Dianna E. Ochoa Lynch

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https://dianocly.github.io/Dianna-Ochoa-Lynch-portfolio/

Technical Skills: *(Details in portfolio REFERENCE QR)*

- **Mechanical Design:** mechanisms, tendon routing, design for assembly/serviceability
- **Computer-Aided Design:** Inventor Professional | Fusion 360 | Onshape | SolidWorks
  - Complex parametric modeling, Finite Element Analysis, Generative Design Software
- **Computer-Aided and Manual Manufacturing:** CNC mill/lathe (manual + CAM workflows), fixturing, metrology (calipers/mics), tolerance selection & fits, 3D printing

Education

Massachusetts Institute of Technology (MIT) | Cambridge, MA *August 2024 - Expected May 2028*

Candidate for B.S. in Mechanical Engineering and Materials Engineering | ***GPA** 5.0/5.0*

Current Coursework: Mechanics and Materials, Thermo Fluids Engineering, Dynamics and Controls, Differential Equations, Numerical Computation for Mechanical Engineers

Activities: Undergraduate Research - Distributed Robotics Laboratory, Global Teaching Laboratories, MIT Women's Ultimate Frisbee (Social Captain), Society of Women Engineers

Experience

Undergraduate Robotics Researcher - Mechanical & Manufacturing Engineering *September 2024–Present*

Distributed Robotics Laboratory, CSAIL, MIT – Cambridge, MA

- Lead development, fabrication, and testing of a highly anthropomorphic tendon-driven soft robotic hand, from mechanical architecture through assembly and evaluation.
- Collaborating with a graduate student to design and prototype a novel tendon-driven linkage and force-feedback mechanisms to enhance dexterity while reducing mechanical complexity and part count
- Leading the design of a novel multi-stage capstan gearbox to create a high precision, low backlash, low friction drivetrain.
- Serve as the project's primary manufacturing engineer: responsible for creating detailed part drawings, selecting materials and tolerances to prepare parts for fabrication via in-house machining and 3D printing or external shops.
- Run and oversee fabrication workflows (tool selection, basic fixturing, print/setup parameters), inspect critical dimensions, and iterate designs based on fit, friction, and assembly issues.

Makerspace Lead & STEM Instructor *January 2026 – February 2026 (Scheduled)*

MIT Global Teaching Labs – Spain

- Selected by MIT's Global Teaching Labs to lead a school makerspace and deliver project-based STEM instruction in Spain.
- Responsible for designing curriculum and teaching hands-on modules in mechanical design, rapid prototyping, and basic robotics, emphasizing safe tool use and iterative design to rural high school students.
- Organize and maintain fabrication tools (e.g., 3D printers, hand tools, basic machines) and support students in taking designs from sketches through CAD to physical prototypes.

Mechatronics Engineer – Lead Designer/Lead Systems Engineer *August 2021–May 2024*

FIRST Robotics Competition Team 3494 & FIRST Tech Challenge Team 11329 – Bloomington, IN

- Lead designer and team captain for two competitive robotics teams (see portfolio)
- Designed six robots over three years, competing worldwide and ranking among the top 10 in the world twice.
- Led design of a robot which won the Industrial Design Award sponsored by General Motors at the 2024 world championships
- Responsible for robot design under strict constraints and managing their fabrication, assembly, and programming

MIT Introduction to Technology, Engineering, and Science (MITES) Scholar *June 2023–December 2023*

MITES Semester 2023, MIT Summer program (virtual)

- Designed and modeled soft robot arm augmentation to enhance firefighter strength using Inventor 2023 and Matlab

Lead Designer and Intern *February 2021–May 2021*

Covenantor Neighborhood Association Bike Repair Station, Bloomington, IN

- Designed a bicycle repair station; awarded first place in a civil engineering design competition judged by the project manager and city officials; responsible for project management, cooperating with local government, and fundraising.

Awards

- **2024 FIRST Robotics Competition World Championship — Industrial Design Award (sponsored by General Motors)**
  - Selected as one of eight World Championship winners for a robot whose design demonstrated innovative and industrial design principles—strong aesthetics, usability, and performance-driven engineering integration
- **2023 FIRST Robotics Competition Dean's List Finalist**
  - Selected as one of two Indiana students to represent and be recognized at the World Championships