Muhammad Ayan

ayammad28@gmail.com | 650-690-1579 | Dallas, TX | linkedin.com/in/-muhammadayan-

Seeking internship or co-op opportunities in aerospace, robotics, and autonomous systems, leveraging experience in machine learning, computational modeling, and mechanical design.

EDUCATION

Texas A&M University **May 2028**

Bachelor of Science in Mechanical Engineering, GPA: **3.85/4.00**

Coursework: Statics, Mechanical Design and Manufacturing, Mechanics of Materials, Physics I & II, Computational Design (CAD), Programming (Python), Circuit Analysis

SKILLS

SolidWorks, FEA, Rapid Prototyping, 3D Printing, Python, TensorFlow/Keras, ROS 2, Gazebo, A* Path Planning, OpenCV, Arduino, CNNs, LSTMs, Regression, Time-Series Forecasting, Deep Learning, GitHub, Excel, Multisim, Microsoft Office, English, Urdu, Hindi

EXPERIENCE

The University of Texas at Dallas - Flow Turbulence and Dynamics Lab **June 2026 - Present**

Under Dr. Kianoosh Yousefi, Richardson, TX

Visiting Researcher - Part-time *Aug 2026 - Present*

- Retained following a summer internship to continue part-time research on machine learning for wave-airflow interactions.
- Developing and evaluating 1D-to-2D CNNs and regression models to reconstruct airflow velocity fields from wave-elevation profiles using experimental particle image velocimetry (PIV) measurements.
- Investigating mean, wave-coherent, and turbulent velocity components to assess how wave geometry relates to instantaneous airflow.

Visiting Researcher - Summer Intern *June 2026 - Aug 2026*

- Developed LSTM-based deep learning models to predict air-sea interaction dynamics from turbulent flow time-series data.
- Researched and integrated Dynamic Mode Decomposition (DMD) filtering, improving median R^2 from **0.66 to 0.81 (+22.7%)** and mean R^2 from **0.44 to 0.64 (+45.5%)** compared with baseline MSE models.
- Processed large time-series flow datasets to train sequence models, bridging fluid dynamics theory with applied machine learning and autonomous sensing applications.

Texas A&M Vertical Flight Society - eVAIR (eVTOL Autonomy and AI Research) **Sept 2026 - Present**

Path Planning Team Member, College Station, TX

- Developing A* path planning algorithm for autonomous eVTOL navigation using ROS 2 and Gazebo.
- Building simulation environments and testing navigation pipelines to evaluate autonomous flight performance.
- Supporting integration of path planning with sensor fusion and onboard hardware for autonomous eVTOL flight.

Noor Marketing - Founder **May 2025 - Present**

Dallas, TX

- Led the design and optimization of social media campaigns for local small businesses, generating **20M+** views to date and increasing overall reach by **227%** for one client.
- Applied engineering and data analysis principles to test content performance, using Meta Business Suite to monitor retention metrics and iteratively optimize strategy.
- Managed end-to-end client relationships, ensuring satisfaction with services.

PROJECTS

I-Beam Structural Analysis, Team Lead *(View Report)* - ***Class Project***

- Led a **four-person** team in the design, structural analysis, and experimental testing of I-beams with varying geometries.
- Built and validated SolidWorks FEA models through mesh-convergence analysis, achieving **4.24%** von Mises stress convergence at a **5.5 mm** mesh.
- Quantified geometric and loading effects, identifying up to **28.7%** higher maximum von Mises stress and **18.3%** greater deflection versus a baseline beam.
- 3D-printed the designed prototype and experimentally validated analytical and computational predictions.

Robotic Finger - Personal Project

- Designed and 3D-printed a **three-jointed** robotic finger using SolidWorks, including custom mechanical components.
- Integrated Arduino-controlled servo motors to actuate finger joints and reproduce human finger motion.
- Developed an OpenCV pipeline to track human finger position and translate detected motion into real-time actuator commands.

LEADERSHIP / ACTIVITIES

TAMU FATE (Freshmen Mentor), TAMU ASME, Aggie Data Science, TAMU Intramural Soccer