

Paresh Mathur

Product Leader | Semiconductor Applications | AI-Enabled Workflows

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PROFESSIONAL SUMMARY

Product leader with 8+ years of experience spanning semiconductor lithography, data-intensive optimization, and cross-functional product delivery. Built and led products across legacy optical lithography and advanced EUV environments, translating complex machine and wafer data into usable diagnostics, optimization applications, and operational KPIs. Strong record of aligning technical teams and business stakeholders to deliver high-value products in complex, ambiguity-heavy domains, with growing emphasis on AI-assisted workflows and developer tooling.

CORE SKILLS

Product Ownership, Portfolio Leadership, Agile / Scrum, Stakeholder Management, Backlog Prioritization, Requirements Gathering, User Stories, Acceptance Criteria, AI Product Development, Prompt / Instruction Design, Coding Agents, Developer Tooling, Metrics and Experimentation, Cross-functional Collaboration

EXPERIENCE

ASML | Chief Product Owner

Dec 2024 - Apr 2025, Jun 2025 - Present

- Lead a portfolio of 10+ lithography application products across diagnostics, on-scanner optimization, and computational patterning and diagnostics, spanning 4 teams and approximately 35 engineers and specialists.
- Served as acting Chief Product Owner for the Wafermap Modeling Train, assuming ownership of business-line application products during an interim leadership assignment and continuing in the role after the procedural gap.
- Drive portfolio planning across long-range capacity, staffing priorities, budget-level tradeoffs, and cross-team dependency resolution.
- Align Release Train Engineers, Group Leads, product management, marketing, customer support, and other stakeholders around execution priorities and portfolio goals.
- Advanced a portfolio strategy centered on reusable foundation models, improving consistency, scalability, and long-term maintainability across products.

ASML | Product Owner

Nov 2022 - Present

- Own backlog prioritization, roadmap input, requirements, user stories, acceptance criteria, and delivery for image-optimization products used by focus application customers.
- Partner with a 10-engineer team and stakeholders across marketing, UX/UI, customer support, product management, and project management to convert customer and business needs into deliverable product increments.
- Defined and launched 2 product suites and continue to lead a third, centered on model-based wafer-topography optimization for contamination detection, focus correction, and overlay correction.
- Bring structure to ambiguous technical problem spaces by working closely with software engineers and domain experts to turn advanced modeling capabilities into usable product value.
- Enabled customers to improve yield and reduce rework on critical layers by translating complex technical solutions into practical, outcome-oriented products.

TSMC | Engineer, Equipment Expert Team

Jul 2016 - Mar 2019

- Worked in the Equipment Expert Team in ALEMP, MTC, focused on optical lithography and associated light sources in a semiconductor R&D environment.
- Contributed to EUV scanner and light source R&D across NXE3300 through NXE3400 platforms.
- Led a big-data optimization initiative on an EUV source, engineering features from source data to optimize pre-pulse versus main-pulse timing for improved plasma generation and EUV output from tin.
- Applied data-driven analysis in a physically complex system where pre-pulse conditioning, main-pulse CO2 absorption, and timing windows directly affected source performance.
- Supported broader analytics initiatives including machine learning analysis, predictive maintenance, root-cause investigation, statistical modeling, SPC rule generation, offline diagnostics tooling, and KPI development from scanner logs and defect maps.

PROJECTS

Nanobot Discord Integration | Open Source Contribution

2026

- Contributed a merged pull request that migrated the Discord integration from custom gateway and REST handling to `discord.py`, improving stability and maintainability.
- Added test coverage for Discord functionality and implemented slash commands including `/new` and `/help`, improving usability for agent interactions in Discord.
- Contributed to developer-facing AI tooling in an agent framework, with work spanning architecture simplification, channel workflow improvements, and Discord interaction design.

EDUCATION

Indian Institute of Technology, Kanpur

Master's Degree, Photonics Science and Engineering | 2014 - 2016

Shri U V Patel College of Engineering, Ganpat University

Bachelor's Degree, Electronics and Communication Engineering | 2009 - 2013

TOOLS AND TECHNOLOGIES

Product / Delivery

Jira, Jira Align, Confluence, Miro, roadmap planning, backlog prioritization, user stories, acceptance criteria, stakeholder alignment, capacity planning, portfolio planning

Technical / Analytical

Python, MATLAB, Julia, Power BI, model-based optimization, big-data analysis, feature engineering, statistical modeling, root-cause analysis, KPI development, SPC, diagnostics tooling

AI / Workflow

Codex CLI, OpenCode, OpenSpec, AI-assisted development workflows, prompt and instruction design, structured execution workflows