

TANUSH ANAND

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EDUCATION

Case Western Reserve University, Cleveland, Ohio

Expected May 2027

Bachelors of Science in Engineering - Mechanical Engineering & Materials Science and Engineering

SKILLS

- **Software:** SolidWorks (CSWA Certified, GD&T), Siemens NX, Matlab, Python, SQL, R, Microsoft Suite
- **Hardware:** FDM 3D Printing, Metal and Polymer Fabrication, Welding, Soldering, Tensile Testing, Compression Forging

WORK EXPERIENCE

Solmate, Founder & Technical Lead

Sep 2025 - present

- Leading development of a non-invasive roof adapter to reduce PV installation cost and roof impact; awarded \$8k in grants
- Designing prototypes in NX & conducting voice-of-customer interviews with installers/homeowners to refine product

FIERF, Materials Research Intern

June 2025 - present

- Researched methods to extend life and reduce repair costs of open-die forging dies that cost up to \$180K each for Ellwood City Forge, focusing on isothermal/hot-die forging, Ni-based alloys, and surface treatments
- Conducted site visit and operator interviews to identify underutilized approaches; currently evaluating lubrication methods and PVD + nitriding to reduce abrasive die wear

Case Western Reserve University, Circuits Teaching Assistant

Jan 2025 - present

- Lead weekly lab sessions, assisting circuit builds and use of oscilloscopes, DMMs, and power supplies, and facilitating Q&A
- Grade pre-labs and lab reports (~8 hrs/week), providing constructive feedback to enhance student learning

PROJECTS

Bioplastic AM + X Research, Materials Researcher - National Science Foundation

June 2025 - present

- Improving strength and ductility of FDM 3D-printed PLA by hot forging and changing print orientation
- Modeled ASTM D638 specimens in NX, printed on an FDM printer, forged samples, and laser-cut to standard geometry
- Analyzed tensile stress-strain curves in MATLAB and X-ray diffraction data to relate mechanical behavior to crystallinity

Hydraulic Press Frame, Engineer Lead - National Science Foundation

Feb 2025 - Apr 2025

- Modeled structural support for a hydraulic press in SolidWorks and sourced tubing and C-channel sections from vendors
- Milled tube faces parallel using a dial indicator, generated DXF to waterjet C-channels, and MIG welded to build the frame
- Assembled the structure and ran 5 load test cycles to verify alignment and support under press operation

Thermal Filter Case + Mount, Engineer Lead - National Science Foundation

Jan 2025 - Feb 2025

- Needed a way to measure the temperature gradients of a live WAAM print, designed a split clamp to interface the camera to the filter case, added a slip fit for the thermal case to suit, and added a key slot to prevent the filter from falling out
- Modeled a mount for the t-slot rail and camera top holes, 3D printed and secured it to the printer frame, providing stable thermal imaging over 20+ WAAM cycles with data used in an NSF HAMMER presentation

WAAM Torch, Engineer Lead - National Science Foundation

Nov 2024 - Dec 2024

- Redesigned deformed torch body in SolidWorks, updated thread dimensions for the diffuser interface, shortened the length to maximize z-axis freedom, and created slits to interface with wrench to prevent distortion
- Bandsawed to get stock length, machined ID & OD on lathe, used mill to hand tap and add slits, finished on lathe with grit
- Reassembled to WAAM, verifying performance over 100+ print cycles; design was adopted as standard for second WAAM

Solar Charging Station, Team Lead - Engineers Without Borders

Sep 2024 - Mar 2025

- Designed a solar panel array of six 200 W panels for campus pavilion, providing 20 kWh/day in spring/summer months
- Led structural design team in part selection, modeling, and assembly using SolidWorks & McMaster-Carr
- Secured \$4,000 of funding and stakeholder support; installation December 2025

EXTRACURRICULAR

CWRU Collegiate Track & Field, NCAA D3 Athlete

Aug 2023 - present

- School record holder in the triple jump