Morgan Wang

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Education

University of Pennsylvania, School of Engineering and Applied Science — Expected May 2027
Bachelor of Engineering in Electrical Engineering — GPA: 3.96
Bachelor of Science in Physics

Projects

Custom Motor Controller (MOC) — Jun 2024 – Present

- Calculated optimal inverter bus capacitance in LTspice to reduce switching losses and board space
- Optimized gate driver circuit through understanding of parasitic impedance and filtering, eliminating propagation delay
- Programmed FPGA to rapidly detect faults and MCU to implement space vector control

Vehicle Dashboard and Data Acquisition Device (LUDWIG) — Jun 2024 – Present

- Integrated data acquisition and wireless capabilities to FSAE vehicle dashboard
- Designed device to meet modern HDMI, LTE, PCIe, and USB specifications
- Worked with team to meet deadlines and stay organized by being a reliable team member

HDMI to parallel RGB converter — Nov 2023

- Ensured TMDS signal integrity through length matching and tuning parasitics with simulations
- Analyzed datasheets for proper specifications to meet rigorous team-set standards
- Reduced crosstalk by 10 dB and signal line impedance with Ansys SIwave, enhancing system reliability

Analog Brake System Plausibility Device (BSPD) — Oct 2023

- Minimized board space usage by 10% by improving component selection and placement
- Design currently used to protect vehicle from low-voltage faults and respond to emergency braking

Extracurricular

Electrical Hardware Member, Penn Electric Racing (FSAE) — Sept 2023 – Present

- Debugged PCB errors through bench-testing with multimeter, oscilloscope, and function generators
- Identified and corrected design errors early in the development process, reducing the risk of costly rework and ensuring the reliability of final products
- Documented review findings and communicated them effectively to the design team, ensuring all feedback was clearly understood and implemented

Work Experience

Student Librarian, Penn Museum Library — Sept 2023 – Present

- Efficiently managed and reshelved a diverse collection of books and materials, ensuring optimal organization and accessibility for library patrons.
- Provided comprehensive assistance to students in locating books and resources to facilitate the checkout process.

Skills

- **CAD:** Altium Designer, SolidWorks
- **Programming:** Python, Java, C, Verilog
- **Analysis:** Ansys SIwave, LTspice