

Luis Tovar

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EDUCATION:

Virginia Tech: B.S. Mechanical Engineering

August 2022 - May 2026

Relevant Coursework: Thermodynamics, Fluid Mechanics, Controls, Heat Transfer, Robotics and Automation, Engineering Acoustics

SKILLS:

- **Modeling/FEA:** NX, SolidWorks, ANSYS, Onshape, AutoCAD, Revit
- **Programing:** Python, MATLAB, Simulink, C++
- **Hardware/Prototyping:** CAD/CAM, 3D Printing, Laser Cutting, CNC Machining, Soldering, Circuiting
- **Languages:** English (*Native Proficiency*), Spanish (*Native Proficiency*), and French (*Conversational*)

EXPERIENCE:

CFR Engineering Consultants - Mechanical Engineering Intern

June 2024 - Present

- Supported design of HVAC, fire protection, and plumbing systems for large-scale projects with clients including the National Institutes of Health (NIH), National Institute of Standards and Technology (NIST), Northrop Grumman, Hyatt Hotels and the Architect of the Capitol
- Performed load calculations using Trane Trace 700 and Carrier HAP, contributing to energy-efficient building system designs.
- Produced detailed 3D models in Revit and 2D construction documents in AutoCAD, coordinating with senior engineers and multiple trades to maintain design accuracy.
- Conducted site visits to verify system installation, ensuring compliance with project specifications and industry standards.

Society of Hispanic Professional Engineers at Virginia Tech - Conference Coordinator

April 2024 – April 2025

- Organized and facilitated travel, lodging, and event logistics for 50+ chapter members attending the SHPE National Convention in Anaheim, CA from Blacksburg, VA, coordinating bulk registrations and managing the annual budget.
- Designed and hosted pre-conference professional development sessions (resume reviews, mock interviews, elevator pitch workshops), resulting in 68% of attendees securing interviews at the conference.
- Established and directed a Conference Coordinating Team to streamline preparation, strengthen collaboration, and ensure smooth execution.

Dan River Year AmeriCorps - Summer STEM Educator

June 2023 - Aug 2023

- Developed and taught a STEM curriculum for grades 3–10, engaging 60+ students in coding, 3D modeling, cipher decoding, and prototype creation.
- Administered Social, Emotional, and Learning (SEL) evaluations for 16 returning students; over 80% showed measurable growth in one or more developmental areas.
- Collected and analyzed assessment data using Aperture to track student progress and adapt instructional approaches.

PROJECTS:

High-Altitude Balloon Payload: Senior Capstone Project

Pedal Power: Engineering Economics and Design Project

- Collaborated in a team to design and prototype a pedal-powered charging system that converted bicycle wheel rotation into electrical energy using a dynamo.
- Modeled the system in Siemens NX and validated proof of concept by successfully charging small electronic devices.

Custom Made Lightsaber: Personal Project

- Designed and fabricated a custom lightsaber by creating CAD models in Onshape and SolidWorks, then 3D printed the hilt and integrated electronic components.
- Assembled and soldered circuitry with a programmable soundboard, enabling synchronized lighting and sound effects.

Modified Theremin: Personal Project

- Developed an Arduino-based theremin prototype using a distance sensor to capture hand movement and transmit data to Pure Data for real-time pitch modulation.
- Implemented AM/FM synthesis techniques to enhance pitch sensitivity and expand sound variation.

Low-Cost Motion-Activated Faucet Adapter: Engineering Foundations Project

- Designed and prototyped a low-cost module that retrofits onto existing faucets to add motion-activated functionality with built-in shutoff delay.
- Built the system using Arduino, motion sensors, and custom SolidWorks-designed 3D printed parts, mounted on a wooden frame for testing.

EXTRACURRICULARS:

- **Society of Hispanic Professional Engineers (SHPE):** President (Present), Conference Chair (2024 - 2025)
- **Galileo:** Undergraduate Teaching Assistant (2023 - 2024), Mentor (2023 - 2024), Mentor Liaison (2024 - 2025)
- **Team JUVO:** CAD Team Lead (2022 - 2023)
- **Engineering Dean's Team:** Engineering Open House Coordinator (Present)
- **Chamber Music at Virginia Tech:** President (Present)
- **Theme Park Engineering & Design:** Member (Present)