

Dheeraj Anap

Thermal and CAE-CFD Simulation Engineer | Mechanical, Industrial Systems

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Experience: 5 Years 10 Months

+91- 8806085865

Mechanical CAE Engineer with **over 5 years** of experience in **mechanical, thermal analysis, CFD, and simulation-driven design across automotive, renewable energy, and industrial systems**. Specialized in **heat transfer, Fluid-Structure Interaction (FSI), and thermo-mechanical modeling** with proven success in **simulation-driven design optimization**. Proficient in Python-based automation and HPC workflows. Passionate about leveraging skills to drive innovation and efficiency in a dynamic, fast-paced environment.

ANSYS

FLUENT

StarCCM+

Solidworks

Python Scripting

Matlab

OOP Programming

Simulation Driven Design

Product Optimization

CERTIFICATION

- Applied Computational Fluid dynamics - Siemens
- McKinsey Forward Program

CORE COMPETENCIES

- Thermal & CFD Expertise:** Heat transfer, turbulent, multiphase flows, FSI analysis
- Simulation-Driven R&D:** Concept design, verification, and optimization
- Numerical Methods & Automation:** Python, Matlab, C++, Excel-VBA
- Multiphysics Tools:** ANSYS Fluent/CFX, Star-CCM+, FineMarine
- CAD & Design:** SolidWorks, SpaceClaim, Catia, Creo
- HPC & Linux Workflows:** Parallel computing, cluster-based CFD/FEA simulations
- Technical Communication:** Design reviews, stakeholder reporting, documentation

PROFESSIONAL EXPERIENCE

Freelance CAE-CFD Engineer | Renewable Energy Systems

Sept.2024 – Nov.2025

- Led **thermal and fluid simulation projects** for **industrial applications** i.e. **Pipe, Valve CFD** analysis, mechanical calculations, verification, validation and product optimization.
- Led CFD **optimization** of **hybrid wind-solar systems**, achieving 15% aerodynamic efficiency improvement.
- Developed simulation workflows, DOE for compressible and turbulent flow cases.
- Built techno-economic models for urban deployment strategies.

Mechanical CAE - CFD Engineer

Aug.2023 – Feb.2024

Stymer Technologies Private Limited

Pune, India

- Led **end-to-end project management, thermal and fluid simulations** for industrial systems, including HVAC, Fluid-Structure interactions and optimization.
- Collaborated** with **CAD and mechanical teams** to refine system architecture resulting into improved efficiency.
- Delivered technical reports and design reviews with **actionable recommendations**.

Mechanical Simulation Engineer (CFD/FEA)

Oct.2021 – Apr.2023

Decoen Tech

Remote, France

- Led **fluid-thermal and structural simulations** for compact **wind turbines and floating solar platforms** under dynamic fluid and thermal conditions.
- Automated meshing and post-processing using **Python, reducing workflow time by 20%**
- Supported co-engineering sessions to align subsystem performance with overall system goals.

Assistant Researcher

Apr.2021 – Aug.2021

Campus ESPRIT Industries

Redon, France

- Solar energy calculation to design the pressure tank for a **Hybrid-energy plant**, CAD Drawing.
- Analytical Calculations and Comparison using Mechanical FEA & 3D-CFD Analysis.
- Selection of Pump and PAT using characteristics curves.
- Generation of **Excel-VBA code** for **optimization** of the system. (**Increase in Efficiency = +15%**).
- Prediction of the annual energy and comparison of other existing systems.

Mechanical Design Analyst

Feb.2015 – Jul.2018

A-Square Innovative, Research and Training

Pune, India

- CFD and FEA simulations on **pressure vessels, brake systems, and industrial components**.
- Executed Six Sigma-based optimization and validated simulation results against benchmarks.
- **Mentored junior engineers** and interns, improving team efficiency.

PROJECTS HIGHLIGHTS

- **CFD Optimization of Automotive Pipe/Valve System:** Achieved **10-15%** flow efficiency improvements.
- **Wind Turbine CFD Analysis:** Achieved **12% increase in power** using simulation-based optimization and overall efficiency through design refinement.
- **Mixing Tank Thermal Simulation:** Enhanced heat transfer performance by **15%** through VOF modeling.
- **Centrifugal Pump CFD Analysis:** Increased system efficiency by **17%** via simulation-based refinement and transient simulation.

EDUCATION

Masters (MSc) in Mechanical Engineering - Computational Mechanics

Ecole Centrale de Nantes

Nantes, France

Bachelors (BE) in Mechanical Engineering

Savitribai Phule Pune University

Pune, India

ADDITIONAL INFORMATION

Languages **Marathi, Hindi, English (Native), French (B1), German (A2)**