Gilbert Chang

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Education

Purdue University West Lafayette, IN
Bachelor of Science in Mechanical Engineering, Computer Science *August 2023 – May 2027*
Concentrations: Computational Science and Engineering
Awards: Kenneth Ralph Scudder Mechanical Engineering Scholarship
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*

- Re-engineered NASA Robonaut 2 robotic hand; overhauled 50+ CAD parts, cut joint-package width 11%, delivered GD&T drawings and URDF files, enabling an ahead-of-schedule, first-pass SLS printed functional prototype.
- Designed stainless-steel tendon-tension sensor; FEA and hand-calculated signal estimates driven design optimizations dropped peak stress 30%; produced technical drawings ready for fabrication.
- Built Python/JAX automation suite; in-house GPU accelerated forward/inverse kinematics engine (10k poses $<$ 0.1s) and encoder-gap optimizer slashed kinematic and sensor study time by 100x.

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.

Technical Skills

Design & Analysis: Onshape, Siemens NX, SolidWorks, Autodesk Inventor, Ansys Suite, SimScale Suite, KiCad
Materials & Manufacturing: Composites (VARTM, forged), DFM/DFA, Tolerancing, Limits & Fits
Simulation & Control: FEA, MATLAB, Simulink, ROS2, Python/C/C++/Java, Jax, NumPy, Pandas, Matplotlib
Prototyping & Testing: FDM Printing, Laser Cutting, Vacuum Forming, Manual Mills/Lathes, UTMs, Oscilloscopes