

# CHINMAY ROZEKAR

Nashik, MH | chinmay.rozekar@gmail.com | +91 90289 96991 | linkedin.com/in/chinmayrozekar |  
github.com/chinmayrozekar

## PROFESSIONAL SUMMARY

Software QA Engineer with 5+ years of experience across semiconductor validation and EDA automation, integrating AI/ML workflows to enhance reliability analysis and regression efficiency. Skilled in Python, Tcl, and Linux-based automation frameworks, with hands-on experience building data-driven QA pipelines, machine-learning models, and Generative-AI applications. Proven record of improving test coverage, reducing cycle time, and strengthening product quality through intelligent automation and analytical insight.

## TECHNICAL SKILLS

**Languages:** Python, Tcl/Tk, Shell, SVRF, C/C++, Perl

**EDA/Verification:** Calibre PERC, DRC/LVS, LDL, RVE

**QA:** Regression automation, coverage tracking, rule sequencing/debug, Grid job scheduling (Terra)

**Infrastructure & Automation:** RHEL/SLES, grid scheduling, queue/priority tuning

**AI/ML:** TensorFlow, PyTorch, Scikit-learn, Transformers, LLMs, RAG, Embedding Models, Hugging Face

**CI/CD:** GitHub, CVS, GitLab, Bitbucket, Jira, Confluence, Docker, Jenkins

**Development Methodologies:** Agile, Scrum, Kanban, Waterfall

**Hardware Validation:** SoC validation, JTAG, system-level testing, RMA diagnostics

**Statistical Analysis:** SPC, Cp/Cpk, box plots, parametric yield analysis

**Certifications:** Calibre PERC (2024), Advanced PERC Rule Writing (2025)

## EXPERIENCE

### Software QA Engineer

July 2024 – Present

*Siemens EDA (Mentor Graphics)*

*Wilsonville, OR*

- Execute reliability-verification QA for Calibre PERC (LDL, topology, voltage propagation, point-to-point resistance, current density), maintaining reproducible testcases and baselines across single- and multi-threaded modes.
- Automated regression setup using Bash/Tcl and Python—covering testcase checkout, configuration validation, and log analysis—to cut setup/debug effort by **20%** and improve nightly stability by **15%**.
- Upgraded the internal *perc\_checkIn\_script* to include broader validation scenarios and output checks, reducing configuration errors and streamlining regression submissions.
- Implemented distributed job-submission workflows (Terra) for multi-configuration regressions with priority tuning and automated post-run KPI reporting, improving visibility into runtime and memory performance.
- Expanded test coverage with new edge-case and baseline suites for 3DIC and hierarchical verification, improving regression accuracy and reducing false negatives.
- Analyzed large-scale regression data to track runtime, memory, and testcase reliability; generated KPI dashboards used in release-readiness reviews.
- Reproduced and validated customer-reported issues on internal builds, supplying detailed testcase evidence and configuration documentation to assist R&D triage.
- Validated sequential and distributed execution flows to confirm consistent rule sequencing and tool behavior across software versions.
- Developed infrastructure utilities, including a grid-monitoring prototype for resource-usage tracking and an automated disk-space notifier to prevent job interruptions.
- Authored QA runbooks, grid-execution guidelines, and onboarding documentation, reducing new-engineer ramp-up time by approximately **30%**.

### Product Development Engineer (System-Level Test)

July 2020 – March 2024

*Advanced Micro Devices (AMD)*

*Austin, TX*

- Led post-silicon system-level validation for the Ryzen 8040 APU family, orchestrating end-to-end bring-up and qualification across 14+ SoC IP blocks and multiple platform configurations.
- Owned development of production test programs for electrical and thermal characterization—measuring IR drop, current draw, and power margins to ensure silicon reliability and compliance with product specs.
- Directed automation of data capture and STDF parsing pipelines using Python and Perl, reducing manual analysis time by 40% and accelerating yield-correlation feedback to design and fab teams.

- Initiated yield-improvement and Test Time Reduction (TTR) projects that eliminated redundant patterns and optimized test sequencing, boosting overall system throughput by 10%.
- Executed high-volume stress, margin, and static-current (SIDD) tests to identify borderline parts and improve early-screening accuracy for reliability qualification.
- Coordinated cross-functional debug with diagnostics, firmware, and validation teams to isolate BIOS, OS, and memory-level failures; reduced turnaround on root-cause isolation by 25%.
- Established regression scheduling and Power BI monitoring dashboards for tracking test KPIs and yield trends, enabling data-driven triage and 30% faster test completion.
- Partnered with manufacturing and test operations to maintain stable high-volume handler performance and ensure smooth ramp of new test content into production.
- Delivered RMA diagnostics and board-level failure analyses that reduced external escalations, improving customer return cycle time and internal knowledge reuse.
- Authored standardized SLT procedures, automation guides, and training materials adopted by new engineers across multiple product lines, improving onboarding efficiency and process reproducibility.

## PROJECTS

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### *FoodHub - Delivery Business Intelligence System*

- Conducted comprehensive data analysis of 1,898 food delivery orders across 178 NYC restaurants using Python (pandas, matplotlib, seaborn), identifying \$6,166 in commission revenue and delivering 8 specific business recommendations that could reduce average delivery time by 21% (from 28.34 to 22.47 minutes) and potentially increase customer feedback rates from 61% to 85% through targeted engagement strategies

### *ML Pipeline Project*

- Deployed production-ready MLOps solution for SuperKart retail forecasting using Flask REST API backend and Streamlit frontend, containerized with Docker and hosted on Hugging Face Spaces.
- Served real-time sales predictions through scalable microservices architecture processing 8,763+ transaction records with 66.8% model accuracy, supporting quarterly inventory planning.

### *Natural Language Processing RAG-powered medical AI assistant*

- Developed RAG-based medical AI assistant using Mistral-7B LLM and 4,000+ page medical manual, implementing document chunking, vector embeddings (SentenceTransformers), and ChromaDB to achieve high accuracy and reduced hallucinations for healthcare decision support, with LLM-as-judge evaluation showing superior performance over baseline models

### *HelmNet: AI Powered Helmet Detection System*

- Developed computer vision safety monitoring system using VGG-16 transfer learning and CNN architectures on 631 workplace images, implementing data augmentation and achieving high accuracy for automated helmet detection to enhance workplace safety compliance in construction and industrial environments

### *Predictive Analytics Portfolio (Loan, Visa, and Churn Models)*

- Developed multiple machine learning models using Python (scikit-learn, TensorFlow, pandas) across financial and immigration datasets totaling over 40,000 records. Implemented Gradient Boosting, Decision Tree, and Deep Neural Networks with SMOTE oversampling to achieve up to 99.3% recall and 81.1% F1-score. Identified key predictors such as income, education, and wage level for improved targeting, retention, and process optimization.

### *MEMS Silicon Micro-robot*

- Designed and fabricated thermally actuated MEMS micro-robot using CAD/SolidWorks design and COMSOL multi-physics simulation for heat transfer analysis.

## EDUCATION

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### **University of Texas at Austin**

*Post Graduate Program in Artificial Intelligence and Machine Learning (Part-Time)*

Online

2025

### **Rochester Institute of Technology**

*Master of Science, Electrical Engineering*

Rochester, NY

2020

### **Bharati Vidyapeeth University**

*Bachelor of Technology, Electrical Engineering*

Pune, India

2016