Sean Kai Dempsey

Email: skd82@cornell.edu | Phone: (424)-350-6778

EDUCATION

Cornell University, College of Engineering, Ithaca, NY. Expected Dec 2026
Bachelor of Science, Mechanical Engineering **GPA: 3.888**

Relevant Courses: Statics, Mechanics & Dynamics; Thermodynamics; CS Python & Object-Oriented Programing
Physics: Waves, E&M, Mechanics & Heat; Entrepreneurship for Engineers

SKILLS

CAD/M & FEA: SolidWorks, NX, Teamcenter, Inventor, Fusion 360, OnShape, ANSYS, HSMWorks, VCarve Pro

Manufacturing: CNC machining & CAM (Trak Lathe, Tormach Mill, ShopBot Router); FDM 3D Printing; Manual Machining (200+ hrs); Laser Cutting

Programming: Python, MATLAB, Java, C++

Experience

Cornell Baja Racing – Powertrain Designer – Ithaca, NY Oct 2023 - Present
Team that designs, builds, and manufactures, an off-road car to compete in the Baja SAE Competition

- Reduce half-shaft weight by 50% by optimizing materials, and geometry with specially gun drilling process
- Analyze aluminum CV plunging cups with FEA to achieve FoS > 3 and accounted for fatigue life > 10^6 cycles
- Utilized Solidworks to refactor rims model to reflect OEM geometry & researched 3 spoke rim for mass reduction
- Program, milled and produced 10 spherical cup housing on Tormach CNC with 0.5 thou press fit tolerance.

Impulse Space – Engineering Intern – Redondo Beach, CA May 2024 - Aug 2024
Aerospace startup making in space transportation vehicles to deliver payloads to LEO and GEO orbits

- Designed, built, and tested bubble leak test stand for carbon overwrap pressure vessel (COPV) ATP testing
- Saved 110$ & 21 days of lead time by redesigning additive manufacturing process verification of witness samples
- Develop powder bed fusion parameters for new alloy by quantifying sample quality & analyzing with python
- Create engineering trade for building COPV cleaning facility, saving 100K/year & reducing lead times by 600%

Cornell CS 1110 Intro to Python – TA – Ithaca, NY Jan 2024 - Present
Programming and problem solving using Python. Emphasizes principles of software development, style, and testing

- Teach foundational principles of programing in labs & office hours, responsible for exam & assignment grading

Chadwick Robotics – Team Lead – Palos Verdes Peninsula, CA Sept 2019 - Jun 2023
Team that designs and builds a robot to compete in the high school VEX Robotics Competition.

- Lead team to win Excellence, Design, Build & Create awards for designing a “turret-bot” for competition’s game
- Design full robot assembly in OnShape; creating custom spur gears for turret base & ring gears for planetary set
- CAM & machined gears on desktop CNC and manufactured custom motor spline with manual mill and lathe
- Used Autodesk Inventor to design holonomic x-drive to allow movement in any direction on the playing field
- Program autonomous driving creating control system diagram implementing inverse motor model & PID in C++
- Utilize Ansys Discovery CFD to model flying game elements to make informed engineering design choices