CURRICULUM VITAE

1. **Name and full correspondence address:** Mohammad Soyeb Alam, Assistant Professor, Room No.114, Department of Mining Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Sardar Patel Nagar, Police Line, Dhanbad-826004, Jharkhand, India
2. **Email:** msalam@iitism.ac.in; Phone (M).: +91-9470372048, (O): +91-326- 2235120
3. **Institution:** Indian Institute of Technology (Indian School of Mines), Dhanbad
4. **Date of Birth:** 07/10/1981
5. **Gender:** Male
6. **Category:** General
7. **Whether differently abled**: No
8. **Academic Qualification (undergraduate onwards)**

Sl. No.	Degree	Year	Subject/specialization	University/Institution	Percent/ CGPA
1	B Tech	2004	Mining Engineering	B.I.T, Sindri, Dhanbad	80.25%
2	M Tech	2006	Mining Engineering/ Mine Planning	Indian Institute of Technology (Banaras Hindu University), Varanasi	8.63/10
3	Ph.D.	2022	Mining Engineering and Remote Sensing/ Mine Subsidence studies using SAR Interferometry (InSAR) Techniques	Indian Institute of Technology (Indian School of Mines), Dhanbad	-

9. **Ph.D. Thesis Title:** Development of a Methodology for Detection, Monitoring, and Analysis of Mining Induced Subsidence using Spaceborne SAR Interferometry Techniques.
10. **Work experience (in chronological order)**

Sl. No.	Positions held	Name of the Institute/Organization	From	To	Pay Scale
1	Assistant Manager (Mines)	Jindal South West Group, Bellary, Karnataka, India	October, 2006	March, 2008	Rs. 6750.00/23605.00
2	Dy. Superintendent (Mines)	UCIL, Jaduguda, DAE, GoI	March, 2008	August, 2013	Rs.20600-46500
3	Assistant Professor (Mining Engineering)	Indian Institute of Technology (Indian School of Mines), Dhanbad	August, 2013	Till date	Pay level 12 (Basic Pay: Rs. 104500)

11. **Professional Recognition/Award/Prize/Certificate/Fellowship**

Sl. No.	Name of Award	Awarding Agency	Year
1	BHU Medal	IIT(BHU), Varanasi	2008
2	First Class Mines Manager certificate of competency (Unrestricted)	Directorate General of Mines Safety (DGMS), GoI	2012
3	Recognized as a Qualified Person (RQP) for preparing Mining Plan of metalliferous mines.	Indian Bureau of Mines (IBM), GoI	2015

12. Publication (in SCI Journals):

Sl. No.	Author (s)	Title	Name of Journal	Volume	Page	Year
1	**Alam, M.S.,** Kumar, D. & Vishwakarma, G.K	A review on advances in persistent scatterer interferometry and proposing a novel method for phase optimization of distributed scatterers pixels	Journal of Engineering Mathematics	145	20 (1-25)	2024
2	Alam, M. S., Kumar, D., Chatterjee, R.S., et al	Improving the Capability of Integrated DInSAR and PSI approach for Better Detection, Monitoring, and Analysis of Land Surface Deformation in Underground Mining Environment.	Geocarto International	37	3607-3641	2022
3	Alam, M. S., Kumar, D., Chatterjee, R.S., et al.	Assessment of land surface subsidence due to underground metal mining using integrated spaceborne repeat-pass differential interferometric synthetic aperture radar (DInSAR) technique and ground based observations	Journal of the Indian Society of Remote Sensing	46	1569-1580	2018
4	Alam, M. S., Kumar, D., Sharma, V., Chaudhary, S K	Land surface deformation parameter estimation using persistent scatterer interferometry approach in an underground metal mining environment	The Imaging Science Journal	66	289-302	2018

13. Details of Patent : Nil

14. Books/Reports/Chapters/General articles etc. : Nil

15. Any other information :

Research interest

- Radar Interferometry for land surface deformation studies
- Global Navigation Satellite System (GNSS) for land surface deformation studies
- Underground mining methods (metal and coal)
- Mine subsidence prediction models and monitoring techniques
- Dump slope and bench slope stability analysis using analytical approaches
- Dump slope and bench slope monitoring techniques of surface mines
- Feasibility studies of underground mines especially underground metal mines
- Production and Productivity analysis of underground mine system

List of research and development projects undertaken so far as PI and Co-PI

Sl. No.	Project Title	Sponsoring Agency	Amount (in Lakhs)	Status
1	Slope Instability Severity (SIS) Assessment at Coalfield Level using Integration of Innovative Spaceborne InSAR and Relevant Data for Enhanced Slope Failure Predictions	DST(SERB)	56.94	On-going (PI)
2	Detection and Monitoring of Longwall Subsidence of Moonidih Colliery, BCCL using Spaceborne SAR Interferometry (InSAR) Techniques	BCCL, CIL	39.89	On-going (PI)
3	Regular subsidence Monitoring survey of Surda Mining Lease, Kendadih Mining Lesae, and Rakha Mining Lesae for three (03) Years	ICC, HCL	88.50	On-going (PI)
4	Development and Field Trail of a versatile pixel categorization & selection approach for improving MT-InSAR applications for in-depth monitoring of land surface deformation in Mining Environment	TIH, IIT(ISM), DST, Govt.	10.00	Completed (PI)
5	Assessment and prediction of land surface deformation due to underground metal mining in northern aravali range of hills using microwave remote sensing data sets and ground based observations.	MoM, GoI	45.0	Completed (Co-PI)
6	Assessment and Prediction of Land Surface Subsidence due to Open Stoping in Hard Rock Metal Mining using Integrated Remote Sensing and Numerical Modeling Techniques.	IIT (ISM)	8.0	Completed (PI)
7	Assessment of Land Surface Subsidence due to Underground Metal Mining using Space based Differential SAR Interferometry (DInSAR) Technique and ground based observations.	IIT (ISM)	2.0	Completed (PI)

List of major industrial consultancy projects and PDP course undertaken so far as CI and Co-CI

Sl. No.	**Project Title**	**Sponsoring Agency**	**Amount (in Lakhs)**	**Status**
1	Subsidence Study of Khetri Copper Mine and Kolihan Copper Mine, Hindustan Copper Limited (HCL), Khetri Copper Complex (KCC), Rajasthan	HCL	97.94	On-going (CI)
2	Conducting a comprehensive scientific study of slope stability of working 04 nos of Pits & 05 nos. of. Dumps of F,G, D and Pantosh quarry areas of Bolani Ores Mines, SAIL-RSP and accordingly suggest the method of working, ultimate pit slope, dump slope and monitoring of slope stability in tune with the said study	RSP-SAIL	37.76	On-going (CI)
3	Scientific Study for the planning and Designing of method of working, ultimate pit slope, dump slope and slope stability by considering the FOS as per Reg 106(2) of CMR 2017 for Boria extension patch and sabanpur patch of Damagoria Colliery under Kalyaneswari OC of BCCL	BCCL	9.44	On-going (CI)
4	Scientific study for pit and dump slope stability for Khas Karanpura UG Coal Mines, CCL as per requirements of Regulation 106 of CMR,2017 and DGMS Guidelines	KKMPL	20.94	On-going (Co-CI)
5	Scientific Study and preparation of reports for the planning and designing of method of working, ultimate pit slope, dump slope and slope stability as per Reg 106(2) of CMR 2017 for Transdamoder Coal Mine of Durgapur Projects Limited	TDMPL	14.16	On-going (CI)
6	Slope Monitoring Study of South Kaliapani Chromite Mine	OMC	53.10	On-going

	and Sukrangi Chromite Mine of Odisha Mining Corporation Ltd.			(Co-CI)
7	Scientific study for controlled blasting control blast design PROPOSED BOMMANALLI LIMESTONE BLOCK SITUATED AT VILLAGE BOMMANAHALLI, CHITTAPUR TALUK OF GULBARAGA DIST. KARNATAKA	Ramco Cement through Ecomen Lab	3.89	Completed (Co-CI)
8	Scientific Study for Determination of Method of Working, Ultimate Pit Slope, Dump Slope and Monitoring of Slope Stability at Jarangdih OCP, Kathara Area, CCL.	CCL, CIL	12.39	Completed (CI)
9	Detailed feasibility study for mining of Chandmari Intervening Block (CIB) deposit, Hindustan Copper Limited (HCL), Khetri Copper Complex (KCC)	HCL	34.94	Completed (Co-CI)
10	DGPS survey and preparation of geo-referenced cadastral map of Tumallapalle uranium mine of M/s UCIL.	UCIL	8.54	Completed (Co-CI)
11	DGPS survey and preparation of geo-referenced cadastral map of Gogi uranium mine of M/s UCIL at Yadgir district, Karnataka.	UCIL	4.50	Completed (Co-CI)
12	Six week course on Advances in Mine Surveying Technology	CIL, Tata Steel etc.	15.8	Completed (Co-CI)
13	Six week intensive course on " Advances in Mine Surveying Technology	CIL	124.56	Completed (Co-CI)
14	Six week intensive course on " Advances in Mine Surveying Technology	CIL	156.94	Completed (Co-CI)
15	Four Weeks Course On “Mine Surveying Techniques”	SECL	38.23	Completed (CI)

Teaching experience at IIT(ISM), DHANBAD

Sl. No.	Subject	Postgraduate/ Undergraduate	Sole instructor
1	Mine Surveying-I, Mine Surveying-II and Surveying	Undergraduate	Sole instructor
2	Underground Metal Mining	Undergraduate	Sole instructor
3	Numerical Modeling/RSGIS Practical	Undergraduate	Sole instructor
4	Mine Surveying Practical	Undergraduate	Sole instructor
5	Geospatial Technology in Mining	Undergraduate	Sole instructor
6	Mine Surveying	Postgraduate	Sole instructor
7	Remote Sensing and Image Processing	Postgraduate	Sole instructor
8	Remote Sensing and Digital Image Processing Practical	Postgraduate	Sole instructor
9	Geodesy and GNSS surveying	Postgraduate	Sole instructor
10	Microwave Remote Sensing	Postgraduate	Sole instructor
11	Microwave Remote Sensing Practical	Postgraduate	Sole instructor

Paper published so far other than in SCI journals

International Journals

IF: Impact Factor

- **Alam, M. S. (2013).** Statistical Analysis Of Various Sub-Systems of Panel Production System In Underground Coal Mine. International Journal of Research in Engineering and

Technology, Dec-2013 Volume: 02, Issue: 12, pp. 1-15

- Rai, P., **Alam, M. S.,** and Ratan S. (2007). System analysis approach for critical appraisal of a face production system in an underground mine. Coal International 255 (02), 18-22

National Journals

- **Alam, M S.,** Kumar, D., and Upreti, V. (2018). Generation and validation of cartosat-1 DEM for northern aravali range of hillocks, Rajasthan, India. Journal of Mines, Metals and Fuels, 66(1), 48-54.
- **Alam, M S**., Kumar, D., and Upreti, V. (2017). Investigation into land surface deformation due hard rock underground metal mining using differential interferometric synthetic aperture radar (DInSAR) technique. Journal of Mines, Metals and Fuels, 65(1), 6-12.
- **Alam, M S** and Rai, P. (2016). An Innovative Technique For Improved Production From Depillaring Panel in An Underground Coal Mine. Journal of Mines, Metals and Fuel 64 (1&2), 3-13.
- Rai, P., Singh, A.K., and **Alam, M. S**. (2007). A case study on capacity assessment of some crucial productions sub-systems in a deep coal mine. Minetech 28 (1), 11-18.

Publication in Conferences/Seminars

National

- **Alam, M S.** (2016). Method selection on varied geo-mining conditions for underground metalliferrous mine – special reference to narwapahar uranium mine. National seminar on survival of nonferrous industries in present global competition, HCL, Khetri Nagar, Rajasthan.
- **Alam, M S., Sharma, V., and Das, S.** (2017). DInSAR-An Innovative Remote Sensing Technic for Mine Subsidence Studies. National seminar on Advanced Technology & Innovations in Mining Industry, HCL, Khetri Nagar, Rajasthan.
- **Alam, M. S.**, Kumar, D., and Chaudhary, S K., (2018). Mapping mining subsidence from space-Khetri copper belt (KCB), Rajasthan, India. National seminar on Promising and cost competitive technologies in mining and mineral beneficiation industries, HCL, Khetri Nagar, Rajasthan.
- **Alam, M. S.** and Kumar, D (2021). "Improving the Capability of Space-borne SAR Interferometry (InSAR) Techniques for Better Detection, Monitoring, and Analysis of Slope Instability in Surface Mining Environment" in 3rd international conference on opencast mining technology & sustainability (ICOMS-2020) in association if IIT(BHU) on 22nd January 2021, at NCL Singrauli, (on virtual mode).
- **Alam, M. S.** and Kumar, D, **Souvik, Manish, Ujjawal, Sagar, Niraj** (2021). Development of a Methodology for Detection, Monitoring, and Analysis of Slope Instabilities in Surface Coal Mining Environment using Spaceborne SAR Interferometry (InSAR) Techniques in 4th international conference on opencast mining technology & sustainability (ICOMS-2021) in association if IIT(BHU) on 14th December, 2021, at NCL Singrauli, (on virtual mode).

List of Ph.D students supervised/being supervised

Sl. No.	Name	Title	Status
1	Avinash Singh	Development of a Methodology for Mining Induced Subsidence Prediction using integrated 3D Numerical Modeling and InSAR Techniques	2021-26
2	Rateke Sagar Tejram	Mine slope Monitoring at coalfield level using Satellite based InSAR Techniques	2021-26
3	Nitish Kumar	Detection and Monitoring of Longwall Mining induced subsidence using Satellite based InSAR Techniques	2023-28
4	Rakesh Kumar	Mine slope Monitoring in iron ore mining environment using Satellite based InSAR Techniques	2024-29

List of M. Tech students supervised/being supervised

Sl. No.	Name	Title	Status
1	Vijay Upreti	Detection & Assessment of Land Surface Deformation due to Hard Rock Underground Metal Mining Using DinSAR Technique and Ground Based Observations.	2015-16
2	Vivek Sharma	Land Surface Displacement Parameter Estimation using Persistent Scatterer Interferometry (PSI) Approach in Underground Metal Mining Environment.	2016-17
3	Sandipan Das	Error sources analysis in conventional DInSAR technique for underground metal mining induced displacement parameter estimation.	2016-17
4	Ankit Anand	Mine subsidence monitoring using Global Navigation Satellite System (GNSS).	2017-18
5	Atul Rai	Fast Land Surface Deformation Monitoring using Small Baselines PSI Approach in Non-urban Underground Metal Mining Environment	2018-19
6	Suman Banerjee	Monitoring Of Subsidence Due To U/G Metal Mining in Hard Rock Using Global Navigation Satellite System (GNSS)	2018-19
7	Ranjit Kumar	Investigation of Land Subsidence due to Underground Coal Mining in Pranhita-Godavari Valley Coalfield (PGVC) using Spaceborne DInSAR Technique	2018-19
8	Amit Kr Singh	Detecting underground Metal Mining induced subsidence trough using spaceborne DInSAR technique	2018-19
9	Akshay Kumar Mahatha	A Quality Evaluation of GNSS Base Observation via PPP Solution within Bernese GNSS Software Version 5.2	2019-20
10	Shishir Kumar Jha	Detection and Monitoring of land surface and built-up area deformation using Spaceborne Differential SAR Interferometry (DInSAR) Technique"- Dhanbad District (Jharkhand), India	2019-20
11	Kaarthikeyan R	Design and Development of a versatile GBSAR	2021-22
12	Birendra Kamal	Design and Development of a Hybrid UAVSAR for InSAR applications	2021-22
13	Ambrish Mishra	Monitoring of slopes of Rajapur OCP using satellite based InSAR Techniques	2021-22
14	Rupika Soni	Prediction of InSAR deformation time-series using modified LSTM model	2022-23
15	Neeraj Kumar	Design of spatial temporal filter to mitigate atmospheric artefacts in InSAR	2022-23
16	Avinash Singh	Development of a Methodology for Mining Induced Subsidence Prediction using integrated 3D Numerical Modeling and InSAR Techniques	2022-23

No. of B Tech (Mining Engg.) students guided so far

- 30 students guided for their Final Year Mining Projects

Administrative responsibilities

- Faculty in-charge, Remote Sensing and GIS Laboratory
- Assistant Lab in-charge, Mine Surveying Laboratory
- Faculty in-charge Metal Mines Excursion
- Faculty In-charge (undergraduate examinations)
- Faculty in charge (vacational training)
- Coordinator of comprehensive viva voce examination (undergraduate courses)
- Faculty in-charge (survey camp)
- Member, Tabulation Board
- Member, Antiragging Squad

Professional membership

- Mining Engineers Association of India (MEAI)
- Indian Society of Remote Sensing (ISRS)

Achievements

- Distinction of getting first position in B Tech (Mining Engineering)
- Ranked 24th in All India Ranking, GATE '2004' conducted by IITS/IISc

Courses/training program attended

- 2 weeks training course on Data modelling for AI applications at IIT (ISM), Dhanbad, during 25th March to 06th April 2019
- 2 weeks Training course on Application of Microwave Remote Sensing at NRSC Hyderabad, ISRO, during 11th May to 22 May 2015
- 8 weeks NNRMS Training course on Application of Remote Sensing & GIS in Geo-science during 05th May to 27th June 2014 conducted by IIRS Dehradun, sponsored by ISRO.
- 6 Days short term course on Rock Mechanics and Ground Control, Mining Engg. Department, IIT-BHU, Varanasi (2010)
- 4 Days Training on Strata Control and Mine Environment, DGMS, Dhanbad (2010)