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 • MATLAB • LabVIEW • LTspice • Altium • SystemVerilog • Cadence/EDA Tools
Technical: PCB Layout & Design • Analog & Digital Circuits • Embedded Systems & Microcontrollers (I^2C/SPI/UART) Power & Control Systems Modeling • Optoelectronic Instrumentation • Semiconductor Devices • Signal Processing

PROJECT EXPERIENCE

Adaptive Smart Home System for Users with Motor Impairments *May 2025*

- Developed an adaptive smart home system using a BLE remote, optical sensors, and ArduCAM video streaming (UART/MQTT), reducing system response time by 25% and enabling real-time device monitoring.
- Designed MOSFET-controlled smart lock and modular circuits, optimizing PCB layout to prevent current surges at power-on. Simulated in LTspice, reducing inrush current by 40% through circuit protection modification.
- Integrated embedded systems, low-level circuit design, and optoelectronic instrumentation for enhanced user autonomy and daily living capabilities for individuals with severe motor impairments.

Biomedical Systems Modeling and Implementation *December 2024*

- Modeled enzyme clustering and cardiovascular/respiratory systems in MATLAB/Simulink, achieving 92% predictive accuracy for metabolic and physiological behavior.
- Designed enzymatic and non-enzymatic glucose biosensors and optimized signal acquisition protocols across 10+ physiological trials including ECG, EEG, and spirometry measurements.
- Applied sensor instrumentation and circuit design principles to extract actionable biomedical insights from real-world datasets, supporting wearable and clinical monitoring applications.

WORK EXPERIENCE

ABEC, Inc. - *Electrical Engineer* *June 2025 - Present* | **Bethlehem, PA**

- Designed and implemented power and control systems for bioreactors, fermenters, and chromatography platforms.
- Integrated motors, VFDs, pumps, and sensor arrays (UV, NIR, pH, O_2/CO_2, conductivity, optical density, RTDs) into 24 VDC, single-phase, and three-phase circuits.
- Applied EE principles to measurement and control of cellular and biochemical processes, linking instrumentation, signal processing, and circuit design to advanced cell therapy platforms (ATB).
- Collaborated with global biopharma clients to ensure compliance with U.S. and international standards.

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

- Modeled critical power and lighting infrastructure in CAD/BIM platforms for federal/military facilities.
- Assisted with high voltage distribution planning, circuit breaker schedules, and bid documentation.
- Supported 3 successful project bids through detailed schematics, system modeling, and cost estimates.

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
Relevant Courses: Digital Circuits • Embedded Systems • Sensors & Electronic Systems • Signals & Systems • Solid State Devices • Electromagnetics • Biomedical Systems • Statistics • Probability