

AMIT KUMAR

✉ amitaaranya@gmail.com

☎ +91-9471819661

in [AmitAaranya](#)

🔄 [AmitAaranya](#)

ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
2022	M.Tech in Engineering Analysis & Design	Indian Institute of Technology, Delhi	8.667
2019	B.Tech in Mechanical Engineering	Guru Ghasidas Central University	8.03/10
2014	BSEB, Patna	R.S.J.C. Inter College, Dhoni	70.20%
2012	BSEB, Patna	High School Amahara Kotwali	76.20%

IIT DELHI THESIS

Title: Design and Fabrication of Energy Harvester based on Vortex-Induced Vibration

Supervisor: Dr. Amitabh Bhattacharya, Dr. Narsing Kumar Jha, Applied Mechanics Department, IIT Delhi

Description: To develop and test under **wind tunnel** of a working model with different velocity and characteristics

- Quantification of a **non-linear spring** by numerical method or experimental method
- Design a rotary or linear magnetic induction energy harvester with optimum energy output
- Design and modification of the model using **SOLIDWORKS** & static and dynamic analysis of the model for Balancing
- Quantify the experimentally obtained data by **MATLAB** and verify with theoretical results

TECHNICAL SKILLS

- **Modeling:** CATIA V5, SOLIDWORKS
- **Analysis:** ANSYS APDL, Abaqus, ANSYS Workbench, NESSUS
- **Computational:** MATLAB, Python (Numpy, Pandas, Matplotlib, PyTorch), MS-Excel
- **Others:** Machine Learning(basics), Deep Learning

PROJECTS

- **Finite-element modeling of a diabetic ulcer** (Dr. Arnab Chanda) (July, 2021 - Nov, 2021)
 - Analysis of foot having a diabetic ulcer and compared with the bare human foot
 - FEA modeling of the realistic diabetic ulcer using **ANSYS APDL**
 - Design of a shoe sole for reduction in stress concentration to minimize the risk of ulcers in diabetic patients
- **Stair-cum-lift for wheelchair bound person** (Prof. Yunus Patel & Prof. S.N. Singh) (Feb, 2021 - Nov, 2021)
 - Feasibility and cost analysis of product concept
 - Design of prototype using **SOLIDWORKS** and did a fundamental static analysis using **ANSYS Workbench** - Fabrication and demonstration of prototype to the IITD community
- **Ship Hull Failure and Risk analysis due to UNDEX** (Prof. Suhail Ahmad) (Feb, 2021 - May, 2021)
 - Developed limit state functions, prepared fault tree diagram for critical loads such as fatigue, buckling due to instantaneous water pressure wave developed by UNDEX-Underwater explosion
 - Reliability is obtained by applying **Monte Carlo simulation** on **NESSUS**
- **Dynamic analysis of structure under seismic force** (Prof. Suhail Ahmad) (Aug, 2020 - Dec, 2020)
 - Mathematical quantification of seismic force and Dynamic model of building
 - 1-D dynamic analysis of the tall building to obtained design parameters
- **Manufacturing of Hand Injection Mould** (CTTC Bhubaneswar) (May, 2017)
 - Modeling of mould in CATIA V5, Perform Convectional Turning, Milling, Grinding, CNC Turing & CNC milling

INDUSTRIAL TRAINING

- BOSCH Manufacturing Unit, BIDADI-KARNATAKA, Vocational Training (May, 2018 - June, 2018)
 - Details analysis of working of COMMON RAIL & its parts and Associated assembly process
 - LP Connector Pressing Machine (Hydraulic & Pneumatic)
 - Analysis of cause for rejection of machine during pressing STEEL Low Pressure Connector

SCHOLASTIC ACHIEVEMENTS

- Secured 99.0 percentile in Graduate Aptitude Test in Engineering(GATE)-2020
- School Topper: Secured highest total marks in High-School and Intermediate-School

EXTRA CURRICULAR ACTIVITIES

- Subject Expert(Part-Time) in Mechanical Engineering at Chegg India Pvt Ltd (Feb, 2018 - ongoing)

POSITIONS OF RESPONSIBILITY

- **PG Class Coordinators**, CAIC-IIT, Delhi (Aug, 2021 – ongoing)
- **Teaching Assistant**, Course: Mechanics of Fluid (APL107) (Dr. Narsing Kumar Jha) (Aug, 2021 -Dec, 2021)
 - Taken weekly 1-hour tutorial class or doubt clearing session among the group of 34 students
- **Teaching Assistant**, Course: Computer-Aided Design (APL710) (Prof. Sriram Hegde) (Aug, 2020 - May, 2021)
- **OCS Volunteer**, For Placement activities, Office of Carrier Service Team IIT-Delhi (Dec, 2020)
- **Hostel Representative**, Swami Vivekananda Hostel, Guru Ghasidas Central University (July, 2017 - Jan, 2018)