



Assistant Professor  
Department of Civil Engineering  
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[Office: ARC 203 (Advance Research Center), Behind Applied Mechanics Department, Opposite  
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## Research Area of Interest

- Computational Geomechanics
- Constitutive Modelling in Geotechnics
- Physical Modelling in Geotechnical Engineering
- Use of PIV Technique in Geotechnical Engineering
- Deep Foundations
- Deep Excavations
- Seismic Hazard Analysis
- Dynamic Soil Properties
- Conservation of Heritage Structures

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**Post-Doctoral Fellow** [March 2019 – September 2019] IIT Madras

**Ph.D.** - Geotechnical Engineering [2015-2019] IIT Madras

**M.Tech.** - Soil Mechanics & Foundation Eng. [2012-2014] Sardar Vallabhbhai National Institute of Technology, Surat

**B.E.** (Civil Engineering) [2009-2012] University of Mumbai

**Diploma** in Civil Engineering [2005-2009] Shri Bhagubhai Mafatlal Polytechnic-Mumbai (with 1 year In-plant training)

## ACADEMIC QUALIFICATIONS

| Degree/Certificate            | Institute/University                        | Year of Passing | CGPA/Marks |
|-------------------------------|---|-----------------|------------|
| Ph.D. (Geotechnical Eng.)     | IIT Madras                                  | 2019            | 9.50       |
| MTech. - SMFE                 | NIT Surat                                   | 2014            | 9.77       |
| B.E. - Civil                  | University of Mumbai                        | 2012            | 78.53%     |
| Diploma - Civil               | SBM Polytechnic-Mumbai                      | 2009            | 80.71%     |
| S.S.C. (10 <sup>th</sup> std) | Maharashtra State Board -<br>English Medium | 2005            | 76.66%     |

SMFE-Soil Mechanics and Foundation Engineering

## ACADEMIC ACHIEVEMENTS

- Best Paper Award: Indian Geotechnical Conference 2019, Technical Session 1-4, organised by Indian Geotechnical Society Surat Chapter and SVNIT Surat.
- Institute Gold Medal for securing first position at Master of Technology in Civil Engineering with specialisation in Soil Mechanics and Foundation Engineering - SVNIT Surat
- Recipient of "Mrs. and Mr. M. D. Desai award of Cash Prize Rs. 15000/-", presented on the 12th Convocation SVNIT Surat (1<sup>st</sup> February 2015)
- 2<sup>nd</sup> rank in academics in Second year of B.E. Civil
- 1<sup>st</sup> rank in Bridge making with popsicle sticks at the Annual Sports and Cultural Fest 2011-2012 during B.E. Civil
- 3<sup>rd</sup> rank in academics in Final year of B.E. Civil

## Ph. D. THESIS TOPIC

Experimental and Numerical Studies on Bearing Capacity of Circular Open Caissons

## POST GRADUATE DISSERTATION TOPIC

Study on Behaviour of Pile Wall used as Retention System for Deep Excavation: Experimental and Numerical Study

## UNDER-GRADUATE PROJECT TOPIC

Analysis and Design of Composite-Dam

## DIPLOMA PROJECT TOPIC

Extension of Building using HILTI Technique

## PUBLICATIONS

### *Journal (SCOPUS /SCI Journal)*

1. **Chavda, J. T.** and Dodagoudar, G. R. (2020) Experimental studies on a circular open caisson. *International Journal of Physical Modelling in Geotechnics*, doi: 10.1680/jphmg.20.00050. Publisher: **ICE London (SCOPUS and SCI)**
2. **Chavda, J. T.** and Dodagoudar, G. R. (2019) On vertical bearing capacity of ring footings: Finite element analysis, observations and recommendations, *International Journal of Geotechnical Engineering*, doi: 10.1080/19386362.2019.1648737. Publisher: **Taylor & Francis (SCOPUS)**

3. **Chavda, J. T.,** Mishra, S. R. and Dodagoudar, G. R. (2019) Experimental evaluation of ultimate bearing capacity of the cutting edge of open caisson, *International Journal of Physical Modelling in Geotechnics*, doi: 10.1680/jphmg.18.00052. Publisher: [ICE London](#) (**SCOPUS** and **SCI**)
4. **Chavda, J. T.** and Dodagoudar, G. R. (2019) Finite element evaluation of vertical bearing capacity factors  $N'_c$ ,  $N'_q$  and  $N'_\gamma$  for ring footings, *Geotechnical and Geological Engineering*, **37**(2), 741-754. Publisher: [Springer](#) (**SCOPUS**)
5. **Chavda, J. T.** and Dodagoudar, G. R. (2018) Finite element evaluation of ultimate capacity of strip footing: Assessment using various constitutive models and sensitivity analysis, *Innovative Infrastructure Solutions*, **3**(1), Art. No. 15, 10 pp. Publisher: [Springer](#) (**SCOPUS**)
6. **Chavda, J. T.,** Solanki, C. H. and Desai, A. K. (2019) Lateral response of contiguous pile wall subjected to staged excavation: Physical and numerical investigations. *Indian Geotechnical Journal*, **49**(1), 90-99. Publisher: [Springer](#) (**SCOPUS**)

#### **Conference Proceeding Published as Book Chapter**

1. **Chavda, J. T.** and G. R. Dodagoudar (2018). Finite element modelling of extent of failure zone in  $c$ - $\phi$  soil at the cutting edge of open caisson, *Numerical Methods in Geotechnical Engineering IX: Proceedings of the 9<sup>th</sup> European Conference on Numerical Methods in Geotechnical Engineering*, Porto, Portugal, 25 - 27<sup>th</sup> June 2018. Publisher: [Taylor & Francis](#) (**SCOPUS**)
2. **Chavda, J. T.** and G. R. Dodagoudar (2020). Assessment of predictive equations of extents of failure zone in sand beneath the cutting edge of open caisson using image analysis, *Proceedings of the 4<sup>th</sup> GeoMEast International Congress and Exhibition*, Cairo, Egypt 2020. Publisher: [Springer](#) (**SCOPUS**)
3. **Chavda, J. T.,** Paul, A. and Menon, A. (2020). A review on tunnelling induced ground settlements in clayey soil, *Proceedings of the 4<sup>th</sup> GeoMEast International Congress and Exhibition*, Cairo, Egypt 2020. Publisher: [Springer](#) (**SCOPUS**)
4. **Chavda, J. T.** and G. R. Dodagoudar (2019). Experimental evaluation of failure zone in sand beneath the ring footing and cutting edge of open caisson using image analysis. *Indian Geotechnical Conference 2019*, SVNIT Surat, Gujarat, India, December 2019. Publisher: [Springer](#) (**SCOPUS**)

#### **Conference/Seminar**

1. Paul, A., **Chavda, J. T.,** Aishwarya, K.V., Lakshmi, A.K., Menon, A. and Bais, S. (2020). Structural risk assessment methodology for heritage impact assessment. *ICOMOS India Scientific Symposium 2020, Structural and Material Analysis in Built Heritage*, IIT Madras, Chennai, India, May 2020.
2. **Chavda, J. T.** and G. R. Dodagoudar (2018). Extent of failure zone in soil at the cutting edge of open caisson: FE evaluation and regression analysis. *8<sup>th</sup> Conference on Deep Foundation Technologies for Infrastructure Development in India*, IIT Gandhinagar, Gujarat, India, November 2018. Publisher: [Deep Foundation Institute](#).
3. **Chavda, J. T.** and G. R. Dodagoudar (2017). Evaluation of ultimate capacity of a single barrette using finite element analysis, *Indian Geotechnical Conference 2017*, Guwahati, December 2017, Paper No. Th16\_314, 4 pp.
4. **Chavda, J. T.,** Solanki, C. H. and Desai, A. K. (2015) Physical and numerical study on behaviour of pile wall retention system for deep excavation. *Proceedings of the 5<sup>th</sup> Indian Young Geotechnical Engineers Conference*, M. S. University Baroda, Vadodara, Gujarat, March 2015, 211-212.
5. **Chavda, J. T.,** Maheshwari, B. K. and Dodagoudar, G. R. (2015) Effect of number of loading cycles on dynamic properties of Solani river sand. International Conference on Infrastructure Development for Environmental Conservation and Sustenance, INDECS-15, ACE - Hosur, Hosur, 28-30 October 2015.
6. **Chavda, J. T.,** Solanki, C. H. and Desai, A. K. (2015) Numerical study on anchored pile wall deformations. *6<sup>th</sup> International Geotechnical Symposium on Disaster Mitigation in Special Environmental Conditions*, IIT-Madras, Chennai, January 2015.
7. **Chavda, J. T.,** Solanki, C. H. and Desai, A. K. (2014) Study on behaviour of diaphragm wall used as retention system for deep excavations. *Indian Geotechnical Conference 2014*, JNTU Kakinada, Kakinada, December 2014.

8. **Chavda, J. T.**, Solanki, C. H. and Desai, A. K. (2014) Study on behaviour of pile wall used as retention system for deep excavation: Experimental and numerical study, Technical Note in 10 days STTP on *Advances in Geotechnical Engineering, AGE-2014*, SVNIT Surat, June 2014.
9. Bajaj, K., **Chavda, J. T.** and Vyas, B. (2013) Seismic behaviour of buildings on different types of soil. *Indian Geotechnical Conference 2013*, IIT-Roorkee, December 2013.

### **CONFERENCES / STTPs / WORKSHOPS / NATIONAL SEMINARS / FINISHING SCHOOLS**

1. Indo Korean Workshop on “Geotechnology For Urban Development” 12<sup>th</sup> December 2012 (Attended)
2. Indian Geotechnical Conference – 2012, IIT-Delhi, December 2012 (Attended)
3. Structural Engineering Convention – 2012, SVNIT Surat, Surat, December 2012 (Attended and Volunteered)
4. Structural Engineering Research Centre - Chennai & Geotech Lab. at IIT-Madras (Visited as educational Trip 2012)
5. National conference on Emerging Trends in Engineering (NCETE-13), January 2013, M. H. Saboo Siddik College of Engineering, Mumbai. (Presented a paper titled *Analysis and design of composite dam*)
6. One day Finishing School on “Overview of Ground Improvement Techniques”, SVNIT Surat, Surat, April 2013 (Attended)
7. National Seminar on “Advances in Geotechnical Engineering”, SVNIT Surat, Surat, June 2013 (Attended and Volunteered).
8. 5 days Short Term Training Programme on “Geotechnical Investigations, Interpretations and Improvements” ,GIII-13, SVNIT Surat, Surat, October 2013 (Attended)
9. Workshop on Large Diameter Rock Socketed Piles, IIT-Bombay, November 2013 (Attended)
10. International Conference on “Deep Foundation Technologies for Infrastructure Development of India”, IIT-Bombay, Mumbai, November 2013 (Attended)
11. Indian Geotechnical Conference 2013, IGC-2013, IIT-Roorkee, December 2013. (Attended and presented a paper titled *Seismic behaviour of building on different types of soil*)
12. Finishing School Cum Workshop on “Ground Improvement Technique”, SVNIT Surat, Surat, February 2014 (Attended)
13. Presented a Lecture on “Study on Behaviour of Pile Wall Used as Retention System for Deep Excavation: Experimental & Numerical Study” in 10 days STTP on Advances in Geotechnical Engineering, AGE-2014, SVNIT Surat, Surat, July 2014.
14. One day Seminar and Panel discussion on Geotechnical Infrastructure Engineering and Equipment Technology – 2014, VJTI Mumbai, Mumbai (Attended)
15. 15<sup>th</sup> Symposium on Earthquake Engineering, IIT Roorkee, Roorkee December 2014, (Attended)
16. International Conference - Infrastructure Development for Environmental Conservations and Sustenance, INDECS-15, ACE Hosur, Hosur, October 2015 (Presented a paper titled *Effect of number of loading cycles on dynamic properties of Solani river sand*)
17. One day Workshop - Deep Foundations in Liquefiable Soils and Deep Excavation Experiences, IIT Madras, Chennai, December 2016 (Attended)
18. Indian Geotechnical Conference 2016, IGC 2016, IIT Madras, Chennai, December 2016 (Attended)
19. Two days Seminar - Pile Foundations - Advances in Design and Construction Practices, SVNIT Surat, Surat, May 2017 (Attended)
20. 9<sup>th</sup> European Conference on Numerical Methods in Geotechnical Engineering, Porto, Portugal, 25 - 27<sup>th</sup> June 2018 (Presented a paper titled *Finite element modelling of extent of failure zone in c-φ soil at the cutting edge of open caisson*)
21. 8<sup>th</sup> Conference on Deep Foundation Technologies for Infrastructure Development in India, IIT Gandhinagar, Gujarat, India, November 2018 (Presented a paper titled *Extent of failure zone in soil at the cutting edge of open caisson: FE evaluation and regression analysis*)
22. International Symposium on Geotechnical Aspects of Heritage Structures- 2019, IIT Madras, Chennai, 16<sup>th</sup> - 17<sup>th</sup> September 2019 (Attended)
23. One week Short Term Training Programme on “Pedagogy & Research Methodology (PRM – 2019)” , SVNIT Surat, November 2019 (Attended)

24. Indian Geotechnical Conference 2019, IGC 2019, SVNIT Surat, Gujarat, December 2019 (Attended and Presented a Technical Paper)

### **INVITED LECTURES**

1. Presented a Lecture on “Study on Behaviour of Pile Wall Used as Retention System for Deep Excavation: Experimental & Numerical Study” in 10 days STTP on *Advances in Geotechnical Engineering*, AGE-2014, SVNIT Surat, Surat, July 2014.
2. Presented a Lecture on “FE Analysis of Single Pile, Piled-Raft, Single & Group Barrette” in 1-Day Seminar at NIT Warangal, 25<sup>th</sup> March 2017.
3. Presented a Lecture on “Image Analysis: Application in Geotechnical Engineering” in 5 days STTP on *Exploring Research Topics and Techniques of Technical Writings*, SVNIT Surat, 25<sup>th</sup> – 29<sup>th</sup> December 2019.
4. Presented a Lecture on “Some Tips on Preparing Graphs and Making Presentation” in 5 days STTP on *Exploring Research Topics and Techniques of Technical Writings*, SVNIT Surat, 25<sup>th</sup> – 29<sup>th</sup> December 2019.
5. Presented a Lecture on “Image Analysis: Applications in Geotechnical Engineering” in Webinar hosted by IGS Guntur Chapter, Andhra Pradesh, 20<sup>th</sup> April, 2020.
6. Presented a Lecture on “Deep Excavations in Urban Areas” in 5-Days Webinar Series on *Prominent Areas of Civil Engineering* organised by Department of Civil Engineering, Vidyavardhini’s College of Engineering & Technology, Vasai, Mumbai, 30<sup>th</sup> – 17<sup>th</sup> May 2020.
7. Presented a Lecture on “Deep Excavations Challenges in Urban Areas” in Webinar hosted by Ambalika Institute of Management & Technology, Lucknow, Uttar Pradesh, 30<sup>th</sup> May, 2020.
8. Presented a Lecture on “Evaluation of Bearing Capacity Factors of Strip and Ring Footings using FEM” in Webinar hosted by IGS Guntur Chapter, Andhra Pradesh, 26<sup>th</sup> May, 2020.
9. Presented a Lecture on “Well Foundation – An Overview” in Webinar hosted by IGS Guntur Chapter, Andhra Pradesh, 10<sup>th</sup> July, 2020.
10. Presented a Lecture on “Dynamic Soil Properties” in TEQIP III sponsored 5-Days FDP on *Future Trends in Earthquake Resistant Design of Structures (FTERDS2020)*, Department of Civil Engineering, Bundelkhand Institute of Engineering and Technology Jhansi, 17<sup>th</sup> – 21<sup>st</sup> August 2020.
11. Presented a Lecture on “Heritage Impact Assessment: Geotechnical Aspects” in TEQIP III sponsored 5-Days STTP on *Urban Heritage Conservation: Issues and Challenges*, Department of Civil Engineering, SVNIT Surat, 31<sup>st</sup> August – 04<sup>th</sup> September 2020.
12. Presented a Lecture on “Image Analysis: Applications in Civil Engineering” in TEQIP III sponsored 10-Days STTP on *Assessment of Engineering in Infrastructural Development*, Department of Civil Engineering, Government College of Engineering Jhalawar, 26<sup>th</sup> October – 04<sup>th</sup> November 2020.
13. Presented a Lecture on “Applications of Image Analysis in Geotechnical Engineering” in TEQIP III sponsored 5-Days STTP on *Advances in Geotechnical Engineering*, Department of Civil Engineering, SVNIT Surat, 19<sup>th</sup> November – 23<sup>rd</sup> November 2020.
14. Presented a Lecture on “Heritage Impact Assessment for Agra Metro” in TEQIP III sponsored 5-Days STTP on *Metro Construction and Management*, Department of Civil Engineering, SVNIT Surat, 14<sup>th</sup> December – 18<sup>th</sup> December 2020.
15. Presented a Lecture on “Heritage Impact Assessment for Underground Construction” in AICTE sponsored 5-Days STTP on *Sustainable Materials & Resilient Buildings Philosophy, Design, Implementation, and Performance*, Department of Civil Engineering, Kakatiya Institute of Technology & Science, Warangal, 4<sup>th</sup> January – 8<sup>th</sup> January 2021.

### **GIAN PROGRAM**

1. Seismic Analysis and Design of Masonry Structures, GIAN, IIT Madras, Chennai, 08-20 February, 2016 (Secured "B" grade i.e., 8/10)
2. Constitutive Modelling on Practical Geotechnical Analysis, GIAN, IIT Bombay, 06-16 June, 2016 (Secured "A" grade, highest grade i.e., 10/10)
3. Advances in Seismic Hazard Analysis and Soil-Structure Interaction, GIAN, IIT Madras, Chennai, 18-30 July, 2016 (Secured "S" grade, highest grade i.e., 10/10)

## **DETAILS OF INDUSTRIAL TRAINING (COMPANY & DURATION)**

1. Worked as Lecture in Rizvi College of Engineering, Mumbai for 3 months
2. Worked as Project Associate for 2 months in Earthquake Engineering Department, IIT-Roorkee
3. Summer Internship at GLOBAL GEOTECHNICS – Geotechnical Consultants, at Mumbai for period of 2 months (Duties: Deep excavations, Touch pile, PVD, Uplift anchors, etc.)
4. 1 year In-plant Industrial Training during Diploma, appointed as Junior Engineer
  - Space Engineers – 6 months (Mumbai-28 storey tower Construction)
  - Universal Consultants – 6 months (Mumbai-22 storey tower Construction)  
(Duties: Site supervising, Piling - shore and structure piles, RMC plant quality control, quantity estimations, concrete design, pile raft construction, etc.)
5. Seismic Site Characterization of Kanamadi Region for Wind Farm Development, North Karnataka, A Consultancy project, IIT Madras
6. Evaluation of tunnelling and excavation induced surface settlement for Heritage Impact Assessment for the Heritage structures in the vicinity of proposed Agra Metro Project.

## **ORGANISER OF TECHNICAL EVENT**

1. Joint Organising Secretary of *Indian Geotechnical Conference 2019*, Surat Marriot Hotel, Surat, Organiser: Indian Geotechnical Society and SVNIT Surat, December 2019.
2. Program Coordinator of Short-Term Training Program on *Advances in Geotechnical Engineering AGE 2020*, SVNIT Surat, Total 50 Participants, 19<sup>th</sup> November 2020 to 23<sup>rd</sup> November 2020.
3. Program Coordinator of Short-Term Training Program on *Metro Construction and Management MCM 2020*, SVNIT Surat, Total 55 Participants, 14<sup>th</sup> December 2020 to 18<sup>th</sup> December 2020.

## **COMPUTER SKILLS**

- AutoCAD
- PLAXIS-2D & 3D
- GeoSlope, Geo5
- MS Office
- MASW analysis

## **COUNTRIES VISITED**

- Paris, France
- Porto, Portugal
- Madrid, Spain

## **MEMBERSHIP IN PROFESSIONAL SOCIETY**

- Student Member, Indian Geotechnical Society

## **REVIEWER /EDITOR**

- Academic Editor – Journal of Engineering Research and Reports
- Reviewer – Geotechnical and Geological Engineering

## **COURSES DEVELOPDED**

- CE 455 Introduction to Finite Element Method
- CE 488 Introduction to Earthquake Geotechnical Engineering

## **COURSES TAUGHT**

- AM 702 Finite Element Method (Theory)
- AM 108 Engineering Mechanics (Theory & Lab)
- AM 306 Geotechnical Engineering (Theory & Lab)

- AM 639 Computer Applications in Geotechnical Engineering (Theory)
- CE 717 Construction Material Testing (Lab)

### **PHD OPENING**

Enthusiastic and interested students who wants to pursue PhD under the Research area given below can contact me at [jtc@amd.svnit.ac.in](mailto:jtc@amd.svnit.ac.in) . The areas of Research are:

- Seismic Hazard Analysis
- Conservation of Heritage Structures
- Use of PIV Technique in Geotechnical Engineering
- Computational Geomechanics (Numerical Modelling in Geotechnical Engineering)
- Constitutive Modelling in Geotechnics
- Physical Modelling in Geotechnical Engineering
- Deep Foundations
- Deep Excavations
- Earthquake Geotechnical Engineering (Dynamic Soil Properties)