Gilbert Chang

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Education

Purdue University – West Lafayette, IN — Expected May 2027
BS Mechanical Engineering, BS Computer Science — GPA: 3.92/4.00
Minors in Electrical Engineering, Computer Engineering, Mathematics

Experience

Undergraduate Research Assistant | West Lafayette, IN — January 2024 - May 2024
Purdue University Mechanical Engineering

- Designed a forged carbon bike wheel hub and researched freehub patents, aiming to increase vehicle maneuverability and responsiveness.
- Optimized strength and weight of racing bicycle's frame and wheel hub, using Autodesk Fusion 360's generative design tool.
- Conducted CFD and FEA simulations using ANSYS Fluent, ANSYS ACP, and Autodesk Fusion 360 to validate optimization gains, verifying adherance to ISO testing standards.
- Researched Kammtail virtual foils, implemented geometries on bike frame, 3D printed test structures for wind tunnel testing and validation.

Undergraduate Teaching Assistant | West Lafayette, IN — June 2024 - August 2024
Purdue University Elmore Family School of Electrical and Computer Engineering

- Graded weekly assignments for 200+ electrical engineering students, providing targeted feedback, while also holding office hours and addressing technical questions.

Projects & Involvement

Purdue Baja Racing — August 2024 - Present

- Designed forged carbon dogbone structures, manufactured milled aluminum molds, collected data using universal testing machines for use in FEA simulations.
- Modeled undertray of vehicle in SOLIDWORKS, leveraging aerodynamic insights and validating design choices with ANSYS Fluent on Scholar supercomputer cluster.
- Utilized Autodesk Fusion 360's CAM capabilities and 3D printing to CNC mill precision molds for Renshape fairings and print a forged carbon steering wheel for vehicle.
- Wrote literature review on automotive aerodynamic devices, guiding design choices for diffusers and strakes in off-terrain vehicle.

Five Dynamics — May 2024 - Present

- Led a team of 20+ engineering students as president to establish an efficiency-oriented engineering organization.
- Managed finances and developed organizational structure for club, ensuring sustainable operations and efficient project execution.
- Utilized FDM 3D printing, manual milling, ESP32 technologies, and sensors to create a racetrack topology data collection tool.

Purdue SoCeT (System-on-Chip Extension Technologies) — June 2024 - August 2024

- Developed standard pin configurations and communication protocols for CPU and IO chiplets using KiCAD, establishing foundational architecture for implementation of 16-pin chiplets on PCB.
- Led creation and presentation of chiplet architecture research at Summer Undergraduate Research Symposium, communicating technical work to general audience.

Skills

Design Tools: Siemens NX, SOLIDWORKS, Autodesk Fusion 360, Ansys Fluent, Aras Innovator, KiCAD, LTSpice
Languages and Libraries: Java, Javascript, Python, C, MATLAB, Matplotlib, SQL, LaTeX
Technologies: 3-axis CNC Milling, Forged Carbon Fiber, Carbon Fiber Vacuum Layup, 3D Printing, FEA, CFD