

Gabriella Giachini

<https://ggiachin.github.io/>

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Education

Purdue University, West Lafayette, IN

Master of Science in Mechanical Engineering, in Robotics and Controls

Bachelor of Science in Mechanical Engineering, Minor in Computer Science

West Lafayette, IN

GPA 4.00/4.00 May 2024

GPA 3.87/4.00 May 2023

Skills

Technical Skills: Python, FANUC, PLC, CAD, C, SQL, ROS2, PyTorch, LabVIEW, C, MATLAB, Arduino

Machining Skills: Mills, Drill press, bandsaw, 3D printers

Languages: English (fluent), Spanish (native), Italian (native)

Professional Experience

Assembly Engineer, NSK Corporation, Franklin IN

July 2024 - Now

- Lead the implementation of Autonomous Mobile Robots (AMRs) at the facility, coordinating cross-functional teams, system requirements, project timelines, and production deployment.
- Designed, programmed, and validated vision-guided cobot cells across 3 production lines — integrating part verification and existing machine interfaces — to extend unattended runtime, yielding a 30x improvement.
- Developed a Python application that automates data extraction and analysis across manufacturing databases, delivering weekly production metrics while reducing manual reporting by 12 hours/week.
- Improved assembly machine reliability and reduced cycle time through root cause analysis and troubleshooting of recurring mechanical and process failures.
- Support new product launches across 5 production lines by designing manufacturing tooling, validating production processes, and implementing engineering improvements to ensure efficient and reliable production.

Manufacturing Engineering Intern, EControls, San Antonio TX

May - Aug. 2021, 2022

- Designed and tested an automated fixture for battery cell unwrapping to reduce operator ergonomic risks.
- Developed a LabVIEW dashboard that visualizes real-time battery module production data from EControls' SQL database, giving engineers live visibility into line performance and bottlenecks.

Projects

Multi-Agent Robotic Project, Computer Science dept. at Purdue

Aug. 2023 - May 2024

- Implement an HSV-based image processing localization model and robust state-estimation controller to navigate multiple robots in performing neural rearrangement of objects in cluttered environments.

AI-Driven Production Monitoring, Mechanical Engineering dept. at Purdue

Feb. - May 2024

- Partnered with Dayton Phoenix Group Inc. to automate in real-time the production log for their J-Series resistors.
- Implemented 90% accurate convolutional neural network model using sound sensor data.

Hate Speech Detection using Machine Learning, ECE dept. at Purdue

Oct. - Dec. 2023

- Replicated research paper "Hate Speech Detection using Attention-based LSTM" from scratch, using Twitter data. Achieved an F1 score 0.803, which deviates by 7% from the score reported in the paper.

Navigation in Dynamic Environments w/ SPOT robot, CompSci dept. at Purdue

March - May 2023

- Trained imitation learning model with SCAND dataset to navigate Spot robot in social dynamic environments using RRT (rapidly-exploring random tree) planner. Model tested on Gazebo simulation.

Semiconductor Hotspot Detector, Mechanical Engineering dept. at Purdue

Jan. - May. 2023

- Managed controls and electrical team in the development and testing of the precise 2-axis motor movement operation and assembly of a semiconductor hotspot imitation system.

Mechatronics World Cup Competition, Mechanical Engineering dept. at Purdue

Aug. - Dec. 2022

- Led electrical and software team in the design, manufacturing and debugging of a fully automated soccer-playing robot that seeks, acquires, aims and scores a ball accurately 4/5 times, under a minute.

Time Attack Competition, Mechanical Engineering dept. at Purdue

April - May 2022

- Headed team of three engineers to code a fast and precise line-follower robot for the Mechanical Engineering System Modeling and Analysis course competition and received third place award.