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SUMMARY

Solution Architect with **13+ years** at the convergence of carrier networks and edge AI. Held the developer, integration lead, technical leader, manager, and architect seats, often several at once. Applied **9 years** of deep LTE EPC protocol engineering to design high-performance MEC platforms and production computer-vision systems.

Architected a multi-tier video intelligence platform achieving **300 ms** end-to-end video stream latency on its MEC tier. Backed by verifiable vendor-neutral **agentic AI credentials** from Anthropic, Google Cloud, AWS, and OpenAI.

TECHNICAL SKILLS

- **Languages:** Go, C/C++, Python, Bash
- **AI/ML & Computer Vision:** NVIDIA DeepStream, Triton Inference Server, TensorFlow / TensorFlow Lite, heterogeneous edge inference, GStreamer, FFmpeg, OpenCV, model comparison and A/B evaluation, federated learning, distributed inference, agentic orchestration (A-SDLC), prompt engineering
- **Telecom & Networking:** LTE EPC (MME, SGW, PGW, HSS), 5G Core, MEC, C-V2X, S1AP, NAS, GTP/GTPv2, Diameter, SCTP, DPDK, Solarflare, RTSP, RTMP, WebRTC, MQTT, AMQP, gRPC
- **Cloud & Infrastructure:** AWS (Bedrock, SSM, IAM, Lambda, S3, CloudWatch), GCP (GKE), Azure (IoT Hub, IoT Edge), Kubernetes, Docker, containerd, Helm, OpenStack, Jenkins, CI/CD, Prometheus, Grafana
- **Security:** zero-trust architecture, mTLS, TLS/SSL, AES-256/LUKS, TPM, Secure Boot, CIS Benchmarks, X.509/PKI, SonarQube, Black Duck
- **Edge Hardware:** Jetson AGX Orin, Jetson Orin NX, Google Coral Edge TPU, Lanner edge servers, Cradlepoint 5G routers, Dell IoT Gateways, Raspberry Pi, Cavium OCTEON II
- **Databases:** PostgreSQL, MySQL, Redis, Cassandra, SQLite

EXPERIENCE

EPAM Systems (Verizon)

Sep 2023 – Present

Lead Software Engineer

*Architect and technical lead for 4–7 engineers; **8+** continuous Verizon engagement across three consecutive employers: Capgemini, Leosoft, EPAM.*

5G Vision Insight Platform: Edge AI Video Analytics

- Extended the platform to two GPU-device shapes, each holding **500 ms** end-to-end video latency into a cloud portal.
- Integrated a third-party CV engine in one shape while owning proxy, transport, and device management; ran the in-house CV engine end to end in the other.
- Deployed to **~50 devices** across internal and external field trials, with **1 of 3 trials converted to signed business**, on an architecture that scales horizontally with cloud capacity.
- Delivered **up to 15 concurrent inference streams per device at 5–15 FPS** on the in-house CV engine, running COCO 80-class detection on NVIDIA DeepStream, Triton Inference Server, and TAO Toolkit.
- Ported inference across discrete GPU, Jetson AGX Orin, Jetson Orin NX, Google Coral Edge TPU, and CPU-only fallback, with TensorFlow Lite on constrained targets.
- Built the Python detection services and A/B evaluations comparing models per hardware target.
- Built the platform's Go media services: a **23K+ LOC RTSP library** (H.264/H.265, adaptive bitrate), RTSP-to-WebRTC/LL-HLS proxies, stream simulators, and device control and provisioning services.

Edge Security & Field Operations

- Cut device provisioning from **15 hours to 45 minutes per device (95%)** via Golden .iso automation with pre-provisioned encryption and credentials.
- Avoided **~710 technician-hours** across the trial fleet and cut vendor per-device setup cost by **~20%**.
- Architected the **AWS SSM device-management flow** with agentic troubleshooting and updates: secure field access, no public IP exposure, no SRE or technician dispatch.
- Hardened the edge fleet to zero-trust: CIS-benchmarked Ubuntu Pro, TPM-backed AES-256/LUKS full-disk encryption, mTLS between services, and Secure Boot.

A-SDLC: Multi-Agent Delivery Framework

- Defined **20 agent personas, 5 coordination protocols, and 17 artifact types** with human-in-the-loop quality gates.
- Delivered the specification (**4,750+ lines across 26 documents**), agent-agnostic across Claude, Copilot, and Gemini, now in production use by 50+ engineering teams.

V2X Intelligent Messaging: Connected Vehicle

- Designed microservices acting as virtual Roadside Units at **<100 ms** vehicle-to-infrastructure latency on Cradlepoint 5G routers, Raspberry Pi, and Dell IoT Gateways.
- Built a real-time density-analysis service on 5G and MEC data for predictive urban-traffic analytics.

Leosoft Solutions LLC (Verizon)

Oct 2022 – Sep 2023

Software Developer

- Initiated the architecture and early development of the **5G Vision Insight Platform** and V2X Intelligent Messaging systems.
- Built containerized **ThingSpace IoT microservices** across MEC and cloud for vendor onboarding and telemetry.
- Engineered a load-balancing integration for ThingSpace, eliminating single points of failure across public and private cloud.
- Developed computer-vision and MQTT protocol plugins extending the ThingSpace platform's edge analytics capabilities.

Capgemini / Aricent

Jan 2013 – Sep 2022

Trainee → Engineer → Technical Leader → Manager · Gurgaon, India and Boston, MA

Technical Leader (Jul 2018 – Sep 2021) → **Manager / Expert-Lead** (Oct 2021 – Sep 2022)

- Led VESA platform architecture, bridging Cloud Service Provider APIs with Verizon's MEC edge network to hold **300 ms** end-to-end video latency for 5G IoT streaming.
- Integrated network-based APIs and 5G network services for enterprise edge deployments, establishing the foundation for ThingSpace's **MEC offerings**.

Senior Software Engineer · Jul 2015 – Jul 2018

- Owned L3 engineering for **20+ tier-one clients** (including Google, Meta, Motorola, and Verizon), resolving **20–40 critical S1AP/NAS/GTP/SIP escalations annually**.
- Ported LTE EPC protocol stacks to **5 hardware architectures** and optimized the data plane with DPDK and Solarflare on NUMA servers.
- Validated eNB-to-EPC S1AP/S1 Setup interoperability across **5+ eNodeB vendors**, including an on-site deployment at Fujitsu in Tokyo as the designated EPC and Linux expert; owned troubleshooting and issue resolution end-to-end.
- Delivered EPC and cross-compilation training to client engineering teams at Alpha Networks, VNL, Tata Power, Cambium Networks, CableLabs, Polus, and Adax.
- Led end-to-end integration of the **EPCLite License Manager** in C with UDP sockets, delivering floating feature-based licensing for cloud-deployed EPC.
- Deployed EPC across **10+ clients**, on-site or virtually.

Software Engineer · Jul 2013 – Jun 2015

- Built the **LTE MME Load Balancer** from scratch, distributing S1AP signaling by consistent hashing across up to **100 MME instances**.
- Shipped the load balancer with **2 bugs in 13 KSLOC** and zero critical defects, across **80+ test cases**.

CERTIFICATIONS

- **Complete Anthropic certification suite**: all five Claude credentials, including Certified Architect (Professional) and the Claude Code Partner Badge.
- **16 AI and agentic credentials** earned in 2026 across four issuers: Google Cloud Certified Partner Specialist x2 (Gemini Enterprise Agent Development, Gemini Enterprise Deployment), Generative AI Leader, AWS Certified AI Practitioner, and OpenAI Cyber Solutions Practitioner. Verifiable at credly.com/users/ritwikjain.

OPEN SOURCE, PATENTS & PUBLICATIONS

- **4 patent applications filed and pending** in edge video analytics, IoT, and device provisioning.
- Open-source Go libraries at github.com/0x524a: **onvif-go** (ONVIF/PTZ cameras, **29 stars**), **certifier** (X.509 CA/CRL/OCSP), **rtsspeak** (RTSP inspection), **metricsd** (system/GPU metrics).
- **3 whitepapers** published at the Aricent Tech Forum on project tracking, clustering architectures, and EPC testing.
- IoT Forge community talk on Meshtastic and LoRa (EPAM, Jul 2024).

EDUCATION & AWARDS

Master of Computer Applications (MCA), MANIT / NIT Bhopal, India

2010–2013

Bachelor of Computer Applications (BCA), IMS Ghaziabad, India

2007–2010

- **EPAM Impact 2025: Impact on Clients and Technology** (CEO-level), for Verizon IoT Vision and Messaging impact.
- **Aricent Annual Individual Excellence Award FY2016** (CEO award); Aricent Individual Excellence Award 2017; Products Excellence Award 2014 (E2E EPC benchmarking on Cavium); Team Excellence Awards 2014–2017.
- **#HACK100-IV** Certificate of Appreciation (2018); Smart India Hackathon 2017 mentor for the Ministry of Civil Aviation.
- **Certified Technical Interviewer**: 80+ organizational and 10+ project interviews.