Peter Zhao

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Education

University of Wisconsin-Madison Madison, WI

Bachelor of Science in Electrical Engineering, Computer Science, Mathematics *Expected Graduation: May 2026*

- **Specialization:** Emphasis on Machine Learning and Data Science
- **Related Coursework**: Circuit Analysis, Algorithms, Combinatorics, Real Analysis (Advance Calculus), Matrix Machine Learning, Fourier Analysis, Java

Projects

Predictive Term Longevity Analysis (ROT.AI) | ***Hackathon Project, Full-Stack Development*** November 2024

- Designed and implemented a system to analyze and predict the longevity of slang and "brainrot" terms, focusing on their popularity trends and future relevance in online communities.
- Automated scalable data pipelines using web scraping (Reddit) and Google API to collect and preprocess real-time data.
- Built and trained predictive models with PyTorch, using time series analysis to accurately forecast how long a term would remain popular.

Badger Solar Racing Solar Car | ***Altium PCB Design, Sensor Data Collection*** September 2024 – Present

- Designed integrated PCB systems in Altium Designer, enabling seamless real-time telemetry that linked critical Motor Control Center, Motor Controller, and Power Distribution boards.
- Optimized sensor placement and data accuracy in temperature and irradiance measurement, elevating environmental data collection reliability and improving car performance in test phases.

Automated Litter-Box Disposal System | ***Circuit Design, Sensor Integration*** January 2024 – May 2024

- Designed an automated litter-box using Arduino, integrating motion and weight sensors that reduced cleaning time by 30%, enhancing system hygiene and user convenience.
- Incorporated MQ137 ammonia sensors with RGB LED indicators, triggering notifications to users for maintenance based on ammonia thresholds, reinforcing system functionality and reliability.

Experience

Undergraduate Researcher September 2024 – Present

University of Wisconsin-Madison — Morgridge Institute for Research *Madison, WI*

- Developed and soldered high-frequency circuits for LED-based transient lighting to enable fluorescence imaging in well-lit operating rooms. Assembled and tested rapid switching modules and synchronized timing controls, ensuring reliable and safe operation in clinical environments.
- Fabricated and assembled circuits for next-generation prosthetic hand prototypes, integrating sensors and micro-controllers for feedback and control.

Math/Engineering/Computer Science Tutor January 2024 – Present

University of Wisconsin-Madison *Madison, WI*

- Led one-on-one tutoring in Calculus and Physics, tailoring techniques to students' needs and raising their grades by an average of 20%.
- Integrated MATLAB into lessons for real-world physics simulations, enhancing students' grasp of complex concepts and computational skills.

IT and Electrical Support (Family-Owned Restaurant) May 2019 – May 2023

China Wok Chinese Restaurant *Green Bay, WI*

- Independently built and configured a custom PC tailored to the restaurant's ordering and inventory needs, optimizing performance and reducing order handling time by approximately 25%.
- Designed, wired, and installed a three-screen digital menu board system from scratch. Conducted hypothesis testing to assess screen visibility and optimize placement for customer engagement, with adjustments based on customer interaction observations

YouTube Content Creator July 2017 – May 2023

YouTube *Remote*

- Applied advanced audio processing techniques in Adobe Audition, enhancing sound clarity, reducing noise, and balancing frequencies for an immersive viewing experience, crucial in technical tutorials.
- Utilized microphone positioning, impedance matching, and gain control—key electrical principles in audio processing—to achieve professional audio quality

Technical Skills

EE Tools: Altium Designer, LTSpice, MATLAB, LabVIEW, Multisim
Languages: Python, C, Java, Assembly, Arduino, LaTeX
Technical Programs: SolidWorks, Excel, Keytech, 3D Experience, LibreOffice
Software: Word, PowerPoint, Photoshop, Lightroom, After Effects, Premiere Pro, Adobe Audition, Blender, Cinema 4D