CHINMAY ROZEKAR

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PROFESSIONAL SUMMARY

Software QA Engineer with 5+ years in semiconductor design validation (Siemens EDA, AMD). Experienced in regression automation, SoC validation, and data-driven QA optimization using Python, TCL, and Linux.

TECHNICAL SKILLS

Languages: Shell, Python, TCL/TK, SVRF, C/C++, Perl
AI/ML: TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy, OpenCV, Transformers, RAG Pipelines
CI/CD: GitHub, CVS, Gitlab, Atlassian BitBucket, Jira, Confluence, Docker
Development Methodologies: Agile, Scrum, Kanban, Waterfall
QA & Verification: Test Automation, DRC, LVS, Calibre PERC, Regression Validation, Rule Debugging
Hardware Validation: SoC Validation, JTAG, PCIe, System-Level Testing
Statistical Analysis: SPC, Cp/Cpk, Box Plots, Parametric Yield Analysis
Certifications: *Calibre PERC (Siemens Software, 2024)*; *Advanced PERC Rule Writing (Siemens Software, 2025)*

EXPERIENCE

Software QA Engineer   July 2024 – Present
Siemens EDA (Mentor Graphics)   *Wilsonville, OR*

- Created regression testcases for Calibre PERC reliability verification (ESD, EOS, topology-based checks) using SVRF and TVF, ensuring consistent rule behavior and stable sign-off results.
- Developed SVRF and TCL-based scripts to test Logic-Driven Layout (LDL) checks such as current density, point-to-point resistance, and device-topology validation.
- Wrote TVF functions to support rule-sequencing validation and automated cell-recognition tests across multiple PERC feature updates.
- Analyzed runtime and memory performance of Calibre PERC in single-threaded, multi-threaded, and MTFlex distributed modes, identifying scaling issues and supporting optimization.
- Automated regression setup, testcase cloning, and log parsing with Python and TCL, reducing manual QA time by roughly 20% per regression cycle.
- Collaborated with developers to debug rule-execution order, validate sequential and parallel rule groups, and ensure correct framework behavior.
- Maintained regression baselines exceeding 90% testcase coverage, directly supporting quarterly Calibre PERC releases and customer reliability decks.
- Developed a Python-based diff tool for Calibre PERC outputs to verify rule attributes, improve traceability, and reduce manual comparison effort.

Product Development Engineer (System-Level Test)   July 2020 – March 2024
Advanced Micro Devices (AMD)   *Austin, TX*

- Led system-level testing and bring-up for AMD Ryzen 8040 APU family, developing and executing test programs across multiple SoC IPs from EVT to production.
- Created and maintained production test programs for device characterization, measuring IR drop, voltage drop, and power limits across test chips and full SoCs.
- Analyzed silicon failures, debugged BIOS and memory issues, and coordinated with IP and validation teams to identify and resolve design-related defects.
- Implemented yield analysis and test-time reduction strategies, removing redundant tests and improving throughput by 10% while lowering overall validation cost.
- Developed automated scripts and workflows for data logging, test scheduling, and RMA part diagnostics, reducing manual debug time and increasing test repeatability.
- Performed large-volume stress testing on marginal parts to identify low-SIDD units and improve parametric screening for reliability and yield.
- Collaborated with hardware and board design teams to debug test handlers, optimize work orders, and maintain stable high-volume test operations.

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
- **Repository:** github.com/chinmayrozekar/PGPAIML_UT_Austin

Personal Loan Campaign
- Built machine learning classification model for personal loan targeting using Python (scikit-learn, pandas) on 5,000 customer dataset, achieving 99.3% recall with post-pruned decision tree that identified income $> \$92.5K$ as primary predictor, enabling targeted campaigns to improve conversion from 9.6% baseline
- **Repository:** github.com/chinmayrozekar/PGPAIML_UT_Austin

EasyVisa - US Visa Approval Prediction
- Developed ensemble machine learning models for US visa approval prediction using 25,480 applications with 12 features, implementing Gradient Boosting with SMOTE oversampling to achieve 73.6% accuracy and 81.1% F1-score, identifying education level and prevailing wage as key approval factors for OFLC certification process optimization
- **Repository:** github.com/chinmayrozekar/PGPAIML_UT_Austin

Neural Network-Based Customer Churn Prediction
- Built deep neural network models for bank customer churn prediction using TensorFlow on 10,000 customer records, implementing SMOTE oversampling and comparing SGD vs Adam optimizers to achieve optimal recall performance for early churn detection and proactive customer retention strategies
- **Repository:** github.com/chinmayrozekar/PGPAIML_UT_Austin

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
- **Repository:** github.com/chinmayrozekar/PGPAIML_UT_Austin

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
- **Repository:** github.com/chinmayrozekar/PGPAIML_UT_Austin

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.
- **Repository:** github.com/chinmayrozekar/PGPAIML_UT_Austin

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*