

# Biswabhanu Puhan

## INTERNSHIPS

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**INDIAN INSTITUTE OF TECHNOLOGY, HYDERABAD**  
MAY-JULY, 2018

Under Prof. Surendra Nadh Somala, I worked on a project "Base isolation with electromaglev bearing: concept and feasibility study for a six storey building". To solve the problems related to adaptability, a suitable base isolation system for a six storey building was studied and a new type of isolation system was devised.

**LARSEN AND TOUBRO (L&T) IDPL, SAMBALPUR  
ROURKELA TOLLWAY LTD.**  
MAY-JULY, 2017

Under the guidance of Mr S.D. Mahaveer, Project Head, I was introduced to different tests on Construction of Materials, Project Management Planning and Implementation methodologies pertaining to different structures.

## ACADEMIC PROJECTS

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**INVESTIGATION OF MICROSCALE FRACTURE OPENING  
IN HOST INCLUSION SYSTEMS  
(MSc THESIS)**  
OCTOBER 2021

Due to high confining pressure and weak rheology, the mechanism for Earthquakes below brittle-ductile transition zones remains an open question. Carried out under Prof. Alessandro Reali and Prof. Matteo Alvaro, this thesis aims to propose an alternative theory to explain this open question and to check its feasibility using numerical methods by simulating complex host-inclusion system.

**FREE AND FORCED VIBRATION ANALYSIS OF SDOF  
SYSTEM WITH FRACTIONAL ORDER DAMPING  
(BACHELOR FINAL YEAR THESIS)**  
MAY 2019

Carried out under Prof. Pradip Sarkar this project aims at the application of fractional calculus in structural dynamics by modifying Newmark's Method and deriving new formulae which can be applied to complex damping systems.

**MAGNETIC LEVITATION AS BASE ISOLATION SYSTEM**  
MARCH 2018

Envisioned to make a new type of base isolation system this project aims to fill the gaps of current base isolation system by introducing magnetic levitation in base isolation system, by providing N-45 neodymium magnets in a scaled wooden structure and levitating the building by repulsion and testing its effectiveness using shake table.

**APPLICATION OF FLEXIBLE JOINT SYSTEM FOR  
EARTHQUAKE RESISTANT STRUCTURES**  
DECEMBER 2017

Inspired by Chinese Dougong system, this project aims to find out whether with the use of flexible joints (ball bearing system) instead of fixed joints (monolithic construction) can damp the waves induced by the earthquake or not.

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🔗 LinkedIn | Researchgate

## EDUCATION

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- 2024 **Doctor of Philosophy (PhD)**  
EARTH AND ENVIRONMENTAL SCIENCES  
*University of Pavia, Italy*
- 2021 **Master of Science (MSc)**  
CIVIL ENGINEERING FOR MITIGATION OF  
RISKS FROM NATURAL HAZARDS (ROSE)  
*IUSS Pavia - University of Pavia, Italy*  
(GPA: 109/110)
- 2019 **Bachelor in Technology (B.Tech)**  
CIVIL ENGINEERING  
*National Institute of Technology, Rourkela,  
India (GPA: 9.00/10)*
- 2015 **Higher Secondary (CHSE) in Science**  
*BJB junior college, Bhubaneswar, India*  
(PERCENTAGE: 89.5)
- 2013 **Secondary (BSE)**  
*Udala High School, Udala, Odisha, India*  
(PERCENTAGE: 95.6)

## ACHIEVEMENTS & CERTIFICATES

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- 2021 University Institute for Advanced Studies (IUSS), Pavia scholarship for M.Sc. programme in Earthquake Engineering
- 2019 Among Top 3 in my Class (B.Tech)
- 2018 OPJEMS Scholar for Academic and Leadership Excellence
- 2017 Institute award for Academic excellence
- 2015 Among top 30 in my state in higher secondary (CHSE) Exam.
- 2013 Among top 10 in my state in Secondary (BSE) Exam
- 2013 Ajay Dash memorial scholarship for Academic Excellence
- 2011 Selected for 38th National level science exhibition, JNNESEC-2011, Patna for my project Community asthma detector

## SOFTWARE SKILLS

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PROGRAMMING C, C++, Python, Wolfram, MATLAB

SOFTWARES AUTOCAD, STAADpro, Ansys, Abaqus, Comsol Multiphysics, Plaxis, SAP2000, Ruaumoko

## EXTRA-CURRICULAR ACTIVITIES

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- COUNSELING Coordinator, Mentor & tutor of Student Counseling Program
- ACTING Actor in state level winning Plays