Arham Aqeel

Trichy, India

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Profile

Mechanical engineering undergraduate with hands-on experience in CAD/CAE, experimental research, and vehicle systems. Skilled in FEA/CFD-driven design, rapid prototyping, and data analysis. Strong team player with leadership experience in national-level motorsport projects and interdisciplinary research.

Education

- **National Institute of Technology, Tiruchirappalli (NIT-T)** 2022 – Present
  B.Tech, Mechanical Engineering

Technical Skills

- **CAD/CAM**: PTC Creo, SolidWorks, Fusion 360
- **CAE**: ANSYS, Abaqus
- **Programming**: Python, Matlab, Arduino, HTML/CSS
- **Data Analysis & Visualization**: SQL, Power BI, MATLAB
- **Manufacturing**: CNC Machining, 3D Printing

Professional Experience

- **Summer Research Intern, FE2B Lab – IIT Delhi** May – Jul 2025
  - Post-processed PIV data to extract velocity and vorticity fields.
  - Modeled experimental setups in SolidWorks; assisted laser cutting and 3D printing.
  - Developed sensor calibration protocols and real-time data collection systems.
  - Applied regression and clustering techniques for data analysis.
- **Research Intern, Interdisciplinary Research Group – IIT Delhi** May – Jul 2025
  - Designed and fabricated cutting-edge sensors for indoor air quality monitoring.
  - Implemented real-time tracking of CO2 levels, temperature, and relative humidity.
  - Optimized vent functionality and conducted diverse experimental setups to validate sensor performance.
  - Applied robust data analysis methods to interpret results and identify key trends.

Projects

- **2WD Electric BAJA (EBAJA) Team** Mar 2024 – Jan 2025
  - Designed wheel hub, brake, and accelerator components using **Autodesk Fusion 360** and **generative design** principles.
  - Performed **FEA** and static structural analysis using **ANSYS** and **Solidworks** to optimize designs.
  - Led the reverse engineering of the accelerator pedal and facilitated the fabrication of new components.
  - Handled the entire brake system, from design to implementation.
- **Brake System Optimization** Aug 2023 – Jan 2024
  - Redesigned the rotor geometry to enhance heat dissipation by **40%**.
  - Increased fatigue life by **5000 cycles** through FEA-driven redesign.
  - Conducted a thermal analysis to simulate brake pad temperature under extreme loads.
- **4WD BAJA All-Terrain Vehicle** Aug 2023 – Jan 2024
  - Designed structural components (pedals, caliper adapters, engine mounts, wheel hubs) for a 4WD vehicle using **PTC Creo**.
  - Performed **static structural analysis and topology optimization** using **ANSYS** to enhance component strength.
  - Secured **2nd place** nationally in the BAJA SAEINDIA 2024 preliminaries.
- **Sustainable Oil Spill Remediation** Mar 2023 – Aug 2023
  - Engineered biodegradable hair mats for oil spill absorption, achieving **98% oil retention**.
  - Designed for industrial scalability and presented a cost-effective, eco-friendly solution.

Leadership & Activities

- **PSI Racing Club – Brakes Engineer**: Led design of ATV brake systems, organized workshops.
- **TEDxNITTrichy – Ideation Liaison**: Developed content strategies, speaker engagement.
- **NIT-T SAEINDIA – Executive Member**: Organized technical events and representation.
- **Festember & SYNERGY – Event Manager**: Managed AV setups, ran CAD workshops.

Achievements

- **AIR-2** (Phase-1) in BAJA SAEINDIA 2024.
- **Honor Award** in Class XI and school Science Exhibition Winner.