Gilbert Chang

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Education

Purdue University West Lafayette, IN
Bachelor of Science in Mechanical Engineering, Computer Science *Aug. 2023 – May 2027*
Concentrations: Computational Science and Engineering
Relevant Coursework: Machine Design, Mechanics of Materials, Heat and Mass Transfer, Fluid Mechanics, Measurement and Control Systems II, Electrical Engineering Fundamentals II, Numerical Methods, Signals and Systems.

Experience

Mechanical Engineering Intern May 2025 – August 2025
Persona AI *Houston, TX*

Undergraduate Research Assistant November 2024 – Present
Computational Motion, Manipulation, and Autonomy Lab at Purdue University *West Lafayette, IN*

- Engineering polyurethane soft robotic gripper with optimized Finray geometries; designing custom molds to enhance manufacturability.
- Developing computational design pipelines integrating FEA/CFD simulations to optimize pressure channel placement for differential tactile sensing.

Undergraduate Research Assistant January 2025 – May 2025
Cai Group at Herrick Laboratories *West Lafayette, IN*

- Implemented Python and MATLAB system identification pipelines for psychrometric chambers, utilizing convex optimization to fit experimental data to reduced-order models.
- Validated closed-loop system performance by replicating real-world dynamics using pipeline derived reduced-order transfer functions.

Undergraduate Teaching Assistant May 2024 – August 2024
Purdue University School of Electrical and Computer Engineering *West Lafayette, IN*

- Evaluated and provided constructive feedback on weekly assignments for 200+ electrical engineering students.
- Conducted regular office hours, resolving technical inquiries and reinforcing course material.

Undergraduate Research Assistant January 2024 – May 2024
Purdue University School of Mechanical Engineering *West Lafayette, IN*

- Optimized wheel hub design for forged carbon fiber manufacturability, reducing component weight by 40%.
- Streamlined bicycle frame weight with topology optimization, enforcing FoS requirements with FEA simulations.
- Investigated Kammtail virtual foils, 3D printed foil variants and test stands for wind tunnel validation.

Projects

Canard Actuation Module

- Developed compact, high-degree-of-freedom linkage systems enabling servo control for rocket canard actuation.
- Conducted structural analysis using Ansys Mechanical, identifying and mitigating potential buckling under expected launch conditions.

High Altitude Solid Rocket Motor

- Designed 44 kNs, 210 Isp SRM with parametric workflows in Onshape, achieving 98% ideal thrust coefficient.
- Performed FEA and manual stress analyses to ensure 3.5 Factor of Safety under anticipated operational loads.
- Applied DFM/DFA methodologies to optimize manufacturability of critical structural motor components.

Technical Skills

Design & Analysis: Onshape, Siemens NX, SolidWorks, Autodesk Inventor, Ansys Mechanical, Ansys Fluent, KiCad
Materials & Manufacturing: Composites (VARTM, forged), GD&T, DFM/DFA, Tolerance Stack-ups
Simulation & Control: FEA, CFD, MATLAB, Simulink, ROS2, Python/C/C++/Java, NumPy, Pandas, Matplotlib
Prototyping & Testing: 3D Printing, Laser Cutting, Vacuum Forming, Manual & CNC Mills/Lathes, Bandsaws