

CHARLES DENG

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Education

University of Illinois at Urbana-Champaign

Bachelor of Science in Mechanical Engineering, Hoeft T&M Minor, Computer Science Minor

Expected May 2028

GPA: 3.89/4.0

Skills

CAD: SolidWorks, Creo, Fusion360, Onshape, nTop, KiCad

Programming Languages: C++, Java, Python, CSS, HTML

Technical: GD&T, Manual Lathe, Manual Mill, Waterjet, Laser Cutting, 3D Printing

Spoken Languages: English and Chinese

Work Experience

Garmin

May 2026 – August 2026

Mechanical Engineering Intern

- Redesigned dyno fixture in SolidWorks, decreasing wear on clamps, preventing corrosion on rotary components, and optimizing ergonomics for technicians
- Designed fixtures to mount two servos and resolver for DO-160 vibration, thermal, humidity, and shock tests
- Ran frequency analysis on test fixture assembly in SolidWorks Simulation to push fixture natural frequency above test curve frequency range, and verified simulation with vibration testing
- Designed secondary operation fixtures enabling suppliers to quadruple the number of parts per machine
- Wrote custom VBA script to automate visualization of CMM data and designed go-gauge to check positional tolerance on servo shaft holes increasing yield to 97.5%

Oceaneering

May 2025 – May 2026

Mechanical Engineering Intern

- Designed sensor brackets in SolidWorks, achieving compliance with load requirements and decreased bracket mass by 37%
- Routed 40+ cables with SolidWorks Routing for large scale ROV to visualize wire harness, optimize cable lengths, and identify cable tie points and potential EMI concerns
- Programmed custom VBA Excel script to pull 10000+ files, reducing search and Product Breakdown Sheet comparison time by 96.36%, led to usage by 60+ engineers
- Standardized process of measuring internal oil volumes of 6 junction boxes in SolidWorks to size oil compensators
- Wrote VBA Excel script to pull 5000+ files decreasing run time by 96.36% and automating comparison of parts with Product Breakdown Structure naming and numbering conventions

Extracurricular Activities

Illini Electric Motorsports

September 2024 – Present

Drivetrain / Integration / Cockpit Project Lead

- Designing a electric motor dynamometer for testing efficiency, regen, and gear life
- Designed 14 IP67 Low Voltage Enclosures in Creo to integrate electronics and sensors, reducing system mass by 27% through seal selection, rib design, and bolt spacing optimization
- Built custom racecar dashboard to improve driver visibility, access to switches, and consolidation of electronics
- Analyzed mounting tabs and wall deflection using lug analysis, shear, and bending hand calculations to maintain a FOS of 2 and produced a MOS of 5.47 in all driving load cases and maintenance loads
- Built excel calculator to optimize bolt spacing on enclosure covers leading to increasing bolt spacing by 21%
- Led waterproof test procedures to test vehicle systems, following competition specs and IP guidance for IP65
- Conducted trade study to compare effects of enclosure positioning on chassis integration and wire harness
- Designed mount to incorporate tractive system lights as well as match curvature of top roll hoop of racecar