Christopher Gorzynski

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Education

California Polytechnic University, San Luis Obispo Sep 2021 – Dec 2025
Bachelor of Science in Biomedical Engineering *San Luis Obispo, CA*

- **GPA: 3.52/4.0**
- **Relevant Coursework:** Solid Modeling & Detailed Design, Mechanical Systems Design, Design for Strength and Stiffness, Principles of Biomaterials Design, Mechanics of Materials I & II, Fluid Mechanics, Thermodynamics, Bioelectronics and Instrumentation, Composite Materials Analysis and Design, Technical Writing for Engineers

Experience

Alphatec Spine Inc. Jun 2024 – Sep 2024
R&D Engineering Intern *Carlsbad, CA*

- Redesigned the modular bedrail clamp for the **SafeOp 3 neuromonitoring device** using SolidWorks, developing **two** distinct **design iterations** while collaborating with the marketing team to align design features with user needs
- Utilized **SolidWorks FEA** to analyze critical stress points and optimize material thickness, achieving a **40%** weight reduction and **50%** decrease in device profile on the **operating table** without compromising strength
- Used **Bambu Labs** and **Stratasys** printers for **rapid prototyping**, and conducted impact and drop testing to validate clamp performance under simulated **operating room** conditions
- Developed **detailed part and assembly drawings** for manufacturing and presented the final design to Alphatec leadership, highlighting the **iterative design process,** key improvements, and **user-focused features** added to address project goals

CytoCT Jan 2025 – Jun 2025
Design Engineering Co-Op *San Luis Obispo, CA*

- Directed a **4-person** team in designing a **white blood cell workflow cartridge** for a cellular imaging device intended to diagnose diseases such as Malaria, Sepsis, and Tuberculosis in **resource-limited countries**
- Designed the cartridge in **SolidWorks**, focusing on **single-use disposability,** rapid assembly, and seamless integration with CytoCT's existing imaging prototype
- Assembled and tested multiple 3D-printed prototypes, performing **leak proofing** and **mixing homogeneity** tests to demonstrate consistent operational performance and support qualification of the cartridge design
- Collaborated closely with CytoCT engineers to translate product requirements into engineering specifications, resolve system integration issues, and advance the design toward a functional prototype

Projects

Adaptive Exercise Equipment for Wheelchair Users Jan 2024 – Jun 2024

- Led a **6-person** team to develop custom exercise equipment attachments for a young girl with **cerebral palsy,** enabling safer, **independent movement** and providing a **low-cost** alternative to traditional physical therapy solutions
- Designed a **spring-loaded** footplate attachment in **SolidWorks**, using **FEA** and **fatigue analysis** to ensure long-term durability of components, resulting in a mechanically reliable design suited for daily use
- Researched materials using the **MatWeb database** to identify reliable, cost-effective options that balanced safety, functionality, and budget constraints, leading to a **40%** reduction in overall project cost

Powder Transfer Mechanism – Lawrence Livermore National Labs Sponsored Project Apr 2025 – Jun 2025

- Designed and machined a manually operated powder transfer system for LLNL's additive manufacturing process, integrating a **custom worm gear drive,** metal housing, and McMaster purchased parts to meet dimensional and budget constraints
- Performed **AGMA gear, shaft, and C10 bearing** analysis using custom **MATLAB** design tools to guide component selection and manufacturing, ensuring reliable operation under varying loads and achieving a **6.5 system safety factor**
- Achieved **310 lb-in torque** capacity, handling **200%** more than the highest load tested by other teams and delivering smooth and reliable 180-degree hopper rotation without back driving

Wing Spar Design Project Apr 2024 – Jun 2024

- Collaborated in a team to design an airplane wing model using SolidWorks FEA, focusing on the design and analysis of wing spars with specified constraints to develop a high-performance wing design
- Researched real-world wing-spar materials and selected the most cost-effective option that met strength, weight, and budget requirements

Technical Skills

CAD and Simulation: SolidWorks, Fusion 360, Autodesk Inventor, OpenSim, FEA
Programming and Data Analysis: MATLAB, Excel, ImageJ, Minitab
Testing and Lab Equipment: Universal Testing Machine, 3D Printer, Laser Cutter, Drill Press, Lathe, Welding
Clubs & Interests: Weight Lifting, Cal Poly Engineering Mentors, Cal Poly EMPOWER, Sales Engineering Club, Golf