

# CHINMAY ROZEKAR

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## PROFESSIONAL SUMMARY

AI first Software Engineer with 5+ years across semiconductor validation, fab-adjacent automation, and cleanroom experience (RIT SMFL). Adept in Automation, Python tooling and dashboards for trend detection and change-point triage. Practical AI experience (LLMs, RAG) used to accelerate data analysis and QA automation.

## TECHNICAL SKILLS

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

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

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

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

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

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

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

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

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

**Fabrication & Lab Experience:** Cleanroom protocol compliance (Class 100/1000), ESD handling, wafer-level diagnostics, probe station and handler operation

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

## EXPERIENCE

### Software QA Engineer

July 2024 – October 2025

Siemens EDA (Mentor Graphics)

Wilsonville, OR

- Owned QA reliability verification for Calibre PERC (LDL, topology, voltage propagation, point-to-point resistance, current density), maintaining reproducible testcases and baselines across single and multi-threaded modes.
- Collaborated with developers to debug MTFlex issues (turbo/EV mismatches, rule-group sequencing); enhanced pre-run environment validation to ensure PERC LOAD options and LDL scopes are consistently honored.
- 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-hire 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 SLT for Ryzen 8040 APUs across 14+ IPs and multiple platforms, coordinating bring-up through qualification.
- Developed production test programs for electrical/thermal characterization (IR drop, current draw, power margins) to meet spec.
- Automated data capture and STDF parsing with Python/Perl, cutting manual analysis by **40%** and speeding yield feedback.

- Executed SIDD, margin, and stress screens to flag borderline parts and tighten early screening.
- Applied DOE to isolate parametric drift; stabilized ramp by optimizing test sequencing for **10%** throughput gain.
- Built Power BI dashboards for KPI tracking; reduced triage and time to completion by **30%**.

## Product Engineering Co-Op

July 2019 – December 2019

*Advanced Micro Devices (AMD)*

*Austin, TX*

- Automated Human Body Model ESD test programs; reduced engineering time by **90%**.
- Performed calibration and waveform verification for preventive maintenance per ISO 9000 procedures.
- Designed DOE for capacitive modeling to optimize protection circuitry and improve first-pass yield.

## Graduate Research Assistant — Process Engineering

January 2020 – May 2020

*RIT Semiconductor & Microsystems Fabrication Laboratory (SMFL)*

*Rochester, NY*

- Developed a complete thin-film IC process flow within the SMFL cleanroom, covering lithography, deposition, and etch steps.
- Simulated NMOS devices to analyze subthreshold slope and leakage.
- Performed electrical characterization to optimize gate oxide growth and achieve desired device threshold profiles.

## 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 inside the Semiconductor & Microsystems Fabrication Laboratory (SMFL) cleanroom at RIT, following Class-100/1000 contamination-control procedures.
- Utilized CAD/SolidWorks for device layout and COMSOL Multiphysics for heat-transfer and actuation simulation, validating design feasibility prior to fabrication.

## EDUCATION

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### University of Texas at Austin

Online

*Post Graduate Program in Artificial Intelligence and Machine Learning*

2025

### Rochester Institute of Technology

Rochester, NY

*Master of Science, Electrical Engineering*

2020

### Bharati Vidyapeeth University

Pune, India

*Bachelor of Technology, Electrical Engineering*

2016