

Faisal Yusuf Ughratdar

Chicago, IL | (773) 302-7789 | faisalyusuf@gmail.com
linkedin.com/in/mechengineerfaisal | faisalyusuf7.github.io/faisal-engineering-portfolio

EDUCATION

University of Illinois Chicago

Bachelor of Science in Mechanical Engineering

- Dean's List recipient

Chicago, IL

May 2026

TECHNICAL SKILLS

Mechanical Design & Simulation: SolidWorks, AutoCAD, Revit, ANSYS Mechanical/Fluent, GD&T, DFM, BOMs

Robotics & Controls: ROS 2, URDF/RViz2, Arduino, Raspberry Pi, CNC Shield, stepper motor control, sensors

Programming & Data: Python, MATLAB, C++, PyTorch, scikit-learn, Random Forest, CNN/ResNet18, Excel

Thermal & Manufacturing: HVAC load calculations, heat transfer, CTS/RTS methods, CNC machining, FDM 3D printing

ENGINEERING PROJECTS

Pentagon Robot – Five-Bar Pick-and-Place Automation

August 2025 – May 2026

- Designed and fabricated a low-cost parallel robotic system to transfer ping-pong balls between matrix locations, targeting cycle times of ≤ 10 seconds and ± 0.5 mm placement accuracy within a \$350 prototype budget.
- Modeled the full assembly in SolidWorks and exported a URDF into ROS 2/RViz2 to validate workspace reachability, singularity avoidance, and link-interference clearance before hardware deployment.
- Built a hybrid architecture using Raspberry Pi 4 for inverse kinematics and trajectory planning with Arduino UNO/CNC Shield for NEMA 17 stepper control, suction actuation, and pressure-sensor pickup feedback.

Microscopy Image Classification Using Machine Learning

Spring 2026

- Developed a Python image-classification workflow for 2,079 COMI BPAEC microscopy images across actin, mitochondria, and nucleus classes using group-based train/validation/test splits to reduce data leakage.
- Compared Random Forest + PCA, a custom CNN, and ResNet18 transfer learning; achieved 95.96% test accuracy and 95.93% macro F1 with Random Forest + PCA on a 297-image held-out test set.

Residential HVAC Heating and Cooling Load Analysis

Spring 2026

- Built an Excel-based HVAC load model for a 1,000 ft² Chicago residence, calculating envelope U-values, effective leakage area infiltration, solar radiation, sol-air temperature, and CTS/RTS cooling response.
- Calculated a peak heating load of 23,148 Btu/h and peak total cooling load of 14,993 Btu/h at 14:00, equivalent to 1.25 tons of cooling capacity.

PROFESSIONAL EXPERIENCE

Computer Specialist

January 2023 – May 2026

University of Illinois Chicago, College of Nursing

Chicago, IL

- Deployed and configured 200+ laptops and desktops using Microsoft Intune, enforcing security baselines, software policies, and device compliance for faculty and staff.
- Resolved Tier 1 and Tier 2 support requests for 100+ users across networking, VPN, software, printer, and classroom AV issues while maintaining a 95% on-time resolution rate.
- Managed imaging, patching, software updates, and hardware refresh workflows to improve device readiness and reduce recurring critical failures by 20%.

LEADERSHIP & ACTIVITIES

Student Ambassador (Volunteer) – UIC Engineering Outreach

Fall 2024

- Led hands-on engineering demonstrations for 500+ prospective students and families while coordinating event logistics and volunteer support.