MRIDUL AGGARWAL

MSc Aerospace Computational Engineering

Milton Keynes, United Kingdom
+44 (0) 7824046057
aggarwalmridul@outlook.com
https://www.linkedin.com/in/mridul-aggarwal-2000
https://mridul8878.github.io/mridul-aggarwal-resume/

PERSONAL STATEMENT

Focused on using computational engineering software to analyze and solve engineering problems using advanced computational methods specifically for the aerospace industry. Stronghold in developing modelling simulations using different commercial software and tools. Hands-on experience in distributed scientific computation creating simulation models for various engineering applications. Strong team player having worked with global teams on different projects related to engineering and project management.

KEY SKILLS & HIGHILIGHT

Computational Engineering: High Performance Computing, Computer Aided Engineering & Design, Finite Element / Volume Analysis, Computer Aided Modelling

Engineering Software: MATLAB Simulink, ParaView, Tecplot, Abaqus, Solidworks, ANSYS Workbench, Fluent, SpaceClaim, CFD-Post, CES Edu Pack, Latex, Overleaf, Microsoft Office,

Programming languages: C++, C, LINUX.

Language: English (Professional), Hindi (Native), Sanskrit (Beginner)

For more detailed information about my projects & skill set please look on my website:
https://mridul8878.github.io/mridul-aggarwal-resume/

KEY ACHIEVEMENTS

- Experienced in using UDF in ANSYS Fluent and worked on parallel computing using HPC.
- Implemented discrete phase modelling to track sneeze particles using multiphase flows in ANSYS application.
- Coded Crank Nicolson finite difference method to solve partial differential equations using C++ programming.
- NASA Space School Certification for being part of the team to work on rover functioning and demo rocket launching at NASA in the USA.

EDUCATION

MSc: Aerospace Computational Engineering, Cranfield University, Cranfield, UK (September 2021 – August 2022)

- **Modules:** Computational Methods & Engineering Structures, Numerical Modelling for Compressible Flows / Incompressible Flows, Analysis & Visualization of Big Data System & High-Performance Computing, Modelling Approaches / Validation & Verification for Aerospace Application.

- **Group Project:** Led a team of 5 to work on "Aircraft Simulation" focusing on the simulation of the Jetstream 31 full aircraft and/or a model aircraft simulation to gain transient data in terms of lift and drag coefficient for relative analysis with experimental data using different Unsteady Reynolds-Averaged Navier-Stokes (URANS) and Detached Eddy Simulation modelling approaches for better prediction of airflow.

- **Individual Research Project:** Numerical Investigation of the Airflow Ventilation system in the Interior of an Aircraft Cabin in Presence of an Infected Passenger has been completed successfully by placing a modified displacement ventilation system for the aircraft cabin and implementing the discrete phase modelling to track the virus particle movement inside the aircraft cabin. Additionally, learned the use of parallel computing by using High Performance Computing for my research project.

Bachelors of Engineering (Honours) (Mechanical): The University of Newcastle, Australia (Singapore Campus) (August 2017 - May 2020)

- **Group Project:** Collaborated with 4 other university students to develop a mobility system for setting up a bicycle sharing system for university students. Cost and quality management was my sole responsibility in the group. This idea was suggested by myself to help students to cut down their travelling cost and time during their stay at university.

  Individual Research: Worked on "Simulation of Air Distribution in an Office room Ventilation by an Air-Conditioner" to decrease energy consumption by the ventilation system and increase the oxygen level inside the office room. Designed the office room using ANSYS Workbench and then a pressure-based solver implemented with a SIMPLE algorithm to model the airflow and thermal comfort of the people inside the room.

CAREER HISTORY

RACL GEARTECH LTD: Gajraula, Uttar Pradesh, India - Internship (January 2021 - April 2021)

RACL Geartech combines advanced production technology with precision engineering to present an unrivalled array of Transmission Gears & Shafts, Reduction Gears, Gear Boxes, etc. Created a strong base across the world which includes prominent companies like KTM, BMW, ZF, and TATA motors.

- Allocated as a Production process quality engineer to overlook process quality for gear manufacturing on daily basics and to solve issues faced by the machine operator
- Supervised effectiveness of patrol inspection and 4M change of 50 machines daily and actions to document
- Conducted 60 Internal Process Audits as well as a Process Capability Study to analyze machines' efficiency for better manufacturing productivity
- Prepared root causes analysis for 5 gear process on gear rejections resulted in a decrease in rejections in a 2-month time
- Co-ordinated with project head in the installation of new gear manufacturing machines

INTERESTS & EXTRACURRICULAR ACTIVITIES

- **Membership:** CRANSEDS & Engineers Australia

- **Sports:** Table Tennis played from Junior School (2009-present), Swimming, Cricket, Lawn Tennis

- **Leadership:** Appreciation Certificate for work on TEDx PSB Academy, Singapore in 2018 had an audience of 500.

- **Volunteered**: Award of excellence by Indian Development Foundation in Resource Mobilization for Humanitarian Causes arranged for helping 1000+ people suffering from cancer.