

CURRICULAM VITAE

DIGANTA GOSWAMI

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ASSOCIATE PROFESSOR

CHAIRMAN OF INDIAN GEOTEHCNIAL SOCIETY GUWAHATI CHAPTER (NE)

FEBRUARY 2018



1. Membership of Professional Bodies

- i) Life member of Indian Geotechnical Society.
- ii) Life member of Indian Society for Earthquake Technology (LM No. 1449)
- iii) Life member of Indian Society for Technical Education
- iv) Chairman IGS, Guwahati Chapter (NE).
- v) Life member of Indian Concrete Institute (LM No. 11196)

2. Honorary Important Positions Held

- i) 2010-2013 : Secretary, Indian Geotechnical Society Guwahati Chapter(NE)
- ii) 2016 till date : Chairman, Indian Geotechnical Society Guwahati Chapter (NE)
- iii) 2018 : Secretary, Lion Club of Guwahti East.

3. Education

- 2004 : Doctorate of Philosophy. Research topic - “Ground Subsidence due to Tunneling in Soft Ground”, Civil Engineering Department, *Indian Institute of Technology Roorkee, India*. Advisors: Dr. M.N.Viladkar and Dr. Pradeep Bhargava.
- 1990-1992: Master of Engineering (Soil mechanics and Foundation Engineering), Assam Engineering College, Gauhati University, Assam, India. Advisor: Dr. (Mrs.) B.Das Saikia.
- 1983-1988: Bachelor of Engineering (Civil), Assam Engineering College, Gauhati University, India.
- 1981-1983: Pre-University (Science), Gauhati University, Assam, India.
- 1981: High School Leaving, Board of Secondary Education Assam, India.

4. Academic Positions

- October 2010 till date: Associate Professor, Assam Engineering College, Assam, India
- September 1998- October 2010: Assistant Professor, Assam Engineering College, Assam, India.
- February 1998- September 1998: Assistant Professor, Jorhat Engineering College, Assam, India.
- October 1992- February 1998 : Lecturer, Assam Engineering College, Assam, India.
- March 1991- October 1992 : Lecturer, Regional Engineering College, Assam, India.

4. PhD. Thesis Guided

- 2014 : Strength and Deformation Behaviour of Reclaimed Land with Reference to Municipal Solid Waste Dumping Sites. Scholar: Dr. Bibeka Nanda Choudhury.
- 2017 : A Study of River Borne Aggregates of some Rivers of Assam as Construction Material. Scholar: Dr. (Mrs.) Indira Barua Gogoi.
- 2018 : Site Response Analysis and Soil Structure Interaction in High Seismic Region. Scholar: Dr. Sashanka Borah.
- 2018 : Integrated Remote Sensing and GIS Based Study on Storm Water Flooding in Guwahati. Scholar: Mrs. Ruby Das Borah

5. M.E. Thesis Guided

- 2017 : Correlation between Modulus of Subgrade Reaction and Bearing Capacity of soil- A Study by 3D Finite Element Analysis.
- 2017 : 3-Dimensional Slope Stability Analysis using Plaxis 3-D.
- 2017 : A Parametric Study on Piled Raft by Finite Element Analysis.
- 2017 : A Study on Effect of Shallow Tunneling on Surface Structures.
- 2016 : Ground Improvement of Loose Soil Deposit by Pressure Grouted Compaction Piles
- 2016 : Analysis and Design of Earth and Rockfill Dams

- 2016 : 3 Dimensional Slope Stability Analysis
- 2015 : A Study of Soil-Structure-Foundation Interaction Effect on Stress & Deformation Behavior of Raft and Piled Raft Foundation by 3-D Finite Element Analysis
- 2014 : Back Calculation of Deformation Modulus of Rock by FE Analysis
- 2013 : A New Approach for Determination of Load Carrying Capacity of Bored and Cast-in-situ Piles.
- 2012 : Finite Element Analysis of Laterally Loaded Piles
- 2012 : Study of Pile Behavior under Combined Horizontal and Vertical Loading in Liquefiable Soil
- 2011 : A Geotechnical Study of Natural River-Borne Coarse and Fine Aggregate on the River Pagladiya, Assam
- 2010 : Well-Soil Interaction Analysis by Finite Element Method
- 2009 : Finite Element Analysis of Laterally Loaded Group of Piles
- 2007 : Ground Subsidence Due to Shallow Tunneling
- 2003 : Use of Admixture Modified Brahmaputra River Silt as Foundation Material.
- 2000 : Prediction of Bearing Capacity and Settlement of Pile Foundation using N- values.
- 1998 : Torque Measurement- A necessity for Standardization of Standard Penetration Test.
- 1998 : Modifying Shear Parameters of Soil by Geosynthetics.
- 1997 : Effect of Stone Column on Bearing Capacity.
- 1995 : Effect of Lime-Soil Admixture Pile on Bearing Capacity
- 1995 : Effect of Inclined Piles on Bearing Capacity.

6. **Research and Technical Interests**

- Analysis and Design of River Valley Projects.
- Ground movements due to underground excavation and associated damage to adjacent structures.
- Finite element analysis with non-linear solid mechanics.
- Structural Design

- Soil-structure interaction
- Foundation analysis and design

7. Publication (Total 28) (International Journal-13, National Journal- 2, National & International Conferences- 13).

- Chakrabarty A. and Goswami D. (2018). Two Dimensional (2D) Slope-Stability Analysis- A Review. International Journal for Research in Applied Science & Engineering Technology (IJRASET). ISSN: 2321-9653. Vol. 6, Issue II, February, 2018. Pp. 2108-2112.
- Chakraborty A. and Goswami D. (2018). Three-dimensional (3D) slope stability analysis using stability charts. **International journal of Geotechnical Engineering. Taylor & Francis**. DOI: 10.1080/19386362.2018.1465743. pp. 1-8. Published:02 May 2018.
- Chakraborty A. and Goswami D. (2018). Prediction of critical safety factor of slopes using multiple regression and neural network. **Journal of Geo-Engineering Sciences, IOS Press**. D.O.I: 10.3233/JGS-170047, vol. Pre-press, No. Pre-press. PP 1-10. Published: 10 April 2018
- Chakrabarty A. and Goswami D. (2017). Prediction of Slope Stability using Multiple Linear Regression (MLR) and Artificial Neural Network (ANN). **Arabian Journal of Geosciences, Springer**. 10(385) DOI: 10.1007/s12517-017-3167-x
- Chakraborty A. and Goswami D. (2017). Slope Stability Prediction using Artificial Neural Network (ANN). 9th International Conference on Recent Trends in Engineering, Science and Management, organized by The Institution of Electronics and Telecommunication Engineers (IETE), Hyderabad, 29-30 June 2017. (**Published in International Journal of Engineering and Computer Science (IJECS), 6(6), pp. 21845-21848**).DOI: 10.18535/ijeecs/v6i6.49.
- Chakrabarty A. and Goswami D. (2017). Slope Stability Prediction using Statistical Method. International Conference on Advances in Science, Engineering and Technology, organised by Jawaharlal Nehru University (JNU), New Delhi, 23-24 March 2017. (Published in International Journal of Multidisciplinary Research Centre (IJMRC), III (3), pp. 29-35)
- Singh P.Kumar, Lahkar H., Islary K. Vir and Goswami D. (2017). 3-Dimensional Slope Stability Analysis using Plaxis- 3D. *Indian Geotechnical Conference IGC 2017,14-16 December, Theme 03, Paper No. 633, IIT Guwahati, Guwahati, India.*
- Chakrabarty A. and Goswami D. (2016). State of the art: Three Dimensional (3D) Slope-

- Stability Analysis, *International Journal of Geotechnical Engineering*, April (2016), ISSN: 1938-6362 (Print), 1939-7879 (Online), publisher: **Taylor & Francis, U.K.**
- Borah S., Goswami D. and Pathak J. (2016). Site Response in Guwahati Region using Standard Spectral Ratio, *IJRET- International Journal of Research in Engineering and Technology*, Volume-05 Issue-04, April (2016), e-ISSN: 2319-1163, p-ISSN 2321-7308. DOI: 10.15623/ijret.2016.0504016.
 - Das R., Goswami D and Sarma B. (2016). Generation of Intensity Duration Frequency Curve using Short Duration Rainfall Data for Different Return Period for Guwahati City. *International Journal of Scientific and Engineering Research*, Volume 7, July 2016, ISSN 2229-5518, pp. 908-911.
 - Goswami D. and Borah U. (2016). Analysis and Design of Earth and Rockfill Dams, *Indian Geotechnical Conference IGC 2016*, 15-17 December 2016, Theme 06, Paper No. 444, IIT Madras, Chennai, India
 - Borah S., Pathak J. and Goswami D. (2016). Site Response Analysis: Guwahati City and CMP 2025. *6th International Conference on Recent Advances in Earthquake Engineering and Soil Dynamics*. IIT Roorkee Extension Centre, 20 Knowledge Park II, Greater Noida, India. Paper No XXX, August 1-6 (2016), pp. 1-8.
 - Borah S., Goswami D. and Pathak J. (2016). Site Response Analysis for Sustainable Urban Planning- A Case Study of the Western Guwahati Region. *1st International Conference on Civil Engineering for Sustainable Development Opportunities and Challenges*. 19-21 December (2016). Assam Engineering College, Guwahati, India.
 - Goswami D., goswami A and Sen Gupta P. (2016). Anchored Steel Sheet Pile Wall vs. Cross-Lot Bracing System for Deep Excavation- A Case Study for a Multi Storeyed Building in Guwahati-Assam. *International Journal of Computer & Mathematical Sciences*, IJCMS Vol. 5, Issue I. ISSN 2347-3527. Jan (2016) Pp. 50-53.
 - Gogoi I. B. and Goswami D. (2015). Performance Based Evaluation of Riverborne Aggregates in Construction Work (2015). *International Journal of Innovative Research in Advanced Engineering*, volume 2, Issue 8, 2015. ISSN: 2349-2163. Pp. 128-132.
 - Gogoi I.B. and Goswami D. (2015). A Study of River Borne Aggregates of River Nanoi as Construction Material (2015). *SSRG International Journal of Civil Engineering (SSRG-IJCE)*, volume 2, Issue 5, May (2015). ISSN: 2348-8352. Pp. 16-22.
 - Gogoi I.B. Goswami D. (2015). A Study of Geo-Engineering Properties of River-Borne Coarse Aggregates of River Pagladiya, Baksa District, Assam as Road Material. *International Journal of Civil Engineering & Technology (IJCIET)*, Volume 6, Issue 3, March (2015).ISSN Print: 0976-6308, ISSN online: 0976-6316, pp.10-22.

- Goswami D. and Choudhury B.N. (2013). Chemical Characteristics of Leachate Contaminated Lateritic Soil. *International Journal of Innovative Research in Science, Engineering and Technology*. Vol.2, Issue 4, April 2013, pp. 999-1005
- Goswami D. and Choudhury B.N.(2013). Atterberg's Limit and Shear Strength Characteristics of Leachate Contaminated Lateritic Soil. *Paripex- Indian Journal of Research*. vol.3. issue 4, May 2013, pp.11-13.
- Goswami D. (2013). Pile Health Assessment by Pile Integrity Testing- *NES Geo-Congress on Advances in Geotechnical Engineering (NES- Geo-Congress 2013)*, 2013, pp. 01-07
- Goswami D. (2013).Landslide Mitigation and Risk Management in Guwahati City- *NES Geo-Congress on Advances in Geotechnical Engineering (NES- Geo-Congress 2013)*, pp. 08-17
- Goswami D. (2013).Parametric Study on Slope Stability Analysis using Soil Nailing - *NES Geo-Congress on Advances in Geotechnical Engineering (NES- Geo-Congress 2013)*, pp. 18-26
- Goswami D. (2010). Shallow Tunneling through Soft Ground for Mass Rapid Transit System and Analysis of its Effect on Surface Structure by 3-D Finite Element Technique. Proc. of 26th National Convention of Civil Engineers, 2010, pp. 32-40.
- Goswami D. (2010). In-situ Direct Shear Test for Determination of Shear Strength Characteristics of Rock-to-Rock Interface and Concrete-to-Rock Interface for Stability Analysis of Concrete Gravity Dam of Large Hydro-Electric Power Projects. Proc. of 26th National Convention of Civil Engineers, 2010, pp. 328-335.
- Goswami D. (2004).Assessment of Building Damage due to Shallow Bored Tunneling in Soft Ground, Proc. National Conference on Structural Engineering and Mechanics (SEM 04), 2004, pp. 271-276.
- Goswami D. (2002).Studies of the Effects of Stone Column on Bearing Capacity of C- ϕ Soil. Proc. Indian Geotechnical Conference, 2002, Vol. I., pp. 214-217.
- Kalita U.C., Mazumdar D. and Goswami D. (1996). Studies on Inclined Pile for Improvement of Bearing Capacity of Soil, Proc. *Indian Geotechnical Conference, 1996*.
- Goswami D. (1995). Landslide Correction Techniques. *Training Course on Landslide Hazard Mitigation and Management organised by Central Board of Irrigation and Power, New Delhi at Guwahati, India*.
- Goswami D. (2014). Urban Flash Flood of Guwahati and its Remediation. *FEDESSA*

5. Invited Lectures

- 2018: “Ground Subsidence Due to Shallow Tunneling in Soft Ground”- Advances in Civil and Infrastructure Engineering-2018” (ACIE’18), Organised by Department of Civil Engineering, Tezpur University, 18-19th February, 2018.
- 2016: “Quality Control and Quality Assurance in civil engineering projects”-Workshop on Quality Control organised by Meghalaya PWD (Building) in Collaboration with Road Research Laboratory (R & B), Shillong, 13th and 14th May, 2016.
- 2015: “Landslide Vulnerability of Guwahati City & Earthquake Induced Landslides”- Track-Oriented for Engineers on Earthquake Safety in GEMEx-2015, organised by ASDMA, 14th & 15th December, 2015.
- 2015: “Safe Structures in Seismic Prone Areas”- Seminar organised by Downtown University on “Earthquake and its effects on Structures” on 9th of May, 2015.
- 2014: “Urban Flash Flood of Guwahati and its Remedial Measures”- Work shop organised by Federation of Engineering Service Association of Assam (FEDESSA).
- 2014: “Construction of Metro Rail- Some Engineering and Techno-Legal Aspects”, Key-Note Adress, The Indian Institute of Architects – Assam Chapter , Architects Meets on 1st March, 2014
- 2013: “Landslide in City Hill Areas- Common Causes and Appropriate Remedial Measures with a special Reference to Guwahati City”, Regional Workshop on Landslide Disaster management organised by GSI, North Eastern Region, at Nongrim Hills, Shillong, 22-23rd November- 2013.
- 2013: “ Geotechnical Aspects of Earthquake Engineering”- 6 hour lecture at Short Term Training Program on “Introduction to Soil Dynamics and Earthquake Engineering” organised by National Institute of Technical Teachers Training and Research, Kolkata held at NITTTR Extension Centre, Guwahati. 28 October- 3 November 2013.

- 2010: “ Construction Practice with reference to I.S. Code for Construction of School Buildings”, Training Course organised by AEI Guwahati.
- 2009: “Tests and Steps for Satisfactory Performance of Structures”, STARTECH, 2009, Guwahati.
- 2000: “Geotechnical Investigation”. Short-term course on Construction Technology and Management organized by Assam Engineering Institute, Assam.
- 2000: “Ground Improvement Techniques”. Short-term course on Construction Technology and Management organized by Assam Engineering Institute, Assam.
- 2000: “Distress in Structures and Remedial Measures”. Technical Seminar on Modern Concrete Technology in Civil Engineering Construction organized by Assam Engineering College, Assam.

6. Sponsored Projects

- 2012: “Rapid Visual Screening of Landslide Vulnerable Areas of Guwahati”- Study conducted at the behest of District Disaster Management Authority, Kamrup (Metro). Total Project Cost- Rs. Four Lakhs only.
- 2014: “Investigation of Deformation Modulus & Characteristics of soft Tertiary Rock at Pare HE Project by Measuring Deformation in open and Underground Excavation.” Research Project conducted at the behest of North Eastern Electrical Power Corporation Ltd. Total Cost- Rs. 24,93,000.00 (Rupees twenty four lakhs ninty three thousand only).

7. Industrial Positions

- Since 2003: Chief Geotechnical Expert (Honorary), Experto Geotechnical Consultants and Research (P) Ltd.
- 2006: Geotechnical Expert, LEA Associates South Asia (P) Ltd. For preparation of DPR for drainage sub project of Kohima City under JNNURM.
- 1999: Consultant to Meghalaya State Electricity Board for Geotechnical Investigation for the construction of the North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences, Shillong, India.

8. Professional Experience

- 2018: Sub-soil Investigation at MIMER, Falkawn, Mizoram on behalf of HSCC Ltd.
- 2017: Slope Stability Analysis and Design of Filter Drains for Assam Integrated Flood and River Bank Erosion Risk Management Project at Palshbari on Behalf of FREMAA.
- 2014: Determination of Rock Deformation Modulus by Cyclic Plate Load Test at Pare Hydro-Electric Power Project on behalf of NEEPCO Ltd.
- 2014: Design of Steel Sheet Pile Wall and RCC Shoring Piles for Construction of Double Basement of Proposed Commercial Complex of Assam Tea Ware Housing Corporation at G.S. Road, Guwahati.
- 2013: Rapid Visual Screening Study for landslide vulnerable areas in and around Guwahati, a project done on behalf of Assam State Disaster Management Authority and Guwahati Metropolitan Development Authority.
- 2013: Design of geo-grid reinforced earth retaining wall for M/S Trans India Pvt. Ltd. At Guwahati.
- 2011: Determination of Shear Strength Parameters of rock –to-rock interface and concrete-to-rock interface for Pare Hydro Electric Power project by conduction of insitu shear test, in-situ wedge shear test for determination of shear strength parameters for slope stability analysis and excavation planning for Pare Dam at Arunachal Pradesh, India.
- 2011: Structural Design of (G+8) storeyed commercial complex (Paramount Motorways) at Guwahati.
- 2010: Design for Stabilization of slope by soil nails on behalf of Indian Railways at Halflong-Jatinga stretch, India.
- 2009: Detailed Geotechnical Investigation and Testing for proposed rock filled dam for SEW Energy Ltd. for Nafra Hydro Electric Project at Nafra, Arunachal Pradesh
- 2006: Acted as Geotechnical Expert for preparing a DPR for drainage sub-projects-JNNURM of Kohima city, on behalf of LEA Associates South Asia Pvt. Ltd.
- 2006: Determination of shear strength parameters of rock-to-rock interface and rock –to-concrete interface by conducting Insitu Shear Test for the proposed 75.0M

- Bichom Dam, Arunachal Pradesh on behalf of North Eastern Electrical Power Corporation Ltd.
- 2006: Quality control for Indo Bangladesh Border Fencing work and border road in Meghalaya sector for National Building Construction Corporation Ltd.
- 1997: Geotechnical Investigation for Numaligarh Township of Numaligarh Refinery Limited, Numaligarh, Assam, India.
- 1997: Static cone penetration testing and preparation of geotechnical report for Oil Storage Tanks of Numaligarh Refinery limited, Assam, India.
- 1996: Geotechnical Investigation for Transit Building of Indian Institute of Technology Guwahati, Assam, India.
- 1994: Geotechnical Investigation for Boiler Foundation for Bongaigaon Refinery & Petrochemicals Ltd. Assam, India.
- Subsoil investigation for more than 400 nos. of GBT (Ground Based Tower) for CH2M Hill Ltd., Reliance Telecom and Airtel Ltd. Subsoil Investigation for more than 150 numbers of multistoreyed apartment, residential, commercial and hotel buildings. Maintained pile load test, Lateral pile load test, Cyclic Plate Load test, Foundation design for a number of projects like design of turbogenerator foundation for Assam Fertiliser Corporation Ltd, Guwahati, multi storey office buildings, apartment buildings, staff quarters etc.

9. Knowledge of Computing

- Finite Element based software package conversant with
 - ANSYS
 - PLAXIS
- Other software packages conversant with
 - STAAD Pro and STAAD Foundation
 - GEO SLOPE
 - Auto Cad
 - Visio Technical
 - Matlab
- Computing Language
 - Fortran 90 and C++

10. Hobbies

➤ **Playing Spanish Guitar and Singing**

(Diganta Goswami)