Arijit Pradhan

Ph.D. Scholar in Mechanical Engineering
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LinkedIn

QUALIFICATION SUMMARY

- 4+ years of extensive expertise in Engineering Design and Finite Element Analysis
- 6+ years of experience in working on and developing open-source tools
- Have strong communication ability both verbal and writing

EXPERIENCE

RESEARCH ASSOCIATE, IIT KHARAGPUR, INDIA *Dec 2019 – Jul 2021*

Project: Large-scale CFD modeling of the hydrodynamics and scour around offshore wind farms (Funded by Science and Engineering Research Board (SERB))
PI: Dr Mohammad Saud Afzal, Associate Professor, IIT Kharagpur

GRADUATE ENGINEER, L&T CHIYODA LTD. *Jul 2019 – Oct 2019*

Nature of Job: Studying P&ID Diagram of HGDP(ADNOC) Project, Preparing MTO, Proposal Engineering

SUMMER INTERN, IIT HYDERABAD, INDIA *May 2017 – Jul 2017*

Project: Flow past a cylinder attached to a spring
PI: Dr SN Khaderi, Associate Professor, IIT Hyderabad

SUMMER INTERN (SURGE PROGRAM), IIT KANPUR, INDIA *Jul 2019 – Oct 2019*

Nature of Job: Development of an ABAQUS plug-in to estimate the effective properties by generating RVE with randomly distributed fibers.
PI: Dr P M Mohite, Associate Professor, IIT Kanpur

KEY PROJECTS

TitanAir: Leading-edge liquid collection to enable cutting-edge science

- Collaborative project between NASA and Planet Enterprise, involving professionals from renowned laboratories. Link: Planet Enterprise
- Contributing to the development of the wings for the TitanAir airplane, featuring optimized design and the collection of samples from Titan's surface

*CoDA: **Co**da for **D**esign **A**utomation*

- Developing a high-performance design-to-manufacturing framework, considering topology optimization and computational geometry
- GitHub repository webpage: CoDA (Not opensource right now)

Design and additive manufacture of architected short fiber reinforced composites

- Proposed a design-to-manufacturing framework tailored for fibrous composites
- Demonstrated efficacy through the use of the Direct Ink Writing (DIW) technique

Development and analysis of Excavator boom

- Designed an excavator boom as part of a consultancy project for Heavy Engineering Corp. in India.
- Performed stress and finite element analysis

TECHNICAL SKILLS

Drawing and Analysis Tools
SolidWorks, Fusion 360, Catia, Abaqus, Ansys

Programming Languages
C/C++, Fortran, Python, Matlab

Other Development Tools
CMake, Git, Spack

Open-Source Packages
MFEM, OpenFOAM, FEMDOC, FreeFem++, FEniCS

RELEVANT COURSES

- Finite Element Analysis
- Machine Learning
- Topology optimization
- Real and Functional analysis,
- Mechanics of composite structure

HONOR AND AWARDS

- Fall 2022 GPSA Senator Scholarship
- Recipient of Charles P Murray Endowment scholarship 2021
- Recipient of Robert W Finch Memorial Scholarship 2022
- Finished among 0.5% students in JEE Advanced 2015
- National (India) Rank of 20 in SilverZone International Math Olympiad 2012

EDUCATION

Washington State University, Pullman, WA
Ph.D. Mechanical Engineering
2021-Present
GPA: 4.0/4.0

Indian Institute of Technology Dhanbad, India
B.S. Mechanical Engineering
2015-2019
GPA: 8.46/10

SELECTED PUBLICATIONS

- Y Guo, A Pradhan, N Boddeti, Design and additive manufacture of architected short fiber reinforced composites (Submitted to Additive Manufacturing)
- A Pradhan, MR Arif, MS Afzal, AH Gazi, On the origin of forces in the wake of an elliptical cylinder at low Reynolds number, Environmental Fluid Mechanics, 2022
- Arijit Pradhan, Ravi Chaithanya Mysa, Subhankar Sen, Analysis of forces and flow features of a wavy cylinder at low Reynolds number, presented in 6th International Conference on Ship & Offshore Technology (ICSOT) 2019, IIT Kharagpur
- A. Pradhan, S. Koley, P. M. Mohite, C. S. Upadhyay, An ABAQUS plugin to generate RVE with random fiber arrangement and estimation of effective properties, presented in 64th International Congress of ISTAM,2019, IIT Bhubaneswar
- A. Pradhan, K. Bharti, R. R. Das, L. A. Kumarswamidhas, Effect of lacing angle on stress concentration effects corresponding to cluster weld fillet of a BE 1370 Dragline, presented in 3rd National Conference on Mining Equipment: New Technologies, Challenges and Application (MENTCA) 2018, IIT(ISM) Dhanbad