

# KONARK VERMA

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[LinkedIn](#) [GitHub](#)

## WORK EXPERIENCE

- **SDE-3, Software Engineer, DENSO Japan, Tokyo**  
October-2020 – Present (5 years and 4 months)  
Current Designation: **Software Development Engineer-3 (S3)**  
Current Role: **Team Lead, Project Owner (TL, PO)**
- **Project Intern, Tensor Dynamics Private Limited, IIT Delhi** (Oct 2018 – Dec 2018)
- **Teaching Assistant, Plaksha Technology Leaders Fellowship Program** (Sept 2020 – Mar 2021)

## PROJECTS

1. **Quad-AI Voice Assistant System:** A real-time voice-based conversational AI orchestrator for Raspberry Pi that processes audio streams with wake word detection, Voice Activity Detection (VAD), Speech-to-Text, Text-to-Speech, and LLM integration for intelligent responses with Acoustic Echo Cancellation (AEC).  
  
Implemented MCP tool integration enabling the LLM to call both synchronous and asynchronous tools (e.g., calendar management, driver reports, diagnostics) with progress token-based polling for long-running operations. Basically, Siri with LLM capabilities.  
  
Technologies: Python, gRPC, LLM, AWS Bedrock, Faster Whisper STT, AWS Transcribe, Porcupine, AEC, VAD, AWS Polly TTS, MCP with sync/async tool support, Docker, Raspberry Pi, OpenAI API, Rust, Tokio async runtime.
2. **Quad-Terminal:** A web-based terminal application that runs on edge devices, connects Docker containerized microservices via WebSocket, with cloud-based remote access through port forwarding for debugging and testing purposes.  
  
Technologies: React, TypeScript, NodeJS, Docker, AWS ECS, AWS ECR, WebSockets, gRPC, AWS CDK, REST APIs, NGINX (Reverse Proxy), Jest.  
  
Key Achievement: Consolidated multiple microservices into a unified architecture, improving performance, reducing device load, cloud storage footprint, and cutting cloud operational costs by approximately 20%.
3. **Quad-Installer:** An NPM based CLI package that automates deployment and also helps manage remote microservices running as docker containers on edge devices. It installs and updates Docker containers and systemCTL services via cloud integration, with built-in job scheduling/prioritization engine, remote monitoring capabilities, and self-update functionality.  
  
Technologies: TypeScript, Node.js, Docker, SystemCTL, AWS S3, AWS Cognito, AWS-CDK, gRPC, Jest

## EDUCATION

- M. Tech. **Indian Institute of Technology, Delhi** Computer Science and Engineering 2018 - 2020
- B. Tech. **University of Delhi, Delhi** Computer Science 2013 - 2017

## MISCELLANEOUS/ACHIEVEMENTS

- **Keynote Speaker** in **COVESA 2023 Conference, Detroit, USA.**  
Gave a talk on: [Accelerating IoT Development: Leveraging VSS at the Edge.](#)
- **Publication** in **DSSG-21, The 3rd Workshop on Data Science for Social Good, KDD 2021 · Aug 15, 2021**  
[Exploring the Scope of Using News Articles to Understand Development Patterns of Districts in India](#)
- Secured **4<sup>th</sup> rank** in [Game of Breakouts](#) - **Kaggle Competition**, from a total of 100 teams.
- Scored **453 All India Rank** (99.6 percentile), in CS GATE-2018 out of 107,893 candidates.
- **Won - Game Development Hackathon** by redesigning and redeveloping 1982's Computer Game - **Paratroopers** with multiple levels and power-ups using Unity3D Framework.