DRISH SHAH

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Available full time for Summer 2027

EDUCATION

Purdue University, West Lafayette Expected December 2028
B.S. Robotics Engineering Technology *GPA 3.91 / 4.00, Dean's List*

- Coursework: Statics, Dynamics, Machine Design, CAM and CNC Machining, Instrumentation and Data Acquisition, Industrial Controls

EXPERIENCE

Mechanical Engineering Intern, Robotics May 2026 to Present
Vibe Robotics, humanoid robotics startup *West Lafayette, IN*

- Design grippers and end effectors for the Vibe 01 home humanoid, plus hardware across the drive system, chassis, and actuation, from CAD to printed prototype to assembly on the robot; wire and integrate actuator motors.
- Developed a laundry gripper for an October 2026 hotel pilot that manipulates laundry effectively, tuning TPU finger geometry and compliance with fingers tapered palm to tip, relief windows that shrink toward the tip, and grip features printed into the finger surface.
- Starting work on CNC machined parts for the Vibe 01 humanoid.
- Iterated through design reviews with the electrical and software teams; benchmarked leading home robot hands.

Undergraduate Researcher August 2025 to Present
TRACE Lab, Prof. Yan Gu *West Lafayette, IN*

- Designed the rail grasping gripper for Agility Robotics' Digit on the Bus, a land based stand in for shipboard motion, so Digit holds on through 600 N vibration spikes inside a 150 x 150 x 120 mm volume budget.
- Made two versions with different closing mechanisms, both based on Fin Ray style TPU fingers sized for 32 to 38 mm rails; modeled in SolidWorks around a DM-J4310 actuator and 32 tooth transmission and ran FEA on the structure.
- Load tested version one under static rail engagement; PLA stiffness limits found in testing drove a redesign.
- Integrated actuator motor wiring and control; testing on the bus starts soon, followed by trials aboard a naval ship in Norfolk, VA.
- Starting end effector work on a TRACE Lab and Eli Lilly collaboration: Spot tooling for autonomous gas leak inspections.

PROJECTS

Modular Humanoid Hand | *Mechanical team, Purdue Humanoid Robotics Club* 2025 to 2026

- Designed a modular hand for a humanoid built for manipulation in space conditions, replacing string tendons with linkages so each finger runs on one actuator.
- Ran tolerance analysis for printed parts, fastener selection, and BOM creation, then assembled the hand and tested its range of motion.

Architected Origami Metamaterials | *Independent research* 2026

- Measured Poisson's ratios from -0.6 to $+0.57$ across five tessellations on a custom EV3 test rig with dual dynamometers; presenting author at the Society of Engineering Science Annual Meeting, October 2026.

LILY: Autonomous Water Quality Monitor | *Purdue TECH 120* 2025

- Designed a floating monitor in Onshape across two prototypes, with a sealed, waterproof electronics enclosure and a Raspberry Pi logging temperature, ORP, and TDS; field validated on a frozen lake at 95% accuracy against professional grade systems priced from $219 to $499.

LEADERSHIP AND SERVICE

Co Captain and Mentor, FRC Sigma 9692 and FTC Sigma 20890 2021 to 2025

- Led 26 member FRC and 12 member FTC teams from concept to competition, coordinating design, build, and testing across subsystems.
- Raised $52,000, taught 3,000 students, and established 27 robotics labs across underserved Indian schools.
- Purdue roles: Student Ambassador, School of Engineering Technology (1 of 14); Building Manager, Purdue Memorial Union and Stewart Center; Techie Tutor (2026 to Present).

SKILLS

CAD and PDM: SolidWorks, Siemens NX, CATIA V6, PTC Creo, Onshape, Fusion 360
Analysis and Test: FEA, tolerance analysis, load and vibration testing, MATLAB, MuJoCo, Isaac Sim
Manufacturing: DFM and DFA, GD&T (ASME Y14.5), CNC machining and CAM, sheet metal parts, fastener and material selection, BOM and vendor sourcing
Fabrication: FDM 3D printing in PLA and TPU, laser cutting, hand machining
Program Management: led 26 and 12 member teams, raised $52,000, cross team design reviews, prototype to pilot
Electrical and Programming: PCB design, motor wiring and control, Raspberry Pi, Arduino, DAQ (NI USB 6008), Python, C/C++

AWARDS

Presented with Distinction: Purdue Office of Undergraduate Research Conference, 2025: humanoid hand research
Engineering Inspiration Award: FIRST Robotics Competition, 2025: second highest honor in the competition
Inspire Award: FIRST Tech Challenge Asia Pacific Championship, 2023: highest honor awarded