SRUTHIKA SHIVAKUMAR

West Lafayette, IN • (502) 298-5786 • shivaks@purdue.edu • linkedin.com/in/sruthikashivakumar • github.com/sruthika2006

EDUCATION

Purdue University — B.S. Computer Engineering, John Martinson Honors College Graduating Fall 2027
Focus: AI/ML, Semiconductors & Microelectronics, Computer Systems • Minor: Forensic Sciences

TECHNICAL SKILLS

Hardware & Integration: Python, C, C++, electro-mechanical systems, circuit prototyping, PCB Design, oscilloscope, JTAG, schematic reading, hardware bring-up, test setup design, iterative validation
Embedded & Protocols: Arduino, Raspberry Pi, STM32, RP2350, FPGA, SystemVerilog, I2C, SPI, UART, PWM, JTAG, bare-metal programming
AI / ML / CV: PyTorch, TensorFlow, OpenCV, Pose Estimation, Object Detection, LiDAR, sensor fusion, MATLAB
Tools: Git/GitHub, Linux, Docker, AWS, Azure, GCP

EXPERIENCE

Undergraduate Teaching Assistant | *Hardware for ML (ECE 69500), Purdue University* Jan 2026 - Present
- Selected as UTA for a graduate-level course on hardware acceleration and VLSI design for ML, a rare undergraduate appointment.
- Mentored students on FPGA design, hardware-software co-design, and debugging electro-mechanical and digital systems.

Research Assistant | *AI for Musicians, Vertically Integrated Projects, Purdue* Jan 2026 - Present
- Design and prototype autonomous robotic systems integrating embedded hardware, control logic, and ML-based perception — hands-on cross-disciplinary engineering from concept through testing.
- Develop real-time firmware in C/C++ and Python; validate system behavior through iterative hardware testing cycles and document findings throughout.
- Collaborate with hardware and software engineers to debug integration issues and implement fixes across mechanical and electrical subsystems.

Software Lead | *Holographic Monitor Project* Jul 2025 - Present
- Led cross-functional team building a real electro-mechanical product; owned integration between hardware and software subsystems.
- Designed and optimized a CV algorithm improving efficiency by 25%; ran characterization studies and presented results to stakeholders.

PROJECTS

Security+ Home Security System | *Hardware/Software Engineer* Spring 2026
- Built a fully functional multi-zone embedded security system on the RP2350 microcontroller — assembled hardware, wrote firmware, and validated the complete system end-to-end.
- Managed simultaneous communication across GPIO, I2C, SPI, and PWM while maintaining event-driven responsiveness; implemented persistent EEPROM storage and SD card logging.

FPGA VGA Pong Game | *Hardware/Software Engineer* Oct 2025 - Dec 2025
- Designed real-time hardware control logic from scratch in SystemVerilog; designed and executed test cases, debugged signal integrity failures, and validated system behavior on physical hardware.

LiDAR Body Measurement App (iOS) | *Software Engineer* Dec 2025
- Built a real-time sensor-fusion pipeline combining LiDAR depth data with pose estimation; implemented custom calibration algorithms and systematically validated output accuracy.

RELEVANT COURSEWORK

ECE Core: EE Fundamentals I & Lab, Advanced C Programming, Digital System Design, Microprocessor Systems & Interfacing, Data Structures

LEADERSHIP & CERTIFICATIONS

Head of Learning | *Purdue IEEE* Dec 2025 - Present
- Oversaw technical workshops on embedded systems, robotics, and programming for 100+ student members.

AWS Cloud Practitioner • GCP Digital Leader • Azure Fundamentals • Oracle Certified Associate • MTA (Microsoft) • GFACT Cybersecurity (GIAC) • Published Research, The Young Researcher (2023)