

Anurag Tiwari

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Embedded Software Engineer

Bio. With over 7 years in embedded software engineering, my expertise lies in crafting software and hardware from inception to execution. Currently enhancing CommScope Ltd's product suite, I seek a role in a progressive environment where my skills will propel technological innovation and development.

Embedded Software Development:	C, Embedded C, YOCTO, Embedded Linux, Device-Drivers, RTOS, Shell Scripting, Robot Framework, Python, Debugging, Microcontrollers (STM32, PIC, MSP430, ARM-CORTEX-M series), Logic Analyzers, Oscilloscope, VSA, VSG, etc.
System Design & Architecture:	Expert in system design methodologies, requirement analysis, microservices architecture, containerization (Docker, Kubernetes).
Computer Vision:	Have a certain understanding of image processing (segmentation, classification, etc.), video analysis (object recognition, tracking, etc.).
Web Technologies & Data Serialization:	HTML5, CSS, ReactJS, JSON, YAML, etc.

Education

March 2010 **B.Tech** Electrical And Electronics Engineering , *Guru Gobind Singh Indraprastha University (GGSIPU)*, DELHI
March 2014 **Score:** 70.5%

</> Projects & Experiences

Present Jan 2022	Research & Development Engineer II, Commscope, Bengaluru Project Experience: Design of Embedded Applications, Management Software, & Firmware for Small Cell Cloud RAN: <ul style="list-style-type: none">> Small Cell Cloud RAN: Worked as a team member in developing RAN C/C++ based software applications such as Donor Manager, Access Manager, Platform Manager, etc., which assist in managing interactions with distributed radio points. The development was based on the Yocto meta-distribution.> Device Management System: I designed and implemented a system from scratch, integrating databases and REST APIs for seamless device application interaction. Utilizing a React JS frontend and Node.js backend, I ensured a responsive UI and efficient server processing. The system, containerized for scalability, includes an SQLite database and NGINX server, hosted on a COTS server. Its primary function is to distribute operator configurations to radio points, enabling instant over-the-air configuration management, thereby enhancing network efficiency and responsiveness..> Kubernetes Deployment: Containerized and deployed diverse cloud RAN system applications on Kubernetes clusters, enabling efficient log streaming with Apache Kafka. Spearheaded the design and implementation of microservices architecture based on GRPC, enhancing the overall performance and scalability of the system.> Established Automation: Implemented the Robot Framework to automate wide-scale testing across interconnected machines, significantly reducing manual tasks for development and QA teams. This integration enabled thorough scenario testing and improved issue identification. Enhanced software delivery efficiency through the Jenkins Pipeline accelerated continuous integration and deployment, markedly improving release quality and speed, and meeting critical business demands for robust, timely software application delivery.
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Jan 2022	Software Engineer, Capgemini, Gurgaon
Nov 2018	Project Experience: Embedded Software Development and Testing for Automotive Applications : <ul style="list-style-type: none"> > Automotive embedded software for instrument clusters: Utilized AUTOSAR architecture for developing reliable, high-performance automotive embedded software, including applications like telltale and door warnings. Expertly employed Embedded C and AUTOSAR Vector tools such as CANalyzer, CANoe, and DaVinci, ensuring seamless integration and compliance with industry standards. > Comprehensive Software Testing: Unit, Functional, Integration, and System: My responsibilities encompassed a full spectrum of software testing: conducting Unit Testing to validate individual functions, Functional Testing to ensure feature-specific requirements are met, Integration Testing to verify module interactions, and System Testing to assess the complete system's adherence to overall specifications and performance standards. > Configuration and Change Management in Software Development: In my role, I adeptly managed code and software documentation using configuration management tools like JIRA and DOORS, enhancing workflow efficiency and requirement traceability. Additionally, I utilized change management tools for effective software error resolution, and Enterprise Architect (EA) for structured software design, ensuring alignment with project objectives. Application Software Development – Network Interface Card for Wireless Meters : <ul style="list-style-type: none"> > Smart-Grid Apps: As an Individual Contributor in Smart-Grid Network Interface Card Applications Development, I specialized in writing embedded C applications. My focus was on designing and implementing features critical to the Smart Meter, including Over-The-Air (OTA) updates and commissioning processes. These applications were integral in enhancing the functionality and performance of Network Interface Cards tailored for the Smart-Grid infrastructure. > Coding Standards and Best Practices Demonstrated ability in ensuring code quality, maintainability, and compliance with established industry norms, thereby enhancing overall software robustness and performance in targeted embedded systems environments. > Integrating Third-Party Software and Reusable Components: Excelled at analyzing, selecting, and implementing external modules, ensuring seamless interfacing and compatibility with our systems. This approach not only accelerated development timelines but also bolstered system functionality and reliability, leveraging the best external solutions available.
Aug 2018	IoT Support Engineer, Buffalogrid Project Pvt Ltd, Delhi
Jan 2018	Roles & Responsibilities: <ul style="list-style-type: none"> > Embedded Software/Firmware Development – Managed and controlled distributed solar-powered hubs for mobile charging. Key contributions include firmware development for the company's BuffaloGrid Hub, focusing on Firmware Over-The-Air (FOTA) updates and Battery Management System (BMS) software. > Test Scripts & Automation – Developed test scripts to create a test automation environment, enhancing the efficiency and reliability of the product testing phase.
Dec 2017	Embedded Software Engineer, Eigen Technologies Pvt Ltd, Delhi
Dec 2015	Roles & Responsibilities: <ul style="list-style-type: none"> > Embedded Software/Firmware Development – Led the electronic design and firmware development processes, contributing significantly to a WSN-based smart streetlight product and a BLE-based smart home automation project. > Firmware Quality Assurance – Conducted comprehensive quality assurance testing on firmware, ensuring compatibility with multiple 802.15.4 protocols, such as Zigbee. > IoT Dashboard Development – Initiated and led the development of an IoT dashboard from the ground up, designing a user-centric interface hosted on AWS with real-time data visualization and management capabilities for sensor networks. > Backend Infrastructure – Collaborated with cross-functional teams to design and implement a scalable backend infrastructure on AWS, ensuring seamless data flow and system reliability. > Integration with 4G Module Gateway – Contributed to the integration of the IoT dashboard with a 4G module gateway, using AT commands for efficient remote data aggregation and control.