



EDUCATION

Program	Institution	%/CGPA	Year
PhD (Civil Engineering)	Indian Institute of Technology (IIT) Madras	8.71/10	2021
B.Tech (Civil Engineering)	Indian Institute of Technology (IIT) Guwahati	8.58/10	2014
Higher Secondary	Bal Vidya Niketan, Jehanabad	92.20%	2010
High School	D.A.V. Public School, Bihar Sharif	97.20%	2008

ACADEMIC PROJECTS

Doctoral Research Project: **Seismic soil-structure interaction response of inelastic structures**

Advisor: Prof. S R Satish Kumar, IIT Madras

(July 2014 – May 2021)

- Idealization of structure-soil systems as 4-DOF systems using physical models based on cone models
- Evaluation of inelastic seismic response of structures with and without considering soil-structure interaction
- Development of a procedure to estimate seismic demand on inelastic structures considering soil-structure interaction, which can be readily used in regular seismic design practice

B Tech Project: **Influence of finite element modelling on seismic response of bridge piers**

Advisor: Prof. Anjan Dutta, IIT Guwahati

(July 2013 - April 2014)

- Railway bridge located near Imphal in highest seismic zone (Zone V) with piers as tall as 141 metres
- Modal and dynamic analysis to evaluate seismic response of piers considering soil flexibility effects

PROFESSIONAL EXPERIENCE

Ad-hoc Faculty in Department of Civil Engineering, NIT Andhra Pradesh

(July 2021 – Present)

- Teaching: Theory of Structures- I , Prestressed Concrete
- Research: Undergraduate project on life-cycle cost assessment in passive housing

Project Associate at Department of Civil Engineering, IIT Madras

(August – December 2019)

- Assessment of structural stability of existing passenger platform shelters for provision of solar panels, for Southern Railway
- Laboratory testing of galvanized roofing sheets for capacity in suction against wind loads

Project Associate at Chennai Urban Resilience Program

(May – July 2019)

- Summer program at IIT Madras in collaboration with University of British Columbia, Cambridge University and Yale- NUS College, aimed at enhancing resilience of Chennai city
- Team project on civic engagement in solid waste management, water conservation and traffic congestion

Graduate Teaching Assistant at Department of Civil Engineering, IIT Madras

(July 2014 – May 2019)

- Advanced Analysis and Design for Wind and Earthquake effects
- Basic Structural Steel Design
- Design of Steel Structural Systems
- Advanced Design of Metal Structures
- Design of Power Plant Structures

PUBLICATIONS

Journal Publications

- Anand, V. and Kumar, S. (2021). Evaluation of seismic response of inelastic structures considering soil-structure interaction. *Innovative Infrastructure Solutions*, 6(2), paper 83.
- Anand, V. and Kumar, S. (2020). Seismic soil-structure interaction response of elastic and inelastic moment resisting framed structures on embedded rafts. *Journal of Structural Engineering (Madras)*, 47(4), pp. 344-361.
- Anand, V. and Kumar, S. (2018). Seismic soil-structure interaction: A state-of-the-art review. *Structures*, 16, pp. 317-326.

Conference Publications

- Anand, V. and Kumar, S. (2020). Seismic performance of semi-rigid steel frames considering soil-structure interaction. Indian Structural Steel Conference, IIT Hyderabad (Postponed due to COVID).
- Anand, V. and Kumar, S. (2018). Elastic seismic response of moment resisting framed structures with soil-structure interaction. *11th National Conference on Earthquake Engineering*, Los Angeles.
- Anand, V. and Kumar, S. (2017). Effects of engineering design parameters on elastic soil-structure interaction response of moment resisting framed structures. *Indian Geotechnical Conference*, Guwahati.
- Anand, V. and Kumar, S. (2016). Analytical soil-structure interaction formulations in frequency domain for structures founded on flexible bases. *Structural Engineering Convention*, Chennai.
- Anand, V. and Kumar, V. (2013). Urban building model in Gangetic plains. *National Conference on Environment Friendly Sustainable Construction- Need of the Hour*, Patna.
- Anand, V. and Dey, A. (2012). Estimation of filter dimensions for a homogeneous earth dam resting on impervious foundation based on basic seepage analyses. *4th International Congress on Computational Mechanics and Simulation*, Hyderabad.

Book Chapters

- Anand, V. and Kumar, S. (2016). Groundwater management- Sustainability and Methodology. In *Sarma et al. (eds) Urban Hydrology, Watershed Management and Socio-Economic Aspects*, Springer, 73, pp. 135-143.

CO-CURRICULAR ACTIVITIES

Professional Training

- AICTE QIP Short Term Training Programme on Design of Steel Buildings for Earthquake and Fire, IIT Madras, 15 March – 20 March 2021
- TEQIP-III Sponsored Two Week Online International Faculty Development Program on “Soil-Structure Interactions and Applications”, GBPIET India, 31 August – 11 September 2020
- First International Webinar Series on Natural Disaster Resilience for Built Infrastructure (NDRBI), University of Technology Sydney and IIT Madras, 24-28 August 2020
- Chennai Urban Resilience Program, IIT Madras, 14 May – 19 July 2019

GIAN Courses

- Advances in Seismic Hazard Analysis and Soil-Structure Interaction, IIT Madras, 18-30 July 2016
- Seismic Risk Assessment at Urban Scale, IIT Madras, 18-22 April 2016
- Soil Structure Interaction, IIT Bhubaneswar, 28 December 2015 – 4 January 2016

Courses at Coursera

- Programming for Everybody (Getting Started with Python), University of Michigan
Course Instructor: Charles Russell Severance
- Machine Learning, Stanford University
Course Instructor: Andrew Ng

PROFESSIONAL AFFILIATIONS

- Young Professional Member at Earthquake Engineering Research Institute (EERI), Oakland
- Graduate Member at the Institution of Structural Engineers (IStructE), London
- Mail-list Member at the National Information Centre of Earthquake Engineering, IIT Kanpur
- Reviewer at Geophysical Journal International, a peer reviewed journal by Oxford University Press
- Reviewer at Earthquakes and Structures, a peer reviewed journal by Techno-Press

COMPUTATIONAL SKILLS

- Skills: Machine Learning, Numerical Regression
- Software Packages: AutoCAD, SAP2000, ETABS, STAAD.Pro, ABAQUS
- Programming Skills: C, MATLAB, Octave, Python, OpenSEES

RESEARCH INTERESTS

- Earthquake Engineering
- Soil-Structure Interaction
- Rupture-to-Rafters Simulations
- Dynamics of Offshore Wind Turbine Structures
- Machine Learning Applications in Earthquake Engineering

RESEARCH PLANS

- Development of performance-based seismic SSI design protocol
- Identification of critical ground motion features for seismic SSI fragility assessment and development of ground motion selection algorithm
- Enhancement of seismic resilience of Himalyan region through rupture-to-rafters simulations
- Displacement control in offshore wind turbine structures
- Machine learning applications in seismic fragility studies and choice of optimal retrofit strategies

POSITIONS OF RESPONSIBILITY

- Super-coordinator and Content writer at Disaster Management Committee, IIT Madras (2019 - 2020)
- Coordinator at Disaster Management Committee, IIT Madras (2018 - 2019)
- Coordinator at Structures Research Forum, IIT Madras (2015 - 2016)
- Secretary at Prakriti- the Environmental Club, IIT Guwahati (2012 - 2013)

REFERENCES

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