DIVIJ GHOSE

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Bangalore, India

EDUCATION

College of Engineering, Pune *August 2015 - May 2019*
B.Tech in Mechanical Engineering CGPA: 9.29/10
(Honors in Thermal Engineering, Honors GPA: 9.25)
Prof. S.R. Kajale Memorial Medallist for **Best Outgoing Mechanical Student**

Thesis: **Numerical Pressure Prediction for Flow around a Stationary Circular Cylinder using Particle Image Velocimetry Data** (under Dr. C.M. Sewatkar)
Winner, The Forbes Marshall Award for **Most Outstanding Project**

Two approaches were implemented, for flow around a stationary circular cylinder (Re = 100), in Python: one by solving the Poisson equation with the appropriate boundary conditions and the other by calculating pressure gradients using Navier-Stokes' equation, followed by spatial integration. The result was validated by comparing the values of coefficients of drag and lift (obtained from post-processing) with published values.

Pre-Final Year Project: **Thermodynamic Analysis and Modelling of Closed Loop Two Phase Thermosyphon** (under Dr. C.M. Sewatkar)

EXPERIENCE

Indian Institute of Science *September 2020 – Present*
Research Assistant, QUEST and CMG Labs

Developing "Stochastic ParMooN for Analysis, Design Estimation (SPADE)", which aims to combine finite element modelling with rigorous uncertainty quantification (using the Dynamically Orthogonal (DO) field equations scheme) and optimal sensing strategies for monitoring condition, predicting failure modes, and optimizing design of energy and process infrastructure, focusing on nuclear power plants and manufacturing plants. Funded by the Government of India.

Bajaj Auto Ltd., Research and Development *July 2019 – September 2020*
Engineer, Powertrain Design Department

Design and analysis (CAE) engine components viz. crankshaft, connecting rod (fatigue FoS), cylinder block (bore distortion) and electric vehicle components viz. Motor Control Unit, Vehicle Control Unit, Unit Interface.

L&T, Electrical and Automation IC *May 2018 – July 2018*
Summer Intern, Modular Devices Unit

Kaizen based productivity improvement projects at Automation Shop, Ahmednagar Switchgear Works.

PUBLICATIONS

- **Ensemble forecast of COVID-19 in Karnataka for vulnerability assessment and policy interventions**
  Sashikumaar Ganesan, Deepak Subramani, Thivin Anandh, **Divij Ghose**, Giridhara R Babu
  Submitted to The Lancet Public Health

RELEVANT COURSEWORK

Fluid Dynamics & Thermal Engineering
Fluid Mechanics, Advanced Fluid Dynamics, Engineering Thermodynamics, Advanced Heat Transfer

Mathematics
Linear Algebra & Sequence and Series, Univariate Calculus, Ordinary Differential Equations and Multivariate Calculus, Vector Calculus & Partial Differential Equations

Computational Science & Programming
Finite Element Analysis, Computational Fluid Dynamics, Modelling of IC Engines, Object Oriented Programming (Java), Numerical Methods & Computer Programming (C++), Machine Learning for Mechanical Engineers (Python), Mechanical Measurement Automatic Control (MATLAB)

TECHNICAL SKILLS

Languages: C/C++, Python, MATLAB (Octave)

Tools: CMake, Paraview, Git, LaTeX, VSCode, PyCharm, Jupyter, OpenMP, ANSYS (Mechanical, Fluent, HPC), Altair HyperWorks Suite

PROFESSIONAL DEVELOPMENT

Summer Schools

- Gaussian Process Summer School, 13-16 September, 2021
- Qiskit Global Summer School, 12-23 July, 2021

Online Courses

- Machine Learning by Andrew Ng, Coursera
- The Finite Element Method for Problems in Physics by Krishna Garikipati, Coursera

EXTRA-CURRICULARS

Notable Achievements

- Winner, Sweden India Nobel Memorial Quiz, Pune (2016 and 2017)
- National Finalist & Runner-up, *Contention* 2017, Parliamentary Debate at BITS Goa
- Winner & Best Speaker, *Silhouettes* 2019, Debate at AFMC Pune
- Winner, *Speak for India* – Pune, 2018
- Winner, BCQC College Quizzer of the Year, 2016 and 2017
- Winner, Dr. P.G. Sahastrabuddhe Memorial Debate Competition, 2018

VOLUNTEERING

The Aprrentice Project *August 2018 – March 2020*
The Apprentice Project (TAP) is an NGO that works in low-income municipal schools across Pune, with the aim of retaining underprivileged students in school through extra-curriculars. As a volunteer teacher, I worked with a group of 40 high school students, teaching them basic electronics and working on projects like building an efficient Wind Turbine, Low-cost Fridge, FM Radio Transmitter, Class Noise-Meter and Obstacle Avoiding Robot.