

Sanchit Arora

arora237@purdue.edu | (425)-295-9460 | linkedin.com/in/sanchitarora-aae | Permanent US Resident

Education

Purdue University | West Lafayette, IN
Major: Aerospace Engineering

Expected Graduation: December 2027
Cumulative GPA: 3.5

Project Experience

Purdue Space Program (PSP), Design and Manufacturing Engineer, West Lafayette, IN.

August 2024 – Present

- Liquids Propulsion Subteam:
 - Designed, simulated, and analyzed manifold and flange geometry using Siemens NX and Ansys Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD), for the club's first ever regeneratively cooled rocket, aiming to reduce pressure loss across the manifold.
 - Designed and conducted a water flow testing campaign on aluminium and Stereolithography (SLA) printed resin pintle injectors and tips to validate sizing code, refine manufacturing processes, and reduce post-processing time.
 - Revised designs for a heatsink engine in order to mount to a new test stand, and manufactured it to test-proof the test stand through hot-firing, allowing the team to now test engines up to 2500 lbf of thrust for the first time.
- Liquids Manufacturing Subteam:
 - Traditionally manufactured Thrust Chamber Assemblies (TCA's) for heatsink and regeneratively cooled engines, and pump subassemblies involving centrifugal and Barske impellers using micro-tooling and simultaneous five axis machining.
 - Created a plan to manufacture a regeneratively cooled rocket engine in-house, saving \$25k+ and creating a faster pipeline from design to testing.
 - Produced a manufacturing plan and machined a pintle injector subassembly for a heatsink engine, using a highly optimized multi-setup approach including live tooling on a lathe, reducing iteration time by a week while maintaining 0.0005in tolerances.
 - Created liquid oxygen (LOX) and ethanol manifolds for multiple rockets, parts for test stands, and emergency parts for launches.
 - Used Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) to manufacture 200+ tightly toleranced parts in-house resulting in \$75k+ of savings in outsourced machining costs
 - Used Non-Destructive Testing (NDT) such as blue light scanners and Coordinate Measuring Machines (CMM's) to verify tolerances, surface finishes, and usability of critical components

Work Experience

Rocket Propulsion Systems, Manufacturing Engineer Intern, Kent, WA

January 2026 – Present

- Support manufacturing and assembly of liquid rocket propulsion hardware for a suborbital rocket and an orbital transfer vehicle, owning end to end fabrication of parts.
- As the 6th full-time employee, helped lead early stage R&D manufacturing efforts, the development and refinement of manufacturing processes, tooling, and documentation in a rigorous fast-paced startup environment, supporting rapid iteration and hardware delivery.
- Collaborate with design and analysis teams to translate CAD into manufacturable hardware, providing DFM feedback and resolving build issues on the shop floor.
- Help design and perform analysis on, and manufacture unshrouded impellers for turbopump systems, as well as aid in the design of tabletop test benches for turbomachinery

Terrence R. Meyer Research Group, Undergraduate Research Assistant, West Lafayette, IN.

August 2025 – Present

- Build up engine test cells for air breathing and rocket based Rotating Detonation Engines (RDE).
- Design, analyze using CFD, and manufacture a modular dual swirl injector based on the GE TAPS III injector used in the GE9X engine to test the combustion of ammonia based fuels for greener aviation, allowing for rapid iterating of designs to find the most optimal injector design that would produce the least amount of emissions.
- Part of the design team chosen for further development of a triple swirl, dual fuel injection based clean fuel injector.
- Design and conduct FEA/CFD analysis on parts for RDE's and data collection.
- Manufacture and create manufacturing drawings for parts.

Bechtel Innovation and Design Center, Metalshop Peer Mentor, West Lafayette, IN.

October 2024 – Present

- Held consults with students, helping them with making their projects, such as which machines and materials are best suited for their project, how to optimize CAD/CAM for machining, and teaching good design practices and techniques.
- Reviewed and approved CAD/CAM before manufacturing, ensuring safety, efficiency, and tightly toleranced final parts.
- Taught students SOP's, how to use 3-5 axis CNC mills and lathes, waterjets, and other metalshop machines/tools in order to help them complete projects for personal, professional, club, and research use.
- Maintained and fixed metalshop machines, leading to increased machine up-time and more parts out the door.

Skills & Certificates

Software: Siemens NX w/ Teamcenter, Solidworks, Fusion 360, Onshape, Ansys

Manufacturing: 3/5 Axis CNC Mill, Live Tool Lathe, Waterjet, 3D Printing (FDM, SLA, SLS), Composites, Manual Machines

Programming Languages: Python, MATLAB, Java