Kanav Tayal

Department of Mechanical Engineering
Punjab Engineering College, Chandigarh
kanavtayal99@gmail.com +916239004561
https://www.linkedin.com/in/kanavtayal/

ACADEMIC QUALIFICATIONS

Year	Degree/Certificate	Institute	CPI/%
2023-2027	B.Tech Mechanical Engineering	Punjab Engineering College	8.2/10
2022-2023	High School Diploma	DAV Public School	89.2%

WORK EXPERIENCE

- **Indian Institute of Technology, Roorkee** (*Roorkee, India*)
  Computational Fluid Dynamics (*Dec. 2024 - Jan. 2025*)
  CFD and Two-Phase Flow Analysis: CFD and Two-phase flow analysis| **Programming &Testing:** Open Foam & Basilisk.

ACADEMIC PROJECTS

- **Research Paper**:
  1. **Bubble Tracking in Confined Channels: Velocity Analysis in Hele-Shaw Cells** (*August'24 - Present*)
     - Invested 100+ hours analyzing fluid dynamics using Open-CV and Image J, achieving an 95% accuracy in velocity calculations.
     - Focused on improving velocity stability during langragian approach
     - **Technologies used:** OpenCV, Python, Matplotlib, NumPy
     - **Publications:** International Conference on Design and Manufacturing Technologies (ICDMT 2024), PEC Chandigarh.
  2. **Optimization of Machining Condition for Effective Turning of EN31 Alloy Steel** (*August'24 – March'25*)
     - Executed 81 experiments using Taguchi L27 orthogonal array design to analyze machining parameters (speed, feed, depth of cut) influencing surface finish.
     - Developed mathematical models via regression analysis achieving high predictive accuracy ($R^2 > 0.97$) for surface roughness (Ra) under dry and wet conditions.
     - Focused on identifying optimal parameter combinations (A3B1C1 recommended) for improved surface finish during turning operations.
     - **Technologies used:** Taguchi Method, ANOVA, Mathematical Modeling, Surface Roughness Measurement (TSK SURFCOM-130A)
     - **Publications:** Presented at XXI National Conference on Emerging Technology Trends in Engineering & Project Competition (SPARK-2025), K.D.K. College of Engineering, Nagpur (March 2025)
- **Term Projects & Reports:**
  1. **Team Prometheus, PEC** (***Team Project***)
     - Directed a team of 15 members to design and fabricate a human-powered rover for NASA's Human Exploration Rover Challenge (HERC).
     - Achieved a 15% reduction in vehicle weight through structural optimization without compromising safety
     - Conducted 50+ simulation tests using ANSYS and MATLAB to enhance vehicle performance.
  2. **eBAJA Team RPM** (***Team Project***)
     - Worked on CAD modeling, suspension tuning, and drivetrain integration while ensuring compliance with SAE eBAJA regulations.
     - Designed and built an energy-efficient electric ATV, optimizing powertrain, battery management, and structure
     - Collaborated with a multidisciplinary team to optimize performance through testing and iterative improvements.
  3. **EMI Power Transmitter** (***Self Project***)
     - Developed an EMI transmitter powered by two car batteries to wirelessly light multiple appliances, similar to a Tesla coil.
     - Designed a system minimizing power loss and eliminating electric discharge using a multi-coil network
     - Demonstrated potential for large-scale implementation to power entire communities wirelessly

CERTIFICATIONS

- **CFI Corporate Finance Foundations Professional Certificate** – LinkedIn Learning (*May''24 - Jul'24*)

SKILLS

- **Area of Interest:** Flud Mechanics | Flow Analysis | Thermal Design |
- **CAD, Simulation and Analysis:** Ansys | SolidWorks | Open Foam | Basilisk | Fusion | ImageJ |
- **Languages:** Python |
- **Data Analysis:** Microsoft Office (Excel, Word, PowerPoint) | PowerBI

POSITIONS OF RESPONSIBILITY

- **Member:** (*Oct. 2024 – Present*)
  - Student Alumni Relations Committee.
  - Society of Automotive Engineers (Powertrain and Chassis Design)
  - PECFEST Committee (Event Coordination)
  - Hostel Executive Committee (Maintenance Secretory