Benjamin Paldy

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Education

Ohio State University — Columbus, Ohio
Mechanical Engineering — Class of 2028

Experience

TTM Technologies — Farmingdale, NY
Mechanical Design Engineering Intern – Aerospace & Defense — June 2025 – August 2026

- Designed and integrated radar subsystem components in SolidWorks, optimizing structural layout against competing EMI shielding, mass, and inertial load requirements; contributed to system passing customer CDR.
- Optimized system cooling design using CFD, lowering electronics temperatures by ∼2 degrees to within allowance.
- Designed routing & branch architecture for multiple system wiring harnesses, reducing the length of previous designs by up to 1 foot of excess cabling.
- Fundamentally changed the architecture of a new system, increasing the usable internal volume by ∼54 cubic inches while remaining within the customer-defined bounding box.
- Supported off-site environmental qualification efforts, & gained experience in military design standards & practices, MIL & other aerospace specs.
- Conducted specialized mechanical design work and performed lab testing with both mechanically scanned & AESA radar.
- Collaborated with multiple departments, including RF, electrical, and manufacturing engineers.
- Toured 6 advanced manufacturing facilities, gaining experience in electronics & PCB manufacturing as well as general factory processes and environment.

Formula Buckeyes FSAE Team — Columbus, OH
Engineer – Powertrain & Vehicle Dynamics — September 2024 – Present

- Led the full mechanical redesign of a 600V, 9kWh battery pack within a rapid 4-week timeline, replacing previous designs that were non-functional, and greatly improving the design for manufacturability & assembly.
- Packaged LV & HV powertrain components, designing enclosures & mounting for sensitive electronics while maintaining serviceability with HV protective equipment on.
- Isolated high-power AC electronics using a custom-designed EMI cage with a theoretical attenuation of 15 dB.
- Designed & manufactured a PCB with integrated microcontroller, packaged within a custom steering wheel.
- Developing custom two-way telemetry & driver radio systems from scratch, designed with 1 km range & an expected maximum data rate of 53 kbps.
- Lightened rear wing mounts using topology optimization, reducing deformation under predicted aerodynamic loads by over 50% compared to previous years. Additionally created a topology optimization guide in Markdown to instruct new team members.
- Optimized stiffness of anti-roll bar, hitting set design targets with minimum weight & emphasis on manufacturability.
- Used SolidWorks to write CAM for CNC milled parts, and manufactured parts using manual machines including lathes, mills, bandsaws, etc.
- Completed carbon fiber composite part layups, and gained knowledge in composites manufacturing & design practices.

Vulcan Combat Robotics — Stony Brook, NY
Co-founder & Design Engineer — July 2023 – Present

- Designed & competed with a 12 lb combat robot at September 2023 and June 2024 NHRL tournaments.
- Gained experience conducting root cause analysis on part failure modes, making mechanical changes to effectively fix.
- Currently developing & manufacturing new 3 lb & 12 lb combat robots to fight in the 2027 NHRL season.

Skills

- **Computer Aided Design:** SolidWorks, Onshape, Autocad
- **PCB Design & E-cad:** Kicad, Altium
- **Finite Element Analysis & CFD:** Ansys Mechanical, Solidworks CFD
- **Manual Machining:** Lathe, 3-axis mill, general shop knowledge & tools
- **Computer Aided Machining:** SolidWorks CAM, 3D printing slicers