

# **VISHISHT BHAIYA**

Assistant Professor

Department of Civil Engineering

S.V. National Institute of Technology Surat, Surat 395007

[Office: ARC 303 (Advance Research Center), Behind Old Applied Mechanics Department,  
Opposite Production Engineering Lab.]

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## **PROFESSIONAL EXPERIENCE**

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- January-May 2018**      **Guest Faculty**, National Centre for Disaster Mitigation and Management, *MNIT, Jaipur, INDIA*
- Worked in various research projects related to dynamic analysis and design of strategically important structures against multiple hazards such as earthquake and wind. Guided several graduate and undergraduate students in their research projects. Prepared technical reports and research articles.
- 04<sup>th</sup> July 2018 – 17<sup>th</sup> July 2019**      Research Associate in DST-TSD project titled “*Indigenous Design and Development of Prototype Base Isolation System for Earthquake Hazard Mitigation*”, NCDMM, MNIT, Jaipur. Indispensable part in prudently carrying out the arduous complexity of design of various key integral components of Pseudo-dynamic Testing Lab to be established under the MHRD funded DST project.
- 18<sup>th</sup> July 2019-13<sup>th</sup> September 2019**      Assistant Professor in Civil Department at Swami Keshvanand Institute of Technology, Jaipur
- 30<sup>th</sup> September 2019- Present**      Assistant Professor in Civil Engineering Department at Sardar Vallabhbhai National Institute of Technology, Surat

## **EDUCATION**

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- 2014 – 2018**      **Doctor of Philosophy (Ph.D.)**, *MNIT Jaipur, INDIA*, Cumulative Grade Point Average (CGPA) - 9/10  
Thesis Title: Seismic Control of Partially Observed Building Frames Using MR Dampers
- 2011 – 2013**      **Master of Technology (M.Tech.)**, *MNIT, Jaipur, INDIA*, CGPA – 8.29/10, (Structural Engineering Specialization)  
Thesis Title: Prediction of Seismic Responses Using Neural network
- 2007 – 2011**      **Bachelor of Civil Engineering (B.E.)**, *MBM Engineering College, Jodhpur, INDIA*, - 67.07%.
- 2007**      **All India Senior Secondary School Examination**, C.B.S.E.- 79.6%
- 2005**      **All India Secondary School Examination**, C.B.S.E.- 91.8%

## RESEARCH INTERESTS

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- Seismic Vibration Control and Anti-Seismic Devices
- Probabilistic Framework for Seismic Design and Performance Assessment
- Uncertainty Modelling in Dynamical System
- Discrete Element Modelling
- Composites
- Steel structures, Rehabilitation & Retrofitting of structures
- Disaster Mitigation and Management with respect to Multihazard events

## PUBLICATIONS

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### Journals

1. Gajbhiye, Param D., **Vishisht Bhaiya**, and Yuwaraj M. Ghugal (2021) "Free Vibration Analysis of Thick Isotropic Plate by Using 5th Order Shear Deformation Theory." *Progress in Civil and Structural Engineering* 1(1), pp.1-11.
2. **Vishisht Bhaiya**, S. D. Bharti, M. K. Shrimali and T. K. Datta (2019), Modified Semi-Active Control with MR Dampers for Partially Observed Systems, *Engineering Structures*, Volume: 191/ 129-147. Doi: 10.1016/j.engstruct.2019.04.063
3. **Vishisht Bhaiya**, S. D. Bharti, M. K. Shrimali and T. K. Datta (2018), Hybrid Seismic Control of buildings using Tuned-mass and Magnetorheological Damper, *Proceedings of the Institution of Civil Engineers-Structures and Buildings*. Doi: 10.1680/jstbu.18.00090
4. **Vishisht Bhaiya**, S. D. Bharti, M. K. Shrimali and T. K. Datta (2018), Genetic Algorithm Based Optimum Semi-Active Control of Building Frames Using Limited Number of Magneto-Rheological Dampers and Sensors, *Journal of Dynamic Systems, Measurement, and Control, ASME*, 140(10), 101013.
5. **Vishisht Bhaiya**, SD Bharti, M K Shrimali and T K Datta (2016), "Effect of noises on the Active Optimal Control of Partially Observed Structures for White Random Ground Motion", *Noise Control Engineering Journal*, Volume :64 / 789-799 / 2016 ISBN: 9781498726740

### Conferences

1. **V. Bhaiya**, S. D. Bharti, M. K. Shrimali and T. K. Datta (2021), "Velocity Tracking Control Algorithm for Semi-active Control of Building Frames", *12th Structural Engineering Convention (SEC 2021)*, MNIT Jaipur, India (Accepted)
2. Param Dnyaneshwar Gajbhiye and **Vishisht Bhaiya (2021)** "Bending Analysis of Orthotropic Plate Using 5th Order Shear Deformation Theory", *12th Structural Engineering Convention (SEC 2021)*, MNIT Jaipur, India (Accepted)
3. Mehta, N. S., Mevada, S. V., Patel, K. A., and **Bhaiya, V.** (2021). "Seismic responses of two-way asymmetric building with semi-active stiffness damper under bi-directional excitations." *12th Structural Engineering Convention (SEC 2021)*, MNIT Jaipur, India (Accepted)
4. A.J. Shah and **Vishisht Bhaiya** (2020), "Behaviour of Building Frames under Tsunami Loading", *5th International Conference on Building Materials and Construction (ICBMC 2020)*, 26-28 February 2020, Tokyo University of Science, Japan.
5. **V. Bhaiya**, S. D. Bharti, M. K. Shrimali and T. K. Datta (2019), "Semi-Active Control Using MR Dampers for Random Ground Motion" *16<sup>th</sup> World Conference on Seismic Isolation, Energy Dissipation and Active Vibration Control of Structures by RAEE at St. Petersburg, Russia*

6. **Vishisht Bhaiya**, M K Shrimali, S D Bharti, and T K Datta "Hybrid Control of Building Frames with MR dampers and TMD" *16th Symposium on Earthquake Engineering, 20-22 December 2018, IIT Roorkee, India.*
7. **V. Bhaiya**, S. D. Bharti, M. K. Shrimali, T. K. Datta (2017), "Retrofitting of Damaged Structure Using Vibration Monitoring Technique" *Experimental Vibration Analysis for Civil Engineering Structures (EVACES 2017)*, University of California San Diego, USA
8. **Vishisht Bhaiya**, S. D. Bharti, M. K. Shrimali (2017), "Observation Based Semi Active Control of Structures Using MR Dampers" *Sixteen World Conference on Earthquake Engineering*, Santiago, Chile
9. **Vishisht Bhaiya**, SD Bharti, M K Shrimali and T K Datta, "Performance of Semi Actively Controlled Building Frame Using MR Damper for Near Field Earthquakes" *10th Structural Engineering Convention (SEC 2016)*, IIT Madras, 1384-1388
10. **Vishisht Bhaiya**, S. D. Bharti, M. K. Shrimali (2016), "Semi Active Control of Multi-Storey Structures using Neural Networks", *National Level Conference on "Analysis and Design of Civil Engineering Structures under Static and Dynamic Loading"*, Amrutvahini College of Engineering, Sangamner, India
11. **Vishisht Bhaiya**, Bhavesh Shrimali, S D Bharti and M K Shrimali, "Prediction of Seismic Response Using Artificial Neural Networks" *9th Structural Engineering Convention (SEC 2014)*, IIT Delhi, 22-24 December 2014, 271-279
12. V J Panicker, Bhavesh Shrimali, **Vishisht Bhaiya**, S D Bharti and M K Shrimali, "Numerical Analysis of Elastomeric Isolation System" *9th Structural Engineering Convention (SEC 2014)*, IIT Delhi, 22-24 December 2014, 228-235

## AWARDS AND ACHIEVEMENTS

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| 2014 | Obtained institute teaching assistantship by Ministry of Human Resource Development (MHRD), Government of India, for pursuing Ph.D. studies at MNIT Jaipur |
| 2011 | Received teaching assistantship by MHRD, Government of India, for pursuing M.Tech. at MNIT Jaipur.   |

## TEACHING AND MENTORING EXPERIENCES

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|-------------------|---|
| <b>Teaching</b>   | <p>Assisted to conduct several undergraduate and postgraduate courses at MNIT Jaipur.</p> <ul style="list-style-type: none"> <li>• The courses I have assisted are: (a) Structural Analysis, (b) Advanced Structural Analysis, (c) Design of Steel Structures, (d) Structural Dynamics, and (e) Seismology and Geotechnical Earthquake Engineering and (f) Earthquake Geotechnical Engineering.</li> <li>• Conducted tutorial classes to address student specific problems.</li> <li>• Prepared teaching materials, class projects and question papers; evaluated project reports, quizzes, and examination answer sheets.</li> </ul> |
| <b>Laboratory</b> | <p>Assisted to conduct laboratory courses for undergraduate and postgraduate levels at MNIT Jaipur</p> <ul style="list-style-type: none"> <li>• The laboratory courses I have assisted are: (i) Structural Design and Drawing and Engineering Drawing for undergraduate students, and (ii) Structural Dynamics laboratory for postgraduate students.</li> </ul>   |

**Mentoring** Guided (under faculty supervisor) several undergraduate and postgraduate students at MNIT Jaipur in their project (thesis) works in the area of multi-hazard protection of structures. Assisted the students in analytical and experimental works, and technical report writing.

## **TECHNICAL AND NON-TECHNICAL EVENT PARTICIPATIONS**

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- 2012 Attended Fourth International Conference on Structural Stability and Dynamics, MNIT Jaipur, India, 4-6 January 2012
- 2014 Attended International Workshop on “Emerging Trends in Earthquake Engineering and Structural Dynamics”, IIT Delhi, India, 21-22 December 2014
- 2014 Presented two papers at the 9<sup>th</sup> Structural Engineering Convention (SEC 2014), IIT Delhi, India, December 22 - 24, 2014.
- 2016 Presented a paper at the 10<sup>th</sup> Structural Engineering Convention (SEC 2016), IIT Madras, India, December 22 - 24, 2016.
- 2016 Presented a paper at the National Level Conference on “Analysis and Design of Civil Engineering Structures under Static and Dynamic Loading, at Amrutvahini College of Engineering, Sangamner, India, January 27-28, 2016.

## **COMPUTER AND TECHNICAL SKILLS**

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- Proficiency in computer coding using FORTRAN and MATLAB.
- Proficiency in modelling and analysis of structures using software packages such as SAP2000, UDEC (Universal Distinct Element Code), ABAQUS and ETAB
- Experience in statistical data analysis using MATLAB and Microsoft Excel.
- Expertise in preparation of high quality technical documents and presentations using state of the art tools and software packages.
- Familiar with conducting laboratory experiments for structural engineering courses and handling specialized instruments such as strain controlled universal testing machine (UTM), dynamic shaker, and uni-axial shake table.

## **OTHER ORGANIZATIONAL EXPERIENCES**

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- Actively involved in organization of the 4<sup>th</sup> International Conference on Structural Stability and /Dynamics (ICSSD 2012). My primary involvements were manuscript handling, program scheduling, and publication coordination.
- Actively participated in organizing several short-term courses under quality improvement program (QIP) and continuing education program (CEP). My primary involvements were in website development, course material preparation, and assisting in hands-on tutorial classes.

## **ORGANISER OF TECHNICAL EVENT**

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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 Metro Rail Construction and Management MRCM 2020, SVNIT Surat, 14th December 2020 to 18th December 2020
3. Program Coordinator of Short-Term Training Program on Advanced Design of Steel Structures ADSS-2020, SVNIT Surat, 21st December 2020 to 25th December 2020
4. Program Coordinator of Short-Term Training Program on Advances in Earthquake Resistant Design of Structures AERDS – 2021, SVNIT Surat, 18th January 2021 to 22nd January 2021

## **ADMINISTRATIVE ACTIVITIES**

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1. Lab in Charge Engineering Mechanics Lab, Department of Civil Engineering, SVNIT Surat since January 2020.
2. Additional Professor in Charge Security System, SVNIT Surat since August 2020.

## **MEMBERSHIP IN PROFESSIONAL SOCIETY**

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- Institution of Engineers (India), Kolkata [AM 1952423]
- Indian Association for Structural Engineering, IIT Bombay [LM 181]
- Indian Building Congress, New Delhi [ML 9288]
- Indian Concrete Institute, Chennai [LM 13056]

## **REVIEWER FOR JOURNAL/CONFERENCE**

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- Earthquake and Structures
- Structures,
- Engineering Structures
- Asian Journal of Civil Engineering
- 12<sup>th</sup> Structural Engineering Convention (SEC-2021)

## **SPONSORED PROJECTS**

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- Awarded project entitled “Predictive Active Control Using Neural Network for Partially Observed Building Frames” (Agency: Sardar Vallabhbhai National Institute of Technology (SV-NIT), Surat; Amount: Rs. 5,00,000.00)

## **CONSULTANCY PROJECTS**

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- Proof checking of structural design of EWS-II dwelling units under PMAY on EPC bases (Agency: Surat Municipal Corporation), Status: Ongoing

## **INVITED LECTURES**

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1. Delivered an Expert Lecture on “Modelling and Simulation using SIMULINK” in TEQIP III Sponsored STTP on *MATLAB and Its Applications in Engineering and Computational Research*, SVNIT Surat, 19<sup>th</sup> February 2020.
2. Delivered an Expert Lecture on “Semi Active Control of Structures” in TEQIP III Sponsored STTP on Advanced Research Topics in Geotechnical and Structural Engineering, SVNIT Surat, 30<sup>th</sup> November 2020.

3. Delivered an Expert Lecture on “Overview of Earthquake Engineering” in 1-Day Workshop on *Various Aspects in Civil Engineering* organized by Department of Civil Engineering, G H Raison College of Engineering & Management, Pune, 12<sup>th</sup> February 2021.

## **COURSES DEVELOPED**

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- CE 492 Introduction to Wind Engineering

## **COURSES TAUGHT**

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- AM 108 Engineering Mechanics (Theory & Lab)
- CEME-105 Engineering Drawing (Theory & Lab)
- CE 305 Building materials and Construction (Theory & Lab)
- AM 308 Design of Steel Structures (Tutorial and Lab)
- AM 318 Disaster Management (Theory)
- CE 717 Construction Methods and Equipment (Theory)
- CE 206 Structural Analysis I (Lab)

## **STUDENTS SUPERVISION**

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### **PhD**

- Gajbhiye Param Dnyaneshwar working on Analysis of Sandwich and Laminated Plates using Higher Order Shear Deformation Theory (Joined in January 2020)
- Nirmal Mehta working on Seismic Control of Asymmetric Cracked Buildings (Joined in July 2020)
- Harsh Soni (Joined in January 2021)

### **M.Tech**

#### **2020-21**

- Vishnu S. P. working on Project titled “Comparison Between Inelastic Behavior of Steel and Composite Frame Structure”
- Suraj Kumar Verma working on Project titled “Retrofitting of Building Frames Using Coupling Strategy”

### **B.Tech.**

#### **2020-21**

- Merlin Mathew, Prashant Sharma and Sudheer Kumar Dotasara working on Project titled “Design of Structure Against Wind Load Using Passive Control”

## **DECLARATION**

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I hereby declare that the above written particulars are true to the best of my knowledge and belief.

**(VISHISHT BHAIYA)**