Sangeet Sourav Sunderroy

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Employment History

GE Vernova

2023 – Present **Advanced Engineer, Conceptual Design and Aerodynamics**

- Owned Python/C++ blade conceptual design tools.
- Developed tools to automate the setup, job submission and post-processing for CFD on HPC.
- Developed a spline-based blade design tool in PyQt to manipulate blade shape parameters through control points. Implemented Bézier, Catmull-Rom and B-Splines.

2021 – 2023 **Edison Engineering Development Program** (2 year technical leadership rotational program)

- Developed a steady state aeroelastic code in Python for wind turbine blades by coupling in-house aerodynamics (BEM) and structural (FEM, corotational beam elements) codes.
- Developed a FEM mesh manipulation library in C++, based on the Partial Entity data structure for representation of non-manifold edges.
- Contributed to the development of an aeroelastic mode tracking module in Python, based on a Modal Assurance Criterion (MAC).
- Implemented a critical Python module for improving 50-year extreme load extrapolation on the AWS simulation environment by making the tail of the load distribution denser.

Education

2019 – 2021 **IISc, Bengaluru**
M. Tech. Aerospace Engineering
Thesis title: *Hypersonic Flow over a Flexible Compression Ramp*

2014 – 2019 **BITS Pilani, Pilani Campus**
B.E. Hons. Mechanical Engineering
Thesis title: *Multi-Region Conformal Mesh Generation in snappyHexMesh for Fluid-Solid Interaction problems with Complex Geometries*

BITS Pilani, Pilani Campus
M.Sc. Hons. Physics
Thesis title: *C++ Solver for Wakefield Generation in Cylindrical Plasma*

Research Publications

Conference Proceedings

1. S. S. Sunderroy, P. T. Karnick, and K. Venkatraman, "Shock boundary layer interactions in a supersonic flow over a flexible compression ramp," in *AIAA AVIATION 2022 Forum*, 2022, p. 4049.

Skills

Languages C++, Python, CUDA, OpenMP, SQL, MATLAB, LaTeX, Bash
Software Linux, Git, SU2, OpenFOAM, PyQt, PyQtGraph

Awards and Achievements

2019 **GATE 2019**, All India Rank 3 in Aerospace Engineering

2017 **AUVSI-SUAS, Maryland, USA** 39th place among 59 international teams, Development of an Autonomous Surveillance Drone.