(703) 909-7734
Arlington, Virginia
ArchitRupa@gmail.com

Archit Rupa

linkedin.com/in/rupaka
BSc Computer Engineering
+ BSc Electrical Engineering

A high-breadth and skilled software engineer with 5+ years of success in <u>Android devices, IoT and embedded Linux</u> as well as 5+ years of success in <u>AWS cloud architecture and infrastructure.</u> Along with my technical versatility, I bring a unique set of seasoned leadership skills and passion to support my team's success.

Professional Experience

Technical Software Lead | LogicManager, Inc| Boston, MA; remote from VA   **May 2024 – Current**

Technical Lead for software team developing full-stack application (react + typescript client with Java server)

- **API based integration of custom OpenAI assistants to back-end service and other tools.** This included end-to-end customer facing features in addition to internal tools and automated AI augmented code-reviews to enhance velocity
- **Manage SDLC and performance of full-stack team** including scrum, roadmap and interface with leadership/stakeholders.
- **Full-stack application feature development contributions and leadership.** Development of new features for full-stack application with a Java back-end, react with typescript front end

Software Development Manager | Plenty Unltd.| *Compton, CA; Remote from VA*   **Oct 2022 - Jan 2024**

Software Manager for cloud and on-device DevOps at Plenty

- **Led team of 7 DevOps engineers responsible for deployment, performance and CICD of Plenty's microservice architecture hosted in AWS.** The services ran on Kubernetes via AWS EKS using AWS RDS (Aurora PostgreSQL). Led the team through a highly principled GitOps mindset while using terraform for infrastructure-as-code.
- **Team also responsible for deployment of on-device software for on-premise PLCs and IoT devices** via ansible and Jenkins.
- **Design and led re-architecture of Plenty's microservice system** to address challenges posed by a central monolithic service. The design alleviated team-conflicts, improved development velocity and long-term concerns with scalability.
- **Debugged and resolved business-critical production bug** in kinesis data pipeline that resulted from a mishandled sharding strategy. This was as part of on-call duties and on-call support as a manager.
- **Improved organization-wide development velocity by parallelizing build pipelines, resulting in 40% faster builds.** Led team through implementation and reduced average build times from 35 minutes to 22 minutes for 100s of weekly builds.

Ownership and Driving Improvements of Org-Wide <u>Operational Excellence</u> at Plenty

- **Reduced production software system costs by 42% within 6 months.** Conducted a detailed audit of cloud resource utilization of AWS products, DataDog, Sentry, ElasticCloud, and Snowflake to identify inefficiencies. Planned and project managed improvements, establishing long-term practices that reduced annual production costs from $420k to $240k.
- **Designed and implemented a serverless Slack application to enhance response time for high severity and business-critical production issues,** reducing it from 20-60 minutes to consistently within 2-3 minutes. This initiative significantly improved software quality and strengthened organizational relationships. Additionally, I developed metrics, processes, and documentation to streamline production support and guide developers through issue handling protocols effectively.
- **Researched, designed and developed a lightweight, low-cost feature flag system using AWS AppConfig and Kubernetes-side car** to improve developer experience and reduce production downtime while saving the team months of development.
- **Helped reduce organization-wide production incidents by 50% over one year** through major process improvements to the root-cause-analysis process, leading to a decrease from 3-5 incidents per week to 1-2 incidents per week.
- **Successfully influenced leaders and pivoted org-wide architecture to align with a 10-year business vision.** Drove many discussions that led to shifting from a multi-tenant to a single-tenant approach in the high-level software architecture.
- **Drove critical security improvements across the board within 3 months of joining the company.** Audited and addressed many securities anti-patterns such as fixing unencrypted/exposed keys, centralizing secrets management to make management recovery easier and applying principle of least privilege across the software systems.

Software Engineering | Amazon | Seattle, WA; Remote from VA   **Aug 2015 - Sep 2022**

FireOS Core: Android OS Platform, Embedded Linux & IoT devices   *Various US Locations*

- **Developed new FireOS/AndroidOS features and fixed bugs within AOSP** to support 30+ different devices at Amazon. Features were integrated with Android framework, SDK, NDK, Linux kernel and drivers (using Java, C/C++, JNI)

- **Designed low-level system for embedded Linux device that facilitated lossless data capture** of 96 mbps (~1000 GB/day) to external hard drives. The data was captured from a 1 MHz, 3-channel, 32-bit source and algorithm ran on RTOS DSP HW.
- **Designed real-time algorithm for embedded Linux device extracted key features and compressed 1000 mbps** source data into 8 mbps output. We experimented with many techniques but eventually found a combination of fast Fourier transform (FFT) + zstd compression gave us the best results with minimal loss of key features.
- **Developed and delivered a cloud-based OTA system for a fleet containing thousands of devices**, encompassing cloud deployment procedures and software, as well as device-side update reception and application software.
- **Developed system to automate provisioning, authentication and management of thousands of devices** by leveraging AWS IoT, IoT Secrets and automation scripts. This saved the team thousands of hours of manual provisioning and device management while providing visualization and status information for each device.

Cloud Architecture and Infrastructure for petabyte *scale data processing*

- **Led SW team through design, development & delivery of a distributed data pipeline using dask to process petabytes of <u>mission-critical</u> data each week.** This pipeline was responsible for transforming and labeling data to generate datasets then training and testing models on said dataset to generate deployable machine learning models.
- **Developed ETL system for large-scale (100+ GB) using AWS Glue, AWS Athena and AWS S3.** This involved creating optimization strategies for data selection, chunking, instance size optimizations and load balancing of work.
- **Provisioned data-center servers and network switch to process and upload 100 gbps (1 petabyte/day) to AWS S3 to feed into data pipeline.** I also independently brokered agreement between Amazon, Data Center and Seattle Internet exchange.
- **Led and oversaw the design, development & delivery of a serverless web-app using React.** The app enabled technicians to attach labels to collected data.
- **Analyzed and labeled large datasets using Jupyter with AWS Sagemaker.** Using libs like pandas, numpy and matplotlib.

Software Management and Leadership

- **4 years of experience managing high performance software teams as large as 12 members.** Responsibilities included team performance, individual growth and promotions, roadmap and scrums. Team included devs & QA.
- **Direct contributed to 150% organizational growth** by helping hire, onboard, mentor and grow the software team from 6 to 15 members over 1 year.

Personal Projects

- **iOS App using SwiftUI (2024):** Developed a personal habit improvement and tracking app
- **Android adaptation of Baag Chal:** A Nepali board game using basic core views and animation for practice
- **Python Analytics and Data Visualization:** Analyzed 10+ years of personal social media data to generate unique insights.
- **Kubernetes Cluster using Raspberry Pi (2023):** Set up a microcontroller-based cluster as an exploration project.
- **Discord Bot** to automate launch and shutdown of private video game servers hosted on AWS via commands

Technical Experience and Other Skills

Languages / Core	Java • Python • C • C++ • JNI • JavaScript • React • ReactNative • Swift • JSON • YAML • Markdown • Git
Cloud Technologies	High Proficiency with AWS Cloud Architecture • Kubernetes and AWS EKS • Docker AWS ECR • AWS Athena • AWS SNS/SQS • AWS Glue • API development and integration (CRUD, REST/RESTful) • AWS API Gateway • AWS Lambda • AWS EC2 • AWS ELB (load balancing) • AWS Route 53 for DNS management • AWS AppConfig
Databases & Data Storage	AWS RDS • AWS Aurora • AWS DynamoDB • MySQL • SQLite • Amazon Athena • AWS S3, Glacier and Lifecycle automation • Elasticsearch and Kibana • AWS Redshift • Snowflake
Deployment and Infrastructure	SAM for serverless • Infrastructure as code (IaC) • Terraform • Terragrunt • CloudFormation • Jenkins • Ansible • IoT fleet management • ArgoCD • CircleCI • HelmCharts • HelmSecrets • Hashicorp Vault • AWS Secrets Manager
Mobile, Devices & Embedded Linux	Android Applications with Java • iOS Application with Swift • Android OS, NDK and SDK development • Android performance debugging using systrace, perftool and other profilers • low-level Android graphics optimizations AWS IoT Core, MQTT and IoT Shadows • Developing Device Remote Management (RM) systems • device automation and provisioning • Low-level Linux/Android development (Kenels, drivers, etc) • IoT and Embedded software development • building on custom SoCs • Hardware performance testing • Developing OTA Update Systems • firmware and middleware on custom SoCs
ML and Big Data	AWS EMR • Machine learning workflows via AWS Batch and AWS Step-Functions • ETL with AWS Glue • Pandas • NumPy • Jupyter Lab Notebooks

Security	Adaptation and Enforcement of Security best practices • Env isolation using VPC • Applying least-privilege principles • enforcing RBAC, MFA and 2FA • enabling SSO, OAuth and SAML • AWS Security Hub

Education: University of Virginia – **Bachelor of Science in Computer Engineering and Electrical Engineering** – May 2015