Ahmed Faraz

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Education

University of Illinois at Urbana-Champaign   *Expected May 2027*
B.S. in Mechanical Engineering, Minor in Computer Science

Skills

Software: SolidWorks, CATIA V5, Creo, Fusion 360, Siemens NX, ANSYS, MATLAB, Java
Hardware: 3D Printing (SLA, PLA, ABS), CNC Machining, Laser/Plasma Cutting, Soldering
Languages: English, Hindi, Urdu, French

Experience

Mechanical Design Intern   *Dubai, UAE*
NAFFCO Group   *June 2025 – August 2025*

- Modeled **10** pump components in SolidWorks and produced **12+** GD&T drawings, enhancing manufacturing precision and quality control.
- Conducted modal analysis using ANSYS on pump impellers, evaluating **12** vibration modes, mitigating resonance and reducing fatigue risk by an estimated **15-20%**.
- Developed a Python tool to optimize impeller blade geometry, achieving pressure rise improvements up to **7** kPa and estimating pump efficiency near **75%**.

Mechanical Engineering Intern   *Dubai, UAE*
Keolis Mitsubishi Heavy Industries   *June 2023 – August 2023*

- Shadowed engineers in the Engineering & Maintenance (E&M) department, gaining hands-on experience with metro systems, brake mechanics, and preventive maintenance processes.
- Led and coordinated a cross-functional team of 8 during depot maintenance projects, ensuring timely execution and compliance with quality standards.
- Supervised real-time operations in the Operational Control Centre (OCC), contributing to the seamless functioning of the Dubai Metro and Tram network.
- Delivered a comprehensive internship summary presentation to the board and HR, showcasing outcomes while strengthening professional communication and stakeholder engagement.

Projects

3D First Person View (FPV) Drone   *January 2025 – May 2025*

- Designed quadrotor X-frame in Fusion 360, reducing frame mass to 594 g and achieving a 6.73:1 thrust-to-weight ratio.
- Conducted topology optimization and FEA in Altair Inspire, limiting max deflection to 0.64 mm and cutting material usage by 15%.
- Applied DFMA principles and FDM 3D printing with PLA, eliminating fasteners and reducing assembly time by 30%.
- Performed precision soldering and integrated PDB, ESCs, sensors, and FPV systems, reducing in-field electrical faults by 25%.

Illini VEX Robotics   *January 2025 – Present*

- Conceptualized and modeled full robot subsystems (drive train, intake, lift) in Fusion 360, producing detailed CAD assemblies and manufacturing drawings.
- Fabricated custom components via 3D printing, laser cutting, and manual metalworking, ensuring design integrity and functionality.
- Collaborated with software and electrical teams to integrate sensors, motors, and wiring harnesses, streamlining assembly and minimizing failures.