Gulzar Ali

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Education

National University of Sciences and Technology (NUST) — Islamabad, Pakistan
Master of Science in Computational Sciences and Engineering — *Jan. 2023 – Present*

- CGPA: 3.25
- **Electives:**
  - Advanced Partial Differential Equations
  - Applied Machine Learning
  - CFD-I & CFD-II
- **Core Courses:**
  - Computing for Computational Sciences and Engineering
  - Computational Linear Algebra
  - Applied Mathematics
  - Data Analyses and Statistics

University of Engineering and Technology (UET) — Lahore, Pakistan
Bachelor of Science in Mechanical Engineering — *Oct. 2018 – Aug. 2022*

- **Electives:**
  - Computational Fluid Dynamics
  - Finite Element Analysis

Experience

Tutor — Dec 2020 – Present
Remote Freelancer

- Teach and assist students with their Projects
- CFD Simulations on COMSOL and ANSYS
- FEA Methods and Linear Algebra

Parallel Computing Workshop Support Specialist — Jun. 2024 – Aug. 2024
NUST — *Islamabad, Pakistan*

- Develop ANSYS cases for Aerodynamics Simulations
- Develop parallel running codes for Convection Diffusion Equations in Python for testing
- Technical Support in Conducting Workshop

Mechanical Engineering Intern — Dec. 2022 – Jan. 2023
AJC Group of Companies — *Lahore, Pakistan*

- Fabrication, Maintenance, Quality Control, Project Planning

Projects

Deep Learning-Enhanced CFD Approach in Data Centers | *ANSYS, Python, Pytorch* — May 2024 – Present
Master's Thesis, NUST

- Developed a 3D model of a data center and server racks for airflow simulation.
- Conducted CFD simulations to generate a dataset for training.
- Trained models on the generated dataset to predict hotspot temperatures within the racks.
- Developed an application to estimate temperature based on given parameters.

Simulation of Fluid Flow in Porous Media | *COMSOL Multiphysics* — Dec. 2017 – Aug. 2018
Bachelor's Thesis, UET

- Developed a 2D model of filter paper (porous medium) used in Time Temperature Indicators.
- Simulated the wicking process under Darcy's Law in porous media.
- Analyzed the flow rate for different shapes and compositions of porous media.

Simulation of 2D Advection-Diffusion Equation Using MPI in Python | *Python, MPI*
Parallel Computing Workshop 2024, DenseFusion

- Developed a 2D model of filter paper (porous medium) used in Time Temperature Indicators.
- Simulated water flow through the porous media via the wicking process under Darcy's Law.
- Analyzed the flow rate for different shapes and compositions of porous media.

Technical Skills

Languages: Python, C/C++
Software's and Operating Systems: ANSYS, COMSOL Multiphysics, Slack, OpenFOAM, Linux
Developer Tools: Git, Docker, VS Code, Visual Studio, PyCharm
Libraries: Pandas, NumPy, Matplotlib, Pytorch, MPI for python, keras, Pytorch

Certifications

- **The Data Science Boot Camp 2021** Sept. 2022
  Machine Learning, Data Visualization, Statistical Analyses
- **Foundations of Project Management** Sept. 2022
  Project LifeCycle, Risk Management, Agile Methodology
- **How To Write and Publish a Scientific Paper** Feb. 2022
  Literature Review, Manuscript Preparation, Peer Review Process
- **IELTS** Overall Band: 6.5
  Academic IELTS.