TRISHAM BHARAT PATIL

3231 Bishop Street, Cincinnati, OH. tbpatil@wpi.edu, +1-908-331-6625. https://github.com/TrishamBP.
https://www.linkedin.com/in/trishampatil/

EDUCATION:

Worcester Polytechnic Institute (WPI). Worcester, MA.
Master of Science in Mechanical Engineering. . May 2021.
Cumulative GPA-3.64/4
Relevant Courses-Advanced Thermodynamics, CFD, Heat Transfer, Design of Thermal Systems, Finite Element Analysis, Fluid Dynamics.

University of Pune, Pune, India.
Bachelor of Science in Mechanical Engineering. May 2019.

PROJECT AND RESEARCH EXPERIENCE:

Personal Projects: Worcester Polytechnic Institute (WPI) Worcester, MA. 2019-2021.
- **3D Convection through an Electronic Box** (https://github.com/TrishamBP/CFD-3D-Convection-in-electronic-box): Designed an electronic box using SOLIDWORKS, developed a CFD model for convective heat transfer through an electronic box using ANSYS-Fluent, computed the maximum temperature of the electronics for specific airflow and compared it with the temperature rating for electronics in the box.
- **Fluid flow in exhaust manifold** (https://github.com/TrishamBP/CFD-Fluid-flow-in-exhaust-manifold): Developed a CFD model of 3D turbulent fluid flow and heat transfer in an exhaust manifold using ANSYS-Fluent, set up appropriate physics and boundary conditions and calculated the solution.
- **Fluid flow through Catalytic converter** (https://github.com/TrishamBP/CFD-Fluid-flow-in-a-catalytic_converter): Developed a CFD model for fluid through porous media in a catalytic converter, set up a porous zone for the substrate with appropriate resistances, calculated the solution for gas flow using pressure based solver and plotted pressure and velocity distribution on specified planes of the geometry using ANSYS-Fluent.
- **External Compressible Flow** (https://github.com/TrishamBP/CFD-Compressible-air-flow.): Developed a CFD model for compressible flow over an airplane wing using ANSYS-Fluent, set boundary conditions for external aerodynamics using k-ω SST turbulence model, calculated the solution using the pressure-based coupled solver with the pseudo transient option and plotted the distribution of velocity and stress over the wing.

Worcester Polytechnic Institute (WPI).(https://github.com/TrishamBP/FEA-Motorcycle-Fin-Analysis.git)
Project-Finite Element Analysis of Harley Iron 883 engine fins. Worcester, MA. Spring 2021.
- Conducted finite element modelling (in MATLAB) to analyse the temperature profile and heat distribution in the motorcycle engine fin using Galerkin Weighted residual method.
- Translated the actual problem to Finite Element Analysis (FEA) model, interpreted analysis results, and evaluated the heat distribution for various materials assignments and selected the best solution(material).

Worcester Polytechnic Institute (WPI).(https://github.com/TrishamBP/RFA-Adenocarcinoma.git)
Finite Element Analysis of Adenocarcinoma due to Heat Ablation (Research Assistant). Worcester, MA. Fall 2020.
- Conducted finite element modelling (in MATLAB) to determine the temperature profile due to heating of the tumour and compared the temperatures by analysing the 3-d tumour model(SOLIDWORKS) in ANSYS-Thermal.
- Formulated the relations between the size of the tumour and relevant histopathological feature's, generated the thermal model for various heating powers and revised the bio heat transfer equations for the specified temperature profile.

University of Pune. B.S Mechanical Engineering Thesis. https://www.irjet.net/archives/V6/i4/IRJET-V6I4974.pdf
Unmanned Aerial Surveillance Vehicle. Pune, India. May 2019.
- Devised the dimensions of the wings, fuselage, rudder, ailerons, and elevator, then drafted the model in Solidworks, analysed its performance in ANSYS-fluent and developed a CFD model for the UAV.
- Constructed prototypes using polypropylene sheets and tested its performance in a self-designed wind tunnel. Calculated the weight and the power required for the UAV, attached the avionics, and tested it in the field under various flying conditions.

Forbes Marshall India Pvt Limited. Pune,India.
Thermo-fluid Analysis Research and Development Intern. December 2017-March 2018.
- Investigated the design errors in the lever of the steam trap, resolved the errors, redesigned the lever model(in SOLIDWORKS), and developed a CFD model in ANSYS-Fluent to calculate fluid flow at outlet.
- Tested the resolved steam trap on a steam rig, calculated its discharge flow rates and compared it with the simulated results. Generated a new Bill of Material and supervised the manufacturing of new steam traps.

SKILLS:

- **Programming/Software-** CFD Modelling, FEA, SOLIDWORKS, ANSYS(Thermal, Fluent, Structural), Siemens NX, MATLAB, Python(NumPy, Pandas, scikit learn, matplotlib), Neural Networks, Data Visualization, Data Analysis..
- **Certifications-**SOLIDWORKS CSWA(Udemy), SOLIDWORKS CSWP(Udemy), Deep Learning and Neural Networks(Coursera)