# Lucas Lanzendorf *lucaslanzendorf@gmail.com | (978)-906-3338 | https://linkedin.com/in/lanzendorf*


## Education

### California Institute of Technology
*September 2020 - June 2024*

*B.S. Mechanical Engineering, Concentration in Robotics* — *Pasadena, CA*

**Relevant Courses:**: Robotics Systems, Experimental Robotics, Robotic Design Laboratory, Thermal Science, Mechanics, Mechanical Prototyping, Fluid Dynamics, Feedback Systems, Systems Engineering, Advanced Robotics, Kinematics, Dimensional Analysis

**Extracurriculars:**: Caltech Robotics Club, Caltech Rover Autonomy, Technology, and Exploration Research Club, NCAA Track and Field Athlete, Vice President of Ricketts House, Society of Hispanic Professional Engineers

## Skills

**Technical Skills**: Certified SolidWorks Associate, Machining, GD&T, Soldering, 3D modeling, 3D printing, DIC, FEA, CFD, PCB Design, Technical writing, Systems Engineering, Welding

**Software**: SolidWorks, Onshape, Fusion 360, RVIZ, ROS2, ANSYS, Teamcenter, TensorFlow, Firebase, GIT, Android Studio

**Programming**: MATLAB, Mathematica, Python, Java, C++

**Platforms**: Linux, Windows, Arduino, Raspbian

## Professional Experience

- ### General Dynamics Electric Boat
  *September 2024 - Present*

  *Mechanical Engineer I, Active Department of Defense Secret Clearance* — *New London, CT*

  – Sole ownership over three critical reactor plant systems for future fast attack submarines, informing Department of Energy engineers on system design characteristics including materials, construction plans, components, and arrangements
  – Lead engineer for robotic welding and automated non-destructive testing in naval reactor piping applications
  – Performing cost analyses, failure mode analyses, heat load calculations, and trade studies
  – Leading interdisciplinary teams of engineers, technicians, and tradespeople to develop novel fluid systems designs
  – Developing Naval Nuclear Propulsion Plant technical system design documentation for government approval and information

- ### OffWorld Robotics
  *June 2023 - September 2023*

  *Mechatronics Intern* — *Altadena, CA*

  – Reduced localization error by 198% through LiDAR-inertial odometry through hardware design
  – Design ownership of 3 robotic testing platforms for software integration
  – Designed and integrated telescopic mast for sensor relocation
  – Developed sensor mounting hardware with additive manufacturing
  – Performed and presented trade studies on robotic mobility platforms for swarm deployment to Head Mechatronics Engineers

- ### Saint-Gobain Research North America
  *June 2022 - September 2022*

  *Mechanical and Automation R&D Intern* — *Northborough, MA*

  – Design ownership over a fully automated machine for precision manufacturing of abrasive grinding wheels
  – Designed a robust, environmentally isolated electrical panel to enable manual and autonomous operation in a plant
  – Developed mathematical model of sediment deposition to optimize consistency across manufactured blocks, implemented in Python to generate autonomous pathing
  – Deployed 5 independently designed and fabricated calibration and testing apparatuses in full-scale factory setting
  – Delivered weekly presentations on progress to stakeholders

## Research and Teaching Experience

- ### Caltech Rover Autonomy, Technology and Exploration Research (CRATER)

  *Robotic Manipulator Subteam Lead*

  – Independently designed 6 Degree-of-Freedom robotic arm assembly for complex grasping and handling maneuvers
  – Designed and built a rover with 15 other students that was selected for the 2nd phase of the 2023 University Rover Challenge
  – Invited and competed in 2023 Canadian International Rover Challenge in Drumheller, Alberta
  – Rover functionality includes extreme terrain traversal, autonomous SLAM navigation, and in-situ sample collection and analysis

- ### Mechanical Engineering Teaching Assistant

  *ME72ab: Robotics Design Laboratory*

  – Designed and led team-based Mechanical Engineering capstone project for a class of 25 students
  – Constructed 1200sqft arena for semi-autonomous aerial vehicle competition
  – Led review circuit for 6-month engineering design process, providing teams with feedback and design considerations
  – Held weekly instructional sessions and office hours on hardware/software development and integration for robotic systems

  *ME14: Introduction to Mechatronics*

  – Assisted Professor in operations for class of 38 students
  – Led review circuits for teams to develop 2 Mechatronics projects in 10 weeks
  – Held weekly instructional sessions and office hours on fundamental engineering design principles, i.e., design for manufacturing, hardware and material consideration and sourcing, 3D modeling, GD&T