

# Shreyas Harish

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## OBJECTIVE

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Electrical Engineering and Physics student with a strong foundation in semiconductor devices, circuit analysis, and hardware testing, seeking an internship in semiconductor process, device, manufacturing, or applications engineering where I can apply hands-on lab experience, data analysis, and physics-based problem solving.

## EDUCATION

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**Virginia Commonwealth University (VCU), Richmond, VA**

May 2027

**Bachelor of Science:** Electrical Engineering and Physics

**Minor:** Mathematics

**GPA: 3.8; Dean's List (Fall 2023 – Present)**

## TECHNICAL FOCUS

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Semiconductor device physics, fabrication and manufacturing processes, circuit design and analysis, device characterization, process variability analysis, and data-driven engineering optimization.

## TECHNICAL SKILLS

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**Semiconductor & Device Engineering:** Semiconductor devices (MOSFETs, BJTs, diodes, LEDs, FinFET fundamentals), device physics, heterostructures, bandgap engineering, I–V and C–V characterization.

**Circuit & Hardware Engineering:** Analog and digital circuit analysis, PCB-based system debugging, embedded hardware testing, electrical measurements, and validation.

**Process & Data Analysis:** Process variability analysis, data-driven root cause identification, performance optimization, statistical analysis, and technical documentation.

**Tools & Software:** MATLAB, Python, LabVIEW, SPICE, Power BI, Linux/UNIX, oscilloscopes, source meters, power supplies, function generators.

## ENGINEERING & RESEARCH EXPERIENCE

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**Research Assistant Intern | VCU College of Engineering | Richmond, VA**

February 2025 – November 2025

- Conducted research on semiconductor heterostructures, focusing on material behavior, device interfaces, and electrical performance for next-generation electronic devices.
- Assisted in semiconductor device modeling, including analysis of carrier transport, doping effects, and band structure simulation.
- Performed I–V and C–V electrical characterization to evaluate semiconductor device behavior, reliability, and performance trends.
- Developed mechanical CAD designs using Autodesk Inventor for sample holders, probe alignment, and test fixtures supporting electrical measurements.

**Engineering Fellowship Intern | VCU Undergraduate Research | Richmond, VA**

May 2025 - August 2025

- Developed a predictive Ground Control Point (GCP) planning tool using GDOP-based accuracy modeling to optimize GCP quantity and placement for drone-based 3D mapping.
- Integrated flight parameters, camera geometry, and terrain DEM data to automatically generate ArcGIS-ready outputs (KML, shapefiles, feature layers) for improved pre-mission planning.
- Implemented iterative optimization algorithms that reduced field survey requirements and improved mapping accuracy across diverse terrain conditions, from flat to mountainous regions.

**Teaching Assistant – Semiconductor/ Circuit Labs | VCU Engineering | Richmond, VA**

August 2024 - Present

- Guided students through building and debugging electrical systems using measurement tools and structured troubleshooting methods.
- Assisted student in building, testing, and troubleshooting semiconductor circuits, reinforcing theoretical concepts with hands-on practice.

**Artificial Intelligence (AI) Security Intern | VCU Project | Richmond, VA**

August 2024 - January 2025

- Implemented Brute Force Attack and Password Hacking techniques to study cybersecurity vulnerabilities and defense mechanisms.
- Performed adversarial testing with Flipper Zero and custom Python tools to uncover vulnerabilities in inference manipulation and data integrity.

**Embedded System Project | VCU Engineering | Richmond, VA**

January 2025 - May 2025

- Built an autonomous robot using STM32 microcontroller, IR/distance sensors, PWM motor control, and LCD feedback.
- Implemented and debugged UART and I<sup>2</sup>C communication for sensor interfacing and real-time system control.
- Designed a custom PCB motherboard and programmed real-time control logic in C.
- Created AutoCAD schematics documenting chassis layout, sensor placement, and wiring pathways.