Extraction of Pillars under Soft Cover. Funded by: Coal India Limited (CIL).

2. PI of the project titled "Development of a Numerical Modelling Approach for Estimation of the Abutment Angle as a Physical Reality for Indian Geo-Mining Conditions. Project No.: FRS (225)/2024-25/ME. Cost: 20.00 lakhs. Status: Ongoing.

3. Submitted a proposal as PI of an Institute Mega Project titled "Numerical Modelling of Ground deformation due to the UCG Process through a coupled Thermo-Hydro-Mechanical-Chemical Model". Status: Accepted for Evaluation.

4. Submitted a proposal as PI of an ECRG Project titled "A novel non-linear, stress-dependent, and progressive constitutive model to simulate the complete mechanical behavior of coal structures". Project No.:ANRF/ECRG/2024/003937/EAS. Cost: 71.99 lacks. Status: Accepted for Technical Evaluation.

Work experience

Academic Experience

Dates	December 2022- February 2023
Occupation or position held	**Project Fellow**
Main activities and responsibilities	Conducting scientific study at the New Umrangso Lime Stone Mine Project and Preparing Scientific Study Report of Calcom Cement India Limited
Name and address of	**Indian Institute of Technology (B.H.U) Varanasi, India**
employer	Research and Teaching (Educational Institute)
Type of business or sector	June 2023- February 2024
Dates	**Post-doctoral Fellow**

Occupation or position held	Conducting research related to rock mechanics and ground control (Assessment of Safe
Main activities and responsibilities	Parting Thickness and Optimum Goaf-Edge Support Requirement for Extraction of Pillars under Soft Cover)
Name and address of	**Indian Institute of Technology (B.H.U) Varanasi, India**
Personal skills and competences	
Mother tongue	Hindi
Other language(s)	English
Social skills and competences	Good ability to adapt to multicultural environments gained through my work.
Technical skills and competences	High-level knowledge in the field of "Rock Engineering and Underground Structure Design". Capable of setting up and maintaining laboratory test equipment related to rock mechanics. Capable of undertaking numerical simulations of complex geotechnical problems.
Computer skills and competencies	Proficient with finite difference codes: **FLAC 2D** and **FLAC 3D**. Intermediate user of **Rocscience Packages** Advanced level in **Microsoft Office** (Word, Excel, PowerPoint). Intermediate level in distinct element codes: **UDEC** and **3DEC**. Intermediate user of **SURPAC** Beginner-level user of **Python and Related Applications**

Honours and Awards

- AIR 112 in GATE 2023
- MHRD scholarship for doctoral studies
- AIR 4806 in IIT JEE 2012
- Research Citation = 46, h-index = 3 (Google Scholar)
- Awarded Second position in Geomac competition at METTLE-14, IIT (BHU) Varanasi
- Member of Department Post Graduate Committee (DPGC) at IIT (BHU) Varanasi (July 2017- July 2018)
- Selected in top 25 candidates for the SERB (DST) – Sponsored high-end workshop on AI and Data Science for Industrial Application (P42408)

Review work

- Scientific Reports, Springer nature
- Mining, Metallurgy & Exploration, Springer

- Geomechanics and Geophysics for Geo-Energy and Geo-Resources, Springer nature
- Heliyon, Cell Press journal
- Energy Science & Engineering, Wiley