Scott Torzewski

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EDUCATION

Lafayette College: *Bachelor of Science, Electrical and Computer Engineering* | *Math Minor* *May 2025* | **Easton, PA**
Saint Louis University: *Engineering Study Abroad* *Spring 2023* | **Madrid, Spain**

SKILLS

Languages & Platforms: Python • SystemVerilog • SQL • MATLAB • Vivado • KiCad • LTspice • Streamlit • AutoCAD
Technical Skills: Embedded Systems • Circuit Simulation • FPGA Design • PCB Layout • Microcontrollers • Pipelining Communication Protocols • Sensors Integration • Power System Modeling • Timing Constraints • ML • Instrumentation

PROJECT EXPERIENCE

Smart Assisted Security System - *Embedded Systems, Hardware Integration, Optoelectronics* *August 2024*

- Developed a sensor-based security and accessibility system combining a 200-foot optical audio transceiver and a 20-device control platform. Designed and fabricated PCBs with trace-optimized layouts, reducing signal interference by **30%** and voltage ripple by **18%**. Integrated Python-based firmware on a Raspberry Pi Pico W to manage real-time input from motion sensors, keypad, speaker, and camera modules. Validated signal performance via oscilloscope analysis and produced documentation including full schematics, budgeting, and wiring diagrams.

EnergiX Sim Suite - *FPGA Hardware-Accelerated ML Inference Pipeline* *March 2025*

- Designed and simulated a hybrid ML inference system comparing real-time FPGA logic against Python-based classification. Implemented a fixed-point decision tree in SystemVerilog with hardware-level risk scoring and validated under a 100 MHz timing constraint with 0.1 ns slack. Achieved **98%** class agreement over 48 simulated inputs. Integrated a full-stack Streamlit dashboard to visualize prediction deltas and risk divergence. Applied testbench-driven validation, pipelining, and HDL formatting to mirror embedded deployment conditions.

Predictive Data Science for Manufacturing Defects - *Machine Learning, Data Analysis* *February 2025*

- Built machine learning models to predict defect likelihood and dimensional variation in 3D-printed parts using classification and regression techniques. Improved R^2 from **0.8648** to **0.9353** and reduced error (MAE ↓**25%**, RMSE ↓**30%**) through hyperparameter tuning, feature selection. Used SQL for data preprocessing, XGBoost for modeling. Interpreted complex nonlinear relationships to optimize process parameters using Pandas, Matplotlib.

WORK EXPERIENCE

Day & Zimmerman | Mason & Hanger - *Electrical Engineering Intern* *May 2024 - August 2024* | **Lexington, KY**

- Modeled critical power and lighting infrastructure in CAD/BIM platforms for classified military facilities.
- Assisted in low-voltage power distribution planning, circuit breaker schedules, and bid support documentation.
- Collaborated cross-functionally with architects and systems engineers to refine technical submittals.
- Helped secure 3 successful project bids by contributing detailed schematics, system modeling, and cost estimates.

Royce Brook Golf Club - *Operations Associate* *May 2022 - August 2023* | **Hillsborough, NJ**

- Provided exemplary service to over 5000 customers and developed a logistics system for monitoring enrollment admissions, reducing weekly operational costs by **10%** and streamlining customer registration processes.

LEADERSHIP EXPERIENCE

Johnson & Johnson - *Technology Awareness Program (TAP)* *June 2022*

- Project Lead in design of scalable mobile hospital network with structured navigation routes and an HTML-based web interface for remote patient intake, health record access, and route coordination in underserved regions.

Boy Scouts of America - *Eagle Scout | Meritorious Award | World Conservation Award* *March 2013 - August 2018*

- Successfully led a team of 35 volunteers in designing and constructing a durable roof for an outdoor dog enclosure. Completed project in **125** hours, demonstrating effective leadership, teamwork, and problem-solving.

RECOGNITION & COURSEWORK

Awards: Eagle Scout, BSA • Marquis Scholar, Lafayette College • Bergh Family Fellow Recipient
Courses: Digital Circuits • Embedded Systems • Control Systems • Sensors & Electronics • Statistics • Design Thinking