

Parker Violand

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EDUCATION

Vanderbilt University, Nashville, TN

B.S. in Mechanical Engineering, Expected Graduation Date – 2027

EMPLOYMENT HISTORY

All American Chassis/Billet/Hot Rod, Phoenix, AZ

Design Engineer, May - July 2024

- Designed and developed interior car parts made from 6061 aluminum for various vehicle models, focusing on aesthetics and usability for customers
- Created detailed sheet metal plate components for OBS truck chassis assemblies, ensuring precise fit and functionality
- Leveraged advanced scanner technology to generate accurate 3D models of existing chassis, reducing design time by 30% compared to outdated assembly models
- Collaborated with manufacturing teams to optimize designs for manufacturability, resulting in a 15% decrease in production costs and material waste
- Assisted in creating comprehensive documentation for design specifications and assembly instructions, which improved team communication and productivity

PROJECT EXPERIENCE

NASA Lunar Robot Challenge

President and Mechanical Team Lead, 2023-2025

- Served as Mechanical Lead, managing team members and collaborating with other engineering sub-teams to design a rover intake and drivetrain with integrated encoders and cameras
- Developed a conveyor belt system for regolith excavation, integrating a linear actuator system to achieve 6-inch digs
- 92 FPM conveyor belt operation achieved 20 lbs of regolith collection per 5 digs with minimal wear

Autonomous Vehicle Challenge

President and Mechanical Team Lead, 2025

- Designed a custom 15:1 gear ratio swerve drive with integrated absolute and incremental encoders for steering and driving
- Designed chassis to support four swerve drive modules, a 20 lb payload, LiDAR, and cameras

Linear Actuator Syringe Pump Assembly

Rapid Prototyping Class, 2023

- Designed motor mounting plates and stabilizing components in Fusion 360, using PLA for detailed parts and ABS for heat-resistant applications
- Created syringe holders for 10mL and 20mL syringes, achieving precise flow rates with a 2mm pitch lead screw without requiring microstepping
- Powered by AC-DC Power supply and controlled using an A4988 stepper driver and arduino board
- Maintained a delivery tolerance of ± 0.15 mL across a wide range of flow rates

SKILLS

- Proficient in CAD software, including SolidWorks and Fusion 360 for GD&T, sheet metal design, and 3D printing, as well as AutoCAD and Revit for architectural and MEP drawings
- Experienced in mechanical fabrication, 3D printing, laser cutting, machining (lathe/mill), and DFM/DFA principles
- Skilled in electrical and software applications, including C++, MATLAB, soldering, and wiring