

# Timothy Bielefeld

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## Education

**Purdue University** - West Lafayette, IN

**Bachelor of Science in Electrical Engineering** - May 2028

- GPA: 4.00; Dean's List/Semester Honors, 2024-2025
- Relevant coursework: Signals & Systems, Electromagnetism, Python for Data Science, Advanced C Programming, Linear Algebra, EE Fundamentals I and II + Labs

## Technical Skills

- **Programming:** C/C++, Python (NumPy, SciPy), MATLAB
- **Controls & Modeling:** System modeling, feedback control, noisy data analysis
- **Embedded & Hardware:** Microcontrollers, PWM, analog circuit design
- **Tools:** LTSpice, GitHub, oscilloscope, multimeter, Excel, SQL, HTML/CSS

## Work Experience

**Trainer**, May 2025 - Current

**Golden Boot Soccer** - Fairfax, VA

- Refined coaching techniques to deliver structured, performance-driven training regimens
- Delivered advanced training sessions for 100+ athletes, applying techniques learned from Major League Soccer and collegiate coaches.

**Trainer and Referee**, June 2018 - December 2024

**Great Falls Reston Soccer Club** - Reston, VA

- Trained and mentored 70+ youth athletes, developing leadership and communication skills.
- Managed 50+ matches, ensuring fairness and safety under the laws of the game.

## Projects

**Wearable Haptic Feedback System for Soccer Skill Reinforcement**, 2025–Present

- Prototyping wearable vibration modules using Python and microcontrollers to deliver timed haptic cues for real-time skill reinforcement.
- Designed for configurable feedback profiles based on player position and training context.

**Audio Equalizer**, 2025

- Designed, simulated, and experimentally validated a 3-band analog audio equalizer using RC filters and op-amp gain stages, achieving 100 Hz–10 kHz response within  $\pm 2$  dB.

**Cruise Control Algorithm**, 2025

- Modeled and validated a MATLAB-based cruise control system using noisy sensor data, evaluating closed-loop stability across varying vehicle mass and tire dynamics.

**Artificial Intelligence Paper**, 2024

- Authored an industry-focused paper for Advanced Systems Engineering Corporation analyzing AI's impact on engineering workflows, verification, and ethical risk.

## Activities

- Soccer, Purdue Club Soccer - Safety and Facilities Officer (2026), GFRSC (Captain 2023, 2024), Players Soccer Academy (Captain 2022), Langley High School Varsity (Captain 2024), 2020 - Present
- Arduino Circuit Design Projects: stoplight, kitchen timer, temperature/humidity sensors