

# Nabila Nabi Nova, PhD

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Results-driven engineer with expertise in semiconductor yield analysis, process optimization, and nanomaterials characterization. Passionate about integrating AI and data-driven methodologies to enhance process efficiency, defect reduction, and materials research. Adept at cross-functional collaboration and technical communication.

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## EXPERIENCE

### 2025 – Present

AI & Web Developer (Personal Projects) | Portfolio Website & Interactive Applications

- Developed a research portfolio website with interactive data visualizations, AI-driven automation, and engaging animations to illustrate nanomaterials and process engineering concepts with the help of LLMs.
- Built interactive games using JavaScript, HTML, and CSS to explain nanomaterials research.
- Leveraged GitHub for version control and continuous improvements.

### 2022 – 2024

Yield Development Engineer | Intel Corporation | Hillsboro, OR

- Led wafer test analysis, reducing defect density by 75% through yield pareto and roadmap optimization.
- Developed an AI-enhanced yield projection system to track inline wafer performance, reducing scrap costs.
- Automated data extraction and analysis using JSL scripting, streamlining defect detection and decision-making.
- Performed root cause analysis on new defects, collaborating with Integration teams for corrective actions.

### 2017 – 2022

Graduate Researcher | The Pennsylvania State University | University Park, PA, United States [[Publications](#)]

- Pioneered nanomaterials synthesis via high-pressure chemical vapor deposition (HPCVD) and laser micropatterning.
  - Led TEM and XPS characterization for high-entropy oxides and water-splitting catalysts in collaborative projects.
  - Developed AI-powered data analysis workflows for materials characterization and defect mapping.
  - Engineered quantum-confined silicon and germanium metalattices, contributing to record-low thermal conductivity (0.16 W/m/K).
  - Secured NSF Career Award for PhD advisor through strategic proposal writing.
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## EDUCATION

**2022: PhD in Chemistry | The Pennsylvania State University, University Park, PA | GPA: 3.84 out of 4.00**

**2016: Bachelor of Science in Chemistry | University of Dhaka, Dhaka, Bangladesh | GPA: 3.72 out of 4.00**

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## RELEVANT SKILLS

- **AI & Automation:** Machine learning-based data analysis, AI-driven automation for defect detection, Python scripting for data processing
- **Web Development:** JavaScript, HTML, CSS, interactive web applications, GitHub version control, AI-based content generation
- **Statistical Data Analysis, Scripting, Software:** COMSOL, MATLAB, JMP, GitHub, Data automation using JSL, Agile methods
- **Characterization Techniques:** SEM, TEM, XPS, XRD, profilometry, ellipsometry, electrical testing
- **Process Engineering:** Statistical Process Control (SPC), Design of Experiments (DOE), Failure Analysis, New product Introduction (NPI), process optimization, defect mapping, cleanroom, plasma-etch tools, high vacuum systems, chemical vapor deposition, laser deposition
- **Project Management:** Cross-functional collaboration, team communication, proposal writing, elevator pitches to stakeholders, scientific communication for diverse audiences