RUPSAGAR CHATTERJEE

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ACADEMICS

Master of Technology in Civil Engineering (Specialization - Structures) *Sep, 2020 – Jun, 2022*
Indian Institute of Technology Kanpur, Kanpur, India
GPA: 10.0/10.0
Thesis title: Flutter in Functionally Graded Conical Shell under Follower Force: Simple Analysis and Behavior
Thesis advisor: Prof. Sudib Kumar Mishra

Bachelor of Engineering in Civil *Aug, 2013 – Jul, 2017*
Jadavpur University, Kolkata, India
GPA: 8.79/10.0

Higher Secondary Examination *Jun, 2011 – May, 2013*
West Bengal Council of Higher Secondary Education (WBCHSE), India
Percentage: 91%

Secondary Examination *May, 2011*
West Bengal Board of Secondary Education (WBBSE), India
Percentage: 88.125%

PROFESSIONAL EXPERIENCE

Airbus Group India Private Limited, Bengaluru, India
Associate Engineer, Airframe – R&T *Jul, 2022 – present*

Indian Institute of Technology Kanpur, Kanpur, India
Project Associate *Jun, 2022 – Jul, 2022*
Teaching Assistant *Sep, 2020 – May, 2022*

L&T GeoStructure LLP, Chennai, India
Senior Engineer – QA/QC *Jul, 2018 – Jul, 2019*
Graduate Engineer Trainee *Jul, 2017 – Jul, 2018*

PUBLICATIONS

Journal Articles

- **R. Chatterjee**, and S. K. Mishra, "Flutter in Functionally Graded Conical Shell under Follower Force", *Journal of Aircraft* (submitted).

Conference Proceedings

- C. Bose, **R. Chatterjee**, R. B. Nath, A. Maity, R. Chatterjee, S. Patel, S. Gupta, and S. Sarkar, "Nonlinear fluid-structure interaction dynamics of an elastically mounted flapping airfoil in an inviscid fluid", *Proceedings of the tenth Conference on Nonlinear Systems and Dynamics*, Indian Institute of Science Education and Research, Kolkata, 16-18 December 2016.

RESEARCH EXPERIENCE

Research at Airbus Group India Private Limited

- *Continuum damage mechanics based fatigue initiation prediction model*, Apr 2023-present.

- Developing Abaqus user subroutines for fatigue damage models of ductile materials with cycle jump algorithm to simulate fatigue lifecycle of coupons and aircraft assemblies and correlation with test data

Course Projects at Indian Institute of Technology Kanpur

- *Investigation of Snap-Through Phenomenon in Thin Shallow Arch using Corotational Finite Element Formulation*, Instructor: Dr. Amar Nath Roy Chowdhury, Course: CE622A Stability of Structures, Mar-May, 2021.
  - Developed FE (finite element) code in MATLAB for corotational beam and truss formulations
  - Studied load-deflection behavior of thin shallow arch with mid-span point load and compared results with existing literature
- *Static Analysis of Portal Frame by Flexibility Based Beam Column Element*, Instructor: Dr. Chinmoy Kolay, Course: CE624A Nonlinear Structural Analysis, Feb-May, 2021.
  - Developed FE code for fiber discretization of flexibility-based beam-column element and validated with OpenSees
  - Studied behavior of one-story portal frame by load and displacement-controlled static analyses
- *Design Project – Reinforced Concrete Special Moment Resisting Frame*, Instructor: Dr. Durgesh C. Rai, Course: CE629A Earthquake Analysis and Design of Structures, Mar-May, 2021.
  - Analyzed a 4-storey RC SMRF building for earthquake forces in ETABS
  - Designed the SMRF as per the provisions of IS456-2000, IS1893(Part 1)-2016 and IS13920-2016
- *Plane Strain Problem – Analysis of Cantilever Retaining Wall using CST Element*, Instructor: Dr. Samit Ray Chaudhuri, Course: CE723A Finite Element Methods in Civil Engineering, Nov-Dec, 2020.
  - Developed FE code for CST (Constant Strain Triangle) element in MATLAB
  - Studied the behavior of cantilever retaining wall using the developed code and validated with theoretical results

Internships at Indian Institute of Technology Madras

- *Investigating Nonlinear Fluid-Structure Interaction Dynamics using Inviscid Flow Solvers*, May-Jun, 2016.
  - Developed low-fidelity Lumped Vortex Method solver to simulate fluid flow past flat plate
  - Developed Unsteady Vortex Lattice Method solver to simulate fluid flow past nonlinear thin airfoil model with pitch and plunge degrees of freedom
- *An Introduction to Structural Dynamics, Nonlinear Dynamics, Wind Tunnel and a Study on the Lorenz System*, Jun, 2015.
  - Studied different bifurcation characteristics in nonlinear systems
  - Performed parametric study for intermittency and onset of chaos in Lorenz system
  - Developed script for finding Poincare maps of dynamical systems

RELEVANT COURSES

- Structural Dynamics
- Engineering Mechanics
- Stability of Structures
- Nonlinear Structural Analysis
- Fracture and Fatigue

AWARDS AND RECOGNITIONS

- Received Prof. ASR Sai Gold Medal for outstanding academic performance in the area of structural engineering based on CPI in the coursework at IIT Kanpur, 2022.
- Secured First-Class Honours in B.E. (Civil) and rank 5 out of 84 graduating students in the department at Jadavpur University, 2017.

- Selected for Summer Fellowship Programme at IIT Madras, 2016.
- Received Anant Merit Scholarship from Anant Education Initiative, 2014.
- Received Priyamvada Birla Scholarship from South Point Education Society, 2013-17.
- Received Central Sector Scheme of Scholarship for College and University Students from the Ministry of Human Resource Development (now Ministry of Education), Government of India, 2013-16.
- Secured rank 18 among 569332 candidates in West Bengal Council of Higher Secondary Education (WBCHSE) merit list, 2013.
- Received Merit-cum-Means Scholarship from Department of School Education, Government of West Bengal, 2011-13.

TECHNICAL SKILLS AND INTERESTS

Programming Languages:	C, C++, Fortran, Python, MATLAB, LaTeX
Software:	Abaqus, FEniCS, HyperWorks, Maple, OpenSees, SAP2000, AutoCAD, Inkspace
Interests:	Playing chess, reading novels, ham radio, computer programming

REFERENCES

- **Dr. Vinay Kumar Gupta**
  Professor
  Department of Civil Engineering
  Indian Institute of Technology Kanpur, India
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  Phone: +91-5122597118
- **Dr. Amar Nath Roy Chowdhury**
  Assistant Professor
  Department of Civil Engineering
  Indian Institute of Technology Kanpur, India
  Email: amarrc@iitk.ac.in
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- **Dr. Sudib Kumar Mishra**
  Professor
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  Indian Institute of Technology Kanpur, India
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