CHINMAY ROZEKAR

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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
Siemens EDA (Mentor Graphics)

July 2024 – Present
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)
Advanced Micro Devices (AMD)

July 2020 – March 2024
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

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

University of Texas at Austin — Online
Post Graduate Program in Artificial Intelligence and Machine Learning (Part-Time) — *2025*

Rochester Institute of Technology — Rochester, NY
Master of Science, Electrical Engineering — *2020*

Bharati Vidyapeeth University — Pune, India
Bachelor of Technology, Electrical Engineering — *2016*