

Edwin George

email: edwingeorgep5@gmail.com | phone: +919769649801 | LinkedIn: <https://www.linkedin.com/in/edwinxgeorge>

SUMMARY

Researcher specializing in **computational fluid dynamics** (CFD), with expertise in developing solvers and conducting large-scale, high-fidelity simulations. Skilled at integrating advanced physics models into simulations, ensuring validation for accurate results, and effectively communicating technical findings.

EXPERIENCE

Virginia Tech

Blacksburg, United States

Research Assistant

April 2024 – December 2024

- Contributed to a research initiative aimed at developing a general-purpose **cavitation** model.
- Investigated the effects of **turbulence modeling** on the accuracy of cavitation simulations.
- Collaborated on integrating computational methods, machine learning, and experimental data to enhance model fidelity.
- Documented research methodologies and findings, **creating detailed resources** to support incoming researchers and ensure continuity in the project.

Hardwin Fasteners Pvt. Ltd.

Mumbai, India

Junior Engineer Intern

May 2019 – March 2020

- Managed customer inquiries and leveraged engineering knowledge to provide recommendations on material selection and product grades for large-sized nuts and bolts used in industrial applications such as pumps and compressors, and civil applications such as bridges and buildings.
- Facilitated communication between clients and teams to ensure customer requirements were met.
- Collaborated with the production team to troubleshoot and resolve issues with manufacturing machines to minimize downtime.

THESIS

Development of an OpenFOAM Solver for Hydroacoustic Simulations: An Application for Acoustic Fish Deterrence

November 2022 – Feb 2024

- Facilitated development of an underwater **acoustic** fish deterrence system targeting invasive carp in the Upper Mississippi River for the **U.S. Army Engineer Research and Development Center (ERDC)**.
- Designed and implemented multiple computational models, including the acoustic wave equation, a transfer function-based method, and the Helmholtz formulation, in open-source computational fluid dynamics (CFD) C++ toolbox **OpenFOAM**.
- Conducted high-fidelity simulations on Virginia Tech's **High-Performance Computing (HPC)** resources.
- Addressed computational challenges, including mesh resolution and non-reflecting boundary conditions, using Fourier analysis.
- Presented findings at the **APS Division of Fluid Dynamics (DFD) Annual Conference** in 2023
- Authored detailed **documentation** to support future research initiatives.

SKILLS

Research & Development:

Computational Fluid Dynamics, Multiphase Flows, High-Performance Computing (HPC), 3D Modelling, Software Development, Computer-Aided Design (CAD), Technical Documentation

Computational Tools & Software:

OpenFOAM, Ansys (Fluent & CFX), SolidWorks, Blender, ParaView, Slurm, Linux, Git

Programming:

Python, C++, MATLAB, HTML+CSS

PROJECTS

Computational Fluid Dynamics package for Python

May 2022 – August 2022

- Developed a **Python** package for solving Navier-Stokes equations using the finite difference method, demonstrating functional excellence in scientific programming and data analysis.
- Produced clear documentation to explain the implementation and support usage of the package.

Axial Turbine Vane Analysis and Design

February 2022 – May 2022

- Determined optimum 3D vane geometry for highest turbine efficiency for a given 2D vane profile.
- Designed the vane with preferred loading characteristics to give best aerodynamic performance.
- Performed iterative simulations in **Ansys CFX** to make and verify improvements.

EDUCATION

Virginia Tech

Blacksburg, United States

Master of Science, Mechanical Engineering

January 2022 – February 2024

University of Mumbai

Mumbai, India

Bachelor of Engineering, Mechanical Engineering

August 2017 – May 2021

COURSEWORK

- Fluid Mechanics
- Thermodynamics
- OpenFOAM Advanced Course
- Numerical Methods for CFD
- Turbomachinery and Gas Turbines
- Heat and Mass Transfer