Ben Pekarek

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EDUCATION

Stanford University, *Master of Science in Electrical Engineering, 4.0 GPA* March 2026

Purdue University, *Bachelor of Science in Electrical Engineering, Minor in Spanish, 4.0 GPA* May 2024

- Engineering Fellow: 1 of 7 students honored for significant contribution to Purdue community
- Awards: Outstanding ECE Student Scholarship, Robert and Marjorie Begeman Scholar, National Merit Scholar

PROJECTS

Fine-tuning of Diffusion Policy Using Residual RL for Robot Task Proficiency January 2025 – March 2025

- Demonstrated improved success rate of 94.25% on Push-T task by combining Diffusion Policy with RL fine-tuning
- Implemented residual RL training and environment integration for image-based robotic manipulation

Cargo Ship Time-To-Port Prediction Using AIS Data January 2025 – March 2025

- Designed and deployed distributed data pipelines to process 3TB AIS dataset for real-time port ETA prediction
- Developed interactive visualizations and trained gradient boosting and neural models, achieving 8.06-hour MAE

WORK EXPERIENCE

Purdue University, *Wireless Charging of In-Motion Vehicles Researcher* January 2023 – May 2024

- Designed complete control system architecture for 230 kW inverters used to charge moving vehicles
- Implemented and validated inverter software on TI microcontroller to enable detection and charging of vehicles
- Specified fiber-optic hardware for inverter communication and integrated hardware into inverter design
- Created and verified high voltage hardware setups for testing gate-drivers, inverter, and power transmitter
- Communicated power transmitter building procedures to construction contractors

John Deere, *Electric Drive Controls Intern* May 2022 – August 2022

- Designed and validated automatic braking vehicle controls in Simulink, enabling savings of $6000 per vehicle manufactured by leveraging hardware already on-vehicle
- Engineered and supervised integration of low voltage electrical harness for battery subsystem charge testing

John Deere, *Embedded Software Intern* May 2021 – August 2021

- Built simulator for vehicle software in Visual Studio, allowing software development to progress without a physical prototype ultimately saving 80 engineer-hours per year

LEADERSHIP

Sant Cugat FC España, *Camp Counselor / Youth Soccer Coach* June 2024 – July 2024

- Led daily sports and team-building activities for 20 kids while living and working exclusively in Spanish

Purdue Engineering Student Council, *President* January 2023 – December 2023

- Facilitated operation of 35 events by 40-member organization to serve 5,500+ students per semester
- Partnered with Purdue President's Office to reduce credit card transaction fee from 15% to 6% for student clubs

Purdue Engineering Student Council, *Industrial Roundtable Director* January 2022 – December 2022

- Led team of 7 students to operate largest student-run career fair in the USA (430 companies, 12,000 attendees)
- Managed six figure budget, negotiated vendor contracts, and interfaced with university, government, and industry officials to deliver a safe and productive event

SKILLS

Programming Languages: Python, C, Julia, MATLAB, PHP, JavaScript, Basic C++
Software: Simulink, Simscape, LTSpice, Visual Studio, GitHub, Microsoft Office, Basic Autodesk Inventor