

Shatakshi Iksha

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EXPERIENCE

Research and Development Engineering Intern

May 2026 – Present

Fraunhofer USA, Inc.

East Lansing, MI

- Designed and executed 50+ DOE-based experiments to optimize RF magnetron sputtering and PVD thin-film processes, using COMSOL simulation and statistical analysis to guide process parameter decisions.
- Analyzed 100+ XRD, AFM, and electrochemical datasets and wrote data analysis scripts to identify root causes of process variability and inform corrective process actions.

Research Assistant

May 2025 – Aug. 2025

Fraunhofer IWS

Dresden, Germany

- Performed tensile testing, SEM, EBSD, and digital image correlation (DIC) analysis to characterize the mechanical behavior and microstructure of laser powder bed fusion (LPBF)-manufactured metamaterials.
- Applied Random Forest and Bayesian machine learning models to evaluate manufacturing outcomes and identify process parameters influencing mechanical performance.

Undergraduate Research Assistant

May 2024 – Dec. 2025

Arizona State University

Tempe, AZ

- Designed and executed cyclic-bending experiments across 1,000+ test cycles to evaluate reliability and degradation behavior of MAPbI₃ thin-film materials, using photoluminescence spectroscopy and XRD to track degradation trends.
- Developed Weibull and linear regression models in Python/R to analyze reliability datasets and translate degradation trends into process improvement recommendations.

PROJECTS

3D Printed Prosthetics | CAD, 3D Printing, Additive Manufacturing, Rapid Prototyping

Jan. 2024 – May 2024

- Delivered a functional, low-cost prosthetic device, measured by successful assembly and user-centered test outcomes, by developing CAD models and applying additive manufacturing and iterative rapid prototyping.

FPGA Digital Design Project | Verilog, ASIC, Xilinx Vivado

Aug. 2025 – Dec. 2025

- Delivered a verified hardware control subsystem, measured by successful timing closure and hardware verification, by designing FPGA architectures in Verilog/SystemVerilog and implementing FSM-based digital control logic.

Autonomous Robotics Navigation System | C, C++, Embedded Systems, UART

Jan. 2026 – Present

- Delivered a real-time autonomous navigation system, measured by successful multi-sensor fusion and localization, by developing C-based control software, UART communication, and PID-based motion control.

EDUCATION

Arizona State University

Tempe, AZ

B.S. in Computer Systems Engineering; Minor in Materials Science Engineering

Aug. 2023 – May 2027

- GPA: 3.5/4.0

SKILLS

Semiconductor Process Engineering: PVD, RF Magnetron Sputtering, DOE, Statistical Process Control, Process Qualification, Yield Improvement, Reliability Engineering, Root Cause Analysis

Materials Characterization & Metrology: XRD, AFM, SEM, EDS, EBSD, Digital Image Correlation (DIC), Photoluminescence Spectroscopy, Electrochemical Analysis, Tensile Testing

Data Analysis & Modeling: Python, R, NumPy, Pandas, SciPy, Matplotlib, Statistical Analysis, Machine Learning (Random Forest, Bayesian, Weibull, Linear Regression), COMSOL Multiphysics

Additional: C, C++, Verilog/SystemVerilog, CAD, Additive Manufacturing, LPBF