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PhD Student, Dept. of Computational and Data Sciences, IISc Bangalore

EDUCATION AND SCHOLASTIC ACHIEVEMENTS

Program	Institution	% / CGPA	Years attended
PhD in Computational and Data Science	Indian Institute of Science, Bangalore	9.80	2022 - Ongoing
M. Tech in Thermal Engineering	Indian Institute of Technology, Madras	9.79	2020-22
B. Tech in Mechanical Engineering	College of Engineering, Trivandrum	8.44	2011-15
Class XII (Kerala HSE)	HMY HSS, Manjeri	96.21	2010-11
Class X (Kerala SSLC)	Little Flower EHSS, Nilambur	100	2008-09

- Secured All India Rank **565 (99.59 percentile)** out of 137826 in GATE 2020 conducted by IIT Delhi.

COURSEWORK AND SKILLS

Numerical Optimization	Numerical Linear Algebra	Environmental Data Analytics	Non-Linear Model in Climate Sciences	Environmental Fluid Dynamics
Incompressible Fluid Flow	Inverse Methods in Heat Transfer	Micro & Nanoscale Energy Transport	Numerical Methods in Thermal Engineering	Foundation of CFD
Tools and software	TensorFlow, Keras, Numpy, MATLAB, ANSYS Fluent, OpenFOAM, ParaView		**Languages**	Python, Fortran, C++

COURSE PROJECTS / TERM PAPER

- **Physics Informed Neural Networks(PINNs) model to simulate fluid flows, IISc May 2023**
  PINNs model was developed to simulate laminar flow in a channel. The results show agreement with the analytical and CFD solution of Navier-Stokes equation for laminar channel flow.
  The model was developed using TensorFlow and Keras.
- **Document Image Classification, IISc Dec 2022**
  Two ML models, Convolutional Neural Network (CNN) and Logistic Regression (perceptron), were developed to classify images to 16 different classes using a train and test set of labelled 16000 images.
  CNN model gave a test accuracy of 72.27 %, whereas the logistic regression model gave 84.20%
- **Numerical Solution for Lid Driven Cavity, IITM May 2021**
  Finite Difference Method (FDM) was used to solve benchmark lid-driven cavity problem and the accuracy of the method was validated using Ghia et al. data (1982).
  Analysed the contours of Pressure and Velocity, Streamlines for different Reynolds number.

- Term Paper: **Applications of Micro/Nano Fluidics in Energy Conversion**
- Term Paper: **Study On Lattice Boltzmann Method And High-Order Upwind Compact Finite-Difference LBM**

PROJECTS

M. Tech Project
(June '21 – May '22)
Guide:
Dr. Kameswararao Anupindi

- **A Three-Dimensional Simulation of Non-Newtonian Blood Flow Through Irregular Arteries Using Off-Lattice Boltzmann Method**
  - Developed off-lattice Boltzmann solver in three-dimensional cylindrical coordinates to simulate non-Newtonian blood flows under pulsatile conditions.
  - Derived expression for non-Newtonian source term using Chapman-Enskog (CE) expansion.
  - Validated the solver for shear thinning and thickening behaviour of blood using Power-law model.
  - A model irregular stenosis is constructed using cosine and sine function to investigate the effect of various geometric and flow parameters on the blood flow dynamics under pulsatile inflow condition.
  - Systematically investigated the effect of degree of surface irregularity of the stenosis and the shear-thinning effect of blood on the flow dynamics.

B. Tech Project
(Aug 2014 – April 2015)

- **Vibrational Analysis of Flow Through Pipes**
  - Determined the fundamental frequency of vibration of viscoelastic polyurethane pipe without mass, with added mass and with flow.
  - Validated the analytical data and results obtained using ANSYS fluid structure interaction simulation with that from the experimental data.

PROFESSIONAL EXPERIENCE

Bharat Petroleum Corporation Limited
Assistant Manager Operations
(June 2015 – March 2019)

- Created an internal control of day-to-day transactions, and punctually opened and closed business activities.
- Taught employees how to collaborate on daily tasks and achievement of service targets. Effective time management reduced working hours by 20% and thereby eliminating overtime.
- Coordinated with engineering and projects (E&P) team to revamp 6 bay tank lorry filling gantry (TLFG) to 8 bay without affecting retail operations, and while upgrading tank farm and gantry automation by LnT.
- Helped a team of 20 maintain business professionalism by coaching each on methods for delivering exceptional service to every customer.
- Accomplished objectives by undertaking department activities during the absence of the line manager.
- Handled different areas of work such as Maintenance, HSSE (Health, Safety, Security and Environment) and Planning & Supply.

CO-CURRICULAR & EXTRA-CURRICULAR ACTIVITIES

- Certification in 3-day Practical Fire Fighting training organized by Institute of Petroleum Safety, Health & Environment Management, ONGC, Goa from 18/01/2016 to 20/01/2016.
- Participated in a Glider Design and Fabrication Workshop organized by Aerotrix on 15/09/2012.
- Participated in the event 'Why Engineering?' at annual technical fest Drishti '12 of College of Engineering, Trivandrum.