

# Yahya Mirza

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## EDUCATION

### University of California, San Diego (Junior)

La Jolla, CA

Bachelor of Science in Mechanical Engineering

Sep. 2025 – June 2027

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

### Foothill College

Los Altos Hills, CA

Mechanical Engineering for Transfer (GPA: 4.0)

Sep. 2024 – Aug 2025

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

## 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 · Soldering · Crimping

## 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 RSLS 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.