Komala Kalyanraman Yerra

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Professional Summary

Professional with 10+ years' experience as Software Developer and Architect. Experience in Edge, Cloud & AI. ISAQB Certified SW Architect, Bosch Certified SW Designer. Filed two patents, open-source contributor and did many hobby projects.

Work History:

Wipro - Software Defined Vehicle Group: Technical Lead | SW Architect | Hyderabad | Sep 23 - Present

(*Summary:* *Data Harvesting, ADAS AI, Cloud, Edge, OTA, Kubernetes, Automotive*)
(*Tech Stack:* *C++, Python, Object Detection AI, GPU Container, MLOps, REST, Linux*)

- Lead a team of 3 for creating a data harvesting pipeline from scratch for CES 2024, Las Vegas.
- Missed detections of onboard ADAS module are found by comparing against baseline AI model.
- Difference of detection is send to AWS for triggering MLOps pipeline and creating updated ADAS AI model.
- Old ADAS AI module is swapped with new module which is downloaded via OTA.
- Nvidia Jetson AGX Orin is used as HPC (High Performance Computer) for running AI models.

Bosch - Software Defined Vehicle Group: Technical Lead | SW Architect | Coimbatore | Mar 22 - Sep 23

(*Summary:* *Telematics, OTA, Container, Automotive*)
(*Tech Stack:* *C++, Podman, Protobuf, Message queue, REST, Yocto Linux*)

- Leading a team of 3 for building Container based OTA solution for telematics unit from scratch.
- Co-creating architecture for the application by evaluating various messaging protocols, container runtimes.
- Building plugin which acts as interface between cloud and container runtime running on edge device.
- Using Protocol buffers, Message queue, REST for internal communication between plugin and other modules.
- Made open-source contributions for Eclipse Software Defined Vehicle project.

Bosch - Innovation Group: Technical Lead | SW Architect | Coimbatore | May 19 - Feb 22

(*Summary:* *Container, Microservices, Cloud, Edge, AI, Automotive*)
(*Tech Stack:* *C#, Python, Docker, Azure, Conversational AI, REST, Linux*)

- Lead team of 4 to build a voice based multi-turn conversation system for Indian OEM from scratch.
- Made conversations interesting to passengers by fusing car sensor data into conversations.
- Created pipeline for backend, cloud integration in car infotainment system.
- Used AI based opensource conversational framework, Deep Learning models while building conversation system.
- Used Docker, Kubernetes, Cloud infrastructure for smooth deployment and scalability.
- Co-architected system so that it can be easily integrated with cloud, edge, and hybrid devices.
- Created microservices architecture using REST, SignalR for smooth functioning of various modules.

Patents:

- A method for enabling context focused conversation by a conversational agent (Sept 2021)

Bosch - Automotive Steering: Sr.Software Engineer | Coimbatore | Mar 17 - Apr 19

(*Summary:* *Model Based Development, Automotive*)
(*Tech Stack:* *Matlab, Simulink, SIL, HIL, CAN*)

- Developer for Volvo, Jaguar electric power steering system (ASIL-D, ISO 26262).
- Model implementation according to Volvo's level 2-ADAS (LKA, LDW, TJA) requirements.
- Used SIL testing, Manual System Testing and HIL report analysis for bug fixing.

Patents:

- A Controller and method to assist steering of a vehicle having EPS (Nov 2018)

Indian Institute of Technology, Kanpur: Software Engineer | Kanpur | Aug 16- Feb 17

(*Summary:* *Computer Vision, Embedded Systems, Robotics*)
(*Tech Stack:* *C++, Embedded C, ROS, OpenCV, Linux*)

- Developed Drone based driver assistance system for Renault-Nissan R&D division, India.
- Designed UI and wirelessly streamed camera feed from drone to car standalone computer.
- Extracted important parameters from camera feed and displayed to driver.

Indian Institute of Technology, Kanpur: Software Engineer | Kanpur | Oct 15- Jul 16

(*Summary:* *Computer Vision, Embedded Systems, Robotics*)

(*Tech Stack:* *C++, Embedded C, ROS, OpenCV, Linux*)

- Member of Indian team which participated in Amazon picking challenge 2016.
- Responsible for real time object detection using CNN and point cloud extraction of those objects.
- Developed sensor modules, fabricated printed circuit board and integrated them into ROS framework of robot.

Enki robotics & automation: Co-Founder| Ahmedabad| Feb 14- Sept 15

(*Summary:* *IoT, Embedded Systems*)

(*Tech Stack:* *Embedded C, Sensors, PCB Design*)

- Developed remote and app controlled RGB led driver for home interiors. Installed them in 42 premium villas. video
- Developed touch, app, and remote based home IOT device. Sold around 500 devices. video

Skills:

- Programming languages : C++, Python, C#
- Software packages : OpenCV, ROS
- OS Platform : Linux, Windows
- HW Platform : Intel, ARM, Nvidia GPU
- Cloud Platform : Azure, AWS
- Micro Controller : Renesas, Atmel
- Container & Orchestration : Docker, Podman, Kubernetes
- Communication Protocol : REST, SignalR, Protobuf, Message queue

Tools:

- IDE & extensions : Visual Studio Code, GitHub Co-pilot
- Requirement engineering : DOORS
- Architecture : DrawIO, Enterprise Architect
- Calibration & Testing : CANape, CANoe
- Code testing & standards : NUnit, GTest
- Testing tools : JMeter, Postman
- Configuration Management : GIT, ClearCase

Certifications:

- Bosch Certified Software Designer. (*2022*)
- ISAQB certified Software Architect (CPSA-FL) (*2021*)
- Deep Learning specialization, Coursera *(2020)*

Achievements:

- Presentation of "*Data Harvesting*" use case is ADAS context in CES-2024, Las Vegas.
- Presentation on "*Container-less Technology for Mobility"* BoCSE-2021, Bosch Global flagship conference (*2022*)
- Stood 5th in Amazon Picking Challenge- 2016, Germany. video (*2016*)

Hobby Projects (2012 - current):

- All terrain robot video
- Reverse vending machine to recycle disposable bottles video
- Voice controlled wheelchair for paralyzed patients video

Academic Background:

Year	Degree	Institute	CGPA
2011-13	Master of Engineering: Mechatronics	Anna University, Chennai	8.34/10
2007-11	Bachelor of Engineering: Electronics & Communication	Sir C. R. Reddy College of Engineering	7.40/10