FAYAZ ALI MIR

Milwaukee, WI | (773) 639-4961 | fayazalimir01@gmail.com | linkedin.com/in/fayazalimir/ | https://www.fayazalimir.com/home

PROFILE

Mechanical Engineer specializing in the automation of complex chemical and mechatronic systems, with expertise spanning process development, electro-mechanical design, and hands-on prototyping. Proven ability to own the full development lifecycle—from initial CAD simulation and FEA to building integrated IoT prototypes and training production teams—delivering quantifiable gains in efficiency and reliability. A cross-functional leader adept at bridging R&D innovation with manufacturing execution.

EDUCATION

Master of Science - Major in Autonomous Systems and Robotics Aug 2022 - Aug 2024
Illinois Institute of Technology Chicago, IL

Bachelor of Science - Major in Mechanical Engineering Minor in Business Aug 2021 - Aug 2024
Illinois Institute of Technology Chicago, IL

TECHNICAL SKILLS

R&D & Engineering Excellence - Process Development & Scale-up | Laboratory Automation & Systems Integration | Technology Transfer (IQ/OQ/PQ) & Validation | Design for Manufacturability (DFM) | Root Cause Analysis & Mistake-Proofing | Cost & Efficiency Optimization

Technical & Analytical Expertise - SolidWorks, CREO, AutoCAD, Mastercam, 3D Parametric & Surface Design, GD&T, 2D Drawing Generation, Finite Element Analysis (FEA), Motion Control, Mechanical Stress Analysis, Rapid Prototyping (FDM, Resin 3D Printing), Embedded Systems (Arduino, Raspberry Pi), Electro-Mechanical System Integration

Collaboration: Cross-Functional Team Leadership | Full Project Lifecycle Management (R&D to Production) |Technical Reporting & Documentation

PROFESSIONAL EXPERIENCE

Research and Development Engineer June 2025 – Current
MilliporeSigma Milwaukee, WI

- Led process development and scale-up for a new semi-automated production line, transitioning 5+ products from manual to automated workflows. Drove the project from R&D through customer validation to successful technology transfer, reducing cost of goods sold (COGS) by ~70% and manufacturing lead time by 50%.
- Engineered and validated robust processes utilizing integrated lab automation (different liquid handlers), analytical instrumentation, and glovebox systems, ensuring product quality and reproducibility for sensitive chemical synthesis.
- Owned the automation roadmap; designed and prototyped a secondary packaging system using CAD (SolidWorks) and rapid prototyping (3D Printing), integrating IoT components (Raspberry Pi, camera). The solution is projected to save $30k annually and increase operational efficiency by 50% (4 hours/shift walk-away time).
- Ensured knowledge transfer and continuous operation by developing SOPs and training production personnel, enabling a seamless hand-off and sustaining productivity gains on the new line.

Mechanical Engineer May 2022 – Dec 2022
Hydro, Inc Chicago, IL

- Authored comprehensive design reports, technical equivalency evaluations, and manufacturing plans, ensuring clarity and alignment across stakeholders
- Redesigned critical pump components to enhance performance and reliability while adhering to project specifications.
- Used tools like AutoCAD, CREO, SolidWorks, and MATLAB to create detailed 3D models and perform simulations (e.g., thermal, friction, and mechanical stress analysis) to validate designs.
- Collaborated with cross-functional teams on procurement processes and ensured compliance with ASME Code requirements, supporting seamless integration into manufacturing workflows.
- Redesigned critical pump components, improving performance and reliability while ensuring adherence to project specifications.

Mechatronics Engineer Jan 2024 - May 2024
Illinois Institute of Technology Chicago, IL

- Designed and fabricated automated cricket ball launcher using electro-mechanical systems, performing root cause analysis and troubleshooting to enhance system performance and reliability.
- Built a portable, cost-effective automation system incorporating DC Motors, Arduino UNO, and Wi-Fi firmware for remote operation.
- Led a technical team to design 15+ CAD parts using CAD tools in SolidWorks and CREO, fabricating the mechatronics system using 3D printing, ensuring structural integrity.
- Coordinated system testing, design reviews and collaborated with technical teams to optimize design for better performance.

Mechanical Design Engineer Jan 2024 - Jul 2024
Illinois Institute of Technology Chicago, IL

- Generated 3D parametric design for 10 components (e.g., bracket, hex wrench, fidget spinner) using Solid Curve and Surface Geometry, ensuring accuracy and functionality for production and proofing.
- Authored design reports, technical evaluations, and manufacturing plans to ensure alignment across stakeholders.
- Developed detailed 2D drawings with GD&T to ensure precision alignment with 3D models and manufacturing standards adhering to method and procedure.
- Executed FEA on mechanical assemblies to validate structural performance and optimize design for robust, reliable production.
- Led cross-functional teams in procurement processes, ensuring compliance with ASME Code and smooth integration into manufacturing workflows.

LEADERSHIP

Student Orientation Leader May 2023 – May 2024
Illinois Institute of Technology Chicago, IL

- Presented over 20 orientation sessions using PowerPoint, providing a smooth and welcoming transition for more than 250 incoming students per session from diverse backgrounds across the U.S. and internationally. Tracked database of the count of students to develop the environment of orientations.