

Yahya Mirza

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EDUCATION

University of California, San Diego (Junior)

Bachelor of Science in Mechanical Engineering

Coursework: Fluid Mechanics, Thermodynamics, Solid Mechanics, Linear Circuits, Machining, MATLAB

La Jolla, CA

Sep. 2025 – June 2027

Foothill College

Mechanical Engineering for Transfer (GPA: 4.0)

Coursework: SOLIDWORKS, Linear Algebra, Differential Equations, Vector Calculus

Los Altos Hills, CA

Sep. 2024 – Aug 2025

SKILLS

SOLIDWORKS · GD&T · OnShape · Fusion 360 · Arduino · ESP32 · Raspberry Pi · C++ · MATLAB · FEA Analysis · Machining
Git · VS Code · CNC Milling · Lathe · Risk Reduction · Technical Writing · AutoCAD · DFM/DFA

EXPERIENCE

Robotics Engineer – Yonder Dynamics (Competition Mars Rover Team)

Sep. 2025 – Present

University of California, San Diego

La Jolla, CA

- Leading an end-to-end production and design of a chain and sprocket driven linear slider mechanism with the goal of precisely translating a 5-axis robotic arm of 30lbs.
- Completed a comprehensive CAD model of the slider in OnShape, implementing DFM and DFA procedures to ensure fabrication is possible, cheap, and easy given 3D Printing, CNC Milling, and metal laser cutting.
- Conducted worst-case statics analyses (with a 25x FOS) verifying that the system driven by a NEO550 brushless motor interfaced with a 50:1 gear reduction Harmonic Drive can reliably move the arm carrying a 5kg payload at an angle of 60 degrees from the horizontal.
- Collaborating with electronics and chassis subteams to ensure easy integration across systems.

Mechanical Design Intern – Nanotech @ Berkeley Laboratory

Jun. 2025 – Oct 2025

University of California, Berkeley

Berkeley, California

- Designed, modified, and fabricated 15+ parts for arm, shoulder, and ankle modules for an EEG controlled exoskeleton, significantly accelerating the development of the project.
- Prototyped and fabricated (3D Printing) a stepper motor driven assist for lateral shoulder movement in SOLIDWORKS, mitigating fluctuations in EEG neural stimulation by 20%
- Developed and integrated circuitry for 4 Nema 17 stepper motors onto an Arduino Nano utilizing C++ that allow for independent motor control.

Project Co-lead – FireFlight RC Plane

Sep. 2024 – Sep. 2025

Foothill College Engineering Club

Los Altos Hills, CA

- Co-Led the design and development of an RC plane that utilizes aerial sensing data for machine learning models focused on wildfire prediction and evacuation route optimization.
- Designed and refined the tail assembly and elevon control surfaces in SolidWorks and Onshape; optimized aerodynamic stability through iterative prototyping, 3D printing, and testing, decreasing the drag coefficient by over 17% and increasing lift by 30%
- Directed a 10+ member team across airframe, electronics, and control systems; organized weekly meetings and increased member participation by 3x.
- Presented the project at the 2025 Bay Area Honors Research Symposium (UC Berkeley) and spoke at Foothill's RSL Symposium, where the team earned first place among 162 groups.

PROJECTS

Competition Soccer Robot | Fusion 360, Statics, Machining, Circuitry

Oct 2025 – Dec 2025

- Successfully built a competition robot designed to sweep and score 4" dia. soccer balls into opponent's goal. Developed a two-stage, belt-driven flywheel kicker mechanism (1:9 gear reduction) resulting in an average kicking distance of 70% of the span of the field, rapidly iterating via risk reduction procedures.
- Developed a comprehensive CAD model in Fusion 360, notably designing the robot's swiping arm subassembly
- Validated the arm module with a 6x FOS via statics analyses and experimental verification, authoring a technical paper documenting results.
- Authored a technical presentation demonstrating the functions of the robot and detailing risk reduction and analysis procedures, receiving a nomination for best technical presentation out of 34 teams.
- Awarded for "Best Manufacturing"; chosen by top engineering professors and competition judges.

Automatic Plant Watering Machine | SOLIDWORKS, Arduino, C++

June – Aug 2025; Nov 2025 – Present

- Building a mechanical system that can tip a watering can into a potted plant when necessary
- Successfully designed a wheel and pivot mechanism that can tilt an empty watering can 40 degrees
- Determining an algorithm to pour water on the plant only when it needs to be watered via sensory data such as humidity, temperature, soil moisture, and a water level.