

# Satvik Mathur

Troy, NY | [satvikmathur.me](mailto:satvikmathur.me) | [linkedin.com/in/satvik-mathur](https://www.linkedin.com/in/satvik-mathur)

## EXPERIENCE

### **Inventor's Studio | Rensselaer Polytechnic Institute**

**Troy, NY**

*Mechanical Engineer*

*May 2026 – Current*

- Conceived a nuclear submarine concept designed to mitigate ocean acidification via a volume-controlled release valve system, balancing environmental function with vessel design constraints.
- Modeled the full submarine in Siemens NX, including parts, assemblies, and production drawings, following U.S. drawing/documentation conventions for angle and view alignment.
- Analyzed hull stress and buoyancy at depths up to 100m, and calculated propulsion torque and speed requirements to meet a 10–15 mph target.

### **Rensselaer Motorsport (Formula SAE)**

**Troy, NY**

*Mechanical Engineer & New Member Coordinator*

*Aug 2024 – Current*

- Designed 3 accumulator maintenance plug variants in SolidWorks, engineering each connection to be module-specific, handle-removable, and positively locked to meet FSAE high-voltage safety requirements.
- Presented CAD designs and drawings to the team for design review, incorporating feedback to refine tolerances and manufacturability
- Hand-fabricated 2 tire temperature sensor mounts and 20+ suspension "top hats" using an angle grinder and belt sander, holding  $\pm 0.025"$  tolerance without CAD reference.
- Coordinated new member onboarding for ~100 students at orientation, partnering with engineering leads to assign incoming members to open projects and ensure project availability across subteams.

### **Engineering Graphics & CAD | Rensselaer Polytechnic Institute**

**Troy, NY**

*Mechanical Engineer*

*Jan 2025 – May 2025*

- Modeled a multi-part U-joint assembly (base, shaft, mid-joint, yokes, handle) with working, motion-accurate joints and complete assembly/detail drawings in Siemens NX.
- Designed a longboard truck assembly (wheel, bushing, shaft, washers, nuts, bolts) with part models, assembly, and production drawings in Siemens NX.

### **Manufacturing Processes | Rensselaer Polytechnic Institute**

**Troy, NY**

*Mechanical Engineer*

*Aug 2024 – Dec 2024*

- Machined a threaded, screw-together lightsaber handle and base on manual lathe, manual V-mill, and CNC mill, holding tolerances as tight as  $\pm 0.005"$  using vernier calipers and precision measurement tools.
- Machined internal and external threads on the handle and base for a precision screw-fit assembly, without adhesives or fasteners.
- Set up and operated a CNC mill using a pre-programmed toolpath to machine the base, in addition to manual lathe and V-mill work on the handle.

### **Smart Mirror | Project**

**Boston, MA**

*Mechanical & Software Engineer*

*May 2024 – June 2024*

- Designed the mirror's dimensions, frame profile, and internal layout from scratch, balancing aesthetic proportions with component placement (monitor, Pi, wiring) to fit a predetermined mounting space.
- Fabricated a mitered wood-frame enclosure, hand-tolerancing each joint to achieve a flush, gap-free fit without CAD modeling.
- Machined dimensional 2x12 lumber down to furniture-grade stock, balancing cost and finish quality for a seamless frame.
- Engineered internal cable routing to fully conceal wiring behind the monitor, integrating a Raspberry Pi-driven display (MagicMirror2/Electron) into a clean, minimal housing.

## EDUCATION

### **Rensselaer Polytechnic Institute**

**Troy, NY**

*Bachelor of Science in Mechanical Engineering*

*Expected May 2028*

*Rensselaer Motorsport, Research in Computer Science, Pi Lambda Phi Fraternity*

*Courses: Modeling/Control of Dyn. Systems, CAD, Dynamics, Statics, Eng. Design*

### **Northfield Mount Hermon High School**

**Gill, MA**

*GPA: 3.77 | Engagement Leader, Workshop Club*

*Aug 2020 – May 2024*

## SKILLS

- **CAD:** SolidWorks (PDM), Siemens NX • **Tools:** CNC, Lathe, V-mill, TIG, 3D Printing, Miter Saw, Table Saw
- **Programming:** C++, Java, TypeScript, Python, MATLAB • **Platforms:** Raspberry Pi, STM32