MIHIRRAJ DIXIT

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OVERVIEW

Skilled professional with 3+ years of industry experience building scalable, cloud-native applications, backed by 4+ years of academic research experience in cyber-physical systems and wireless security. Proven ability to tackle multifaceted engineering challenges, optimizing performance, security & reliability across distributed systems, AI platforms, and big data infrastructure.

TECHNICAL SKILLS

- **Languages:** Python (**6+** years), Shell Scripting (**4+** years), C++ (**2+** years), Go, MATLAB, Javascript, Java, SQL
- **Cloud Infrastructure:** Docker, Kubernetes, AWS (EC2/S3/Lambda), GCP, Openstack, Jenkins, Terraform, Helm, Robot
- **Tools:** FastApi, RESTful Api, Kafka, Airflow, Git, Redis, MongoDB, Pandas, Wireshark, GDB, DPDK, gRPC, ELK
- **Domain Expertise:** 4G/5G (RAN/Core), NFV/SDN/CNF, Distributed Systems, Cybersecurity, SDLC/Testing, Agile
- **Agentic AI:** Multi-Agent Systems (LangGraph/CrewAI), Prompt Engineering (ToT/ReAct), Model Context Protocol (MCP)
- **Certifications:** Oracle Certified Cloud Architect, Microsoft Azure Fundamentals, Oracle Certified GenAI Professional

RELEVANT WORK EXPERIENCE

VIAVI Solutions, Germany ***(Software Development Engineer 2)*** Apr 2025 - present

- Orchestrated multi-cloud production deployments for telecom applications by re-engineering TeraVM codebase into container images and AWS AMIs, slashing the image size by 60% and maximizing performance efficiency via low-level system tuning.
- Streamlined daily & weekly cloud images for customers by automating end-to-end CI/CD build cycles via agentic workflows.
- Designed 85%+ coverage testing suite for backend stability, utilizing agentic AI for log triaging & root-cause trace analysis.
- Evaluated regression suites to validate 4G/5G protocol integrity across Linux & DPDK network configs for cloud images.
- Researched gRPC as a CORBA alternative enabling Protobuf-based serialization & improved scalability in TeraVM platform.

CISPA & RPTU Kaiserslautern, Germany ***(Graduate Researcher)*** Jul 2023 - Mar 2025

- Constructed high-performance software simulation toolkit to model observed LTE, WiFi, & BLE protocol attributes; Employed optimized algorithms to analyze privacy leakage for 1,000+ users, reducing simulation runtime from 12 hours to under 2 hours.
- Analyzed Y1 interface security gap, designed secure O-RAN framework, & tuned performance via mTLS auth benchmark.

Rakuten Mobile, Japan ***(Software Development Engineer - Tech Lead)*** Oct 2019 - Oct 2021

- Led a team of 3 engineers, drove agile workflows & architectural consensus across cross-functional units for feature delivery..
- Developed multiple cloud-native RAN/OSS apps, utilizing rigorous scalability testing to improve system performance.
- Architected and deployed a fully cloud-native data stream processing solution featuring complex event processing (CEP) & multi-hierarchical closed-loop feedback correlation, competing with big data CEP engines like Apache Flink & Siddhi.io.
- Engineered a custom data structure for multi-layered, cross-domain pattern correlation that utilized an event bus & in-memory caching to build a fault-tolerant, scalable system processing 5k events/sec/core, with scale tests reaching 110,000 events/sec.
- Crafted and integrated policy templates into a FastAPI ASGI-based Policy Manager, storing policies used by multiple micro-services involved in data collection, analysis, decision-making, and execution within the processing system.
- Accelerated bare-metal server lifecycles & OS hardening using Python/Shell scripts to streamline secure cloud provisioning.
- Key contributor to the core development of Internal Virtual Network Function Manager (IVNFM) for 4G vRAN, established acyclic graphs & orchestration workflows, reducing overall deployment time from days to 10 minutes with a multi-tier system.

Center of Excellence, VJTI, India ***(Junior Researcher)*** May 2017 - Jun 2019

- Created a modular software testbed for critical infrastructure & scripted Python-led protocol decoder that reduced research time from hours to minutes; Performed automated fuzzing, detected 0-day protocol vulnerabilities in critical infrastructure.
- Built a blockchain consensus algorithm for multi-nodal PMU environment & an intrusion detection system to mitigate threats.

EDUCATION

- **M.S. Computer Science:** Saarland University, Saarbrücken, Germany — Oct 2021 - Jul 2024
- **B.Tech. Electronics & Telecommunication:** VJTI, Mumbai, India (NIRF Rank: 71st) — Jul 2015 - Jun 2019

AWARDS & HONORS

- **Innovation:** 10 US patents published (5 granted) in the field of software architecture and applications.
- **Research Excellence:** 5+ peer-reviewed papers published at top-tier conferences in the field of security, AI & IoT.
- **Competitive Interests:** Blockchain Hackathon **(Winner);** Siemens Hackathon **(1st Runner-up);** FIDE Chess Elo: 1828

LANGUAGES

English (C1, Native) • Japanese (N4) • German (A1)