Saikat Paul

https://projects.skill-lync.com/profiles/SAIKAT-PAUL-003

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Objective

Full-time Mechanical Engineering opportunities in CFD firm with special interest in analysis and simulation applications

Education

Masters certification program in CFD, SKILL-LYNC (July 2019 - Present)

B.Tech Mechanical Engineering, Icfai University, Tripura, GPA- 8.78/10 (June 2019)

Course Projects

Prandtl Meyer Shock Flow Problem using Converge CFD, Skill-Lync

Simulation and post-processing of shock wave over a flat plate using converge CFD

- Generated mesh using Adaptive Mesh Refinement, simulated a general 2D supersonic fluid flow over a flat plate
- Analyzed the velocity, pressure and temperature contours on shock location using Para view
- Studied the effect of **Sub Grid Scale (SGS)** parameter on cell count and mesh on shock location

Steady State Simulation over a Throttle Body using Converge CFD, Skill-Lync

Simulation and post-processing of a steady state air flow over a throttle body using **Converge CFD**

- Generated finer mesh near throttle valve using Embedded Grid System and simulated air flow over the body using pressure based steady solver
- Obtained velocity/pressure contours using Para view and studied variation of vector fields using glyph plots
- Studied the effect of Courant-Fried Richs Number on stability and convergence of solution

Building an Otto Cycle Simulator Using PYTHON, Skill-Lync

- Developed a code to obtain the PV diagram of an ideal Otto cycle
- PV diagram and efficiency of cycle with different values of compression ratios were obtained and studied

2R Robotic Arm Simulation Using PYTHON, Skill-Lync

- Developed code in python to solved position co-ordinates of links and animate a 2D Robot arm
- Industrial Application of Forward and Inverse kinematics

2D Heat Conduction Equation Simulation - Steady and Transient Forms using MATLAB, Skill-Lync

- Developed a 2D Heat Conduction Equation solver using **MATLAB**
- Implemented iterative techniques (Gauss-Seidal, Gauss-Jacobi, and Successive Over Relaxation techniques)
- Solved the steady state using implicit solver and transient state with both implicit and explicit solvers

Quasi 1D Supersonic Flow Simulation through a Convergent Divergent Nozzle using MATLAB, Skill-Lync

- Developed a solver in **MATLAB** to solve 1D governing equations in conservative and non-conservative form
- Implemented Explicit Finite Difference Technique to provide second order accuracy in both space and time
- Performed Grid Dependency Test to check stability and accuracy of solution

Internship

Intern Assistant, (T.R.T.C Tripura Road Transport Corporation) (April 2017 – July 2017)

- Performed Critical Speed Analysis on propeller shafts using **MATLAB**
- Developed code to study the effect of Critical Speed on length of a propeller shaft
- Analytical Solution for critical speed on a simply supported steel bar using Rayleigh's Equation

Other Projects

Design and Fabrication of Solar Water Pump for agricultural use, ICFAI University Tripura (Spring 2018)

- Designed a off grid solar based water pump for irrigation purpose using Solar Pump Characteristics Curve
- Prototype was built so as to reduce cost when compared to diesel based water pumps and is also environment friendly

Decomposition of Conductive Convective Fin Equation using Adomian method, ICFAI University, Tripura (Fall 2018)

- Mathematical formulation of steady 1D energy equation with insulated boundary conditions
- Employed **Adomian method** to solve non-linear heat transfer equation of a rectangular fin
- Obtained temperature profile curve of fin using **MATLAB**

Extra-curricular / Leadership Activities

- Took initiative to form the Robotics Club in ICFAI University Tripura
- Event organizer of ICARIA Annual Fest conducted at ICFAI University Tripura
- Striker- winger in school and college football team

Software Packages

- Computational Analysis: ANSYS, MATLAB, CONVERGE-CFD, OPENFOAM
- Statistical Data Analysis: MS-Excel, Python