Gaurav Agarwal

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Summary

I have 8+ years of experience spanning all phases of the software development lifecycle, with a proven track record of delivering results in diverse environments which includes cutting-edge aerospace R&D labs, agile startups, and large-scale enterprises. What drives me is to deepen my expertise, embrace state-of-the-art technologies, and contribute to forward-thinking organizations by developing technology-agnostic, innovative solutions in challenging and dynamic domains.

Work Experience

Boeing India Pvt. Ltd.   *Bengaluru, India*
SOFTWARE ENGINEER 3 | PLATFORM SOFTWARE | EMBEDDED & AVIONICS SYSTEMS   *Nov'19 - Present*

- Delivered platform software across **Cockpit Displays, Common Core, Compute Platform, and Cabin Experience systems** on heterogeneous hardware, building **Linux** and **RTOS**-based real-time services with strong focus on reliability, observability, and cross-system integration.

- Designed scalable backend architectures, service interfaces, and data models, translating complex system requirements into modular APIs and production-ready services while collaborating across teams to drive standards, maintainability, and design consistency.

- Built containerized services and automation workflows on Linux platforms, leading end-to-end development from feasibility and architecture through implementation and code reviews, ensuring traceable, testable, and maintainable software delivery.

- Developed platform infrastructure including middleware, communication frameworks, and diagnostic tooling, optimizing performance, fault tolerance, and data handling across distributed environments and hardware-in-loop test systems.

- Implemented CI/CD pipelines using GitLab CI and Docker, automating build, integration, and deployment workflows to improve release velocity, reproducibility, and overall system stability across multiple product lines.

- Configured custom hardware architectures and optimized Board Support Packages, including U-Boot, kernel, custom Yocto recipe-based root file systems, cross-compilation toolchains, and device trees, to enable efficient secure boot processes and enhance runtime performance for custom hardware platforms.

Team Indus (Axiom Research Labs Pvt. Ltd.)   *Bengaluru, India*
FLIGHT SOFTWARE ENGINEER | INTEGRATED AVIONICS | COMMAND & DATA   *Jul.'17 - Present,* **Intern***:*
HANDLING | GUIDANCE, NAVIGATION & CONTROL   *Jan.'17 - Jun.'17*

- Developing software systems for **orbital, descent and surface** phases of the soft landing lunar mission, with onboard state estimation, autonomous attitude correction, lunar terrain feature tracking, active thermal and power control, interface drivers for sensors peripherals and other interfacing cards, with limited fault detection, isolation, and recovery.

- Developed software system to perform an autonomous lunar descent sequence, with the onboard estimation of lander states, constrained landing site selection, targeted descent to the selected landing site and mode transition logic.

- Design and development of onboard data handling telemetry & telecommand packet definition for the entire lunar landing mission: real-time, absolute time-tagged, patch, differential time-tagged, configurable block and event-based.

- Developing frameworks for running regression unit, interface and integration level of testing with auto code generation capabilities which involves sensor and other interface cards emulation using Interface Emulation Card (IEC), board bring-ups for Integrated Avionics Unit (IAU), and generate reports for each activity.

- Developed framework for Processor in Loop Simulation (PiLS) system emulating sensor and actuator electrical interfaces to IAU.

Academic Projects

Student Team Lead

PISAT- A NANO-SATELLITE PROJECT EXECUTED BY **CoRI**, P. E. S. UNIVERSITY LAUNCHED ABOARD PSLV C-35 ON 26TH SEPT'16

URSC, ISTRAC, Bengaluru, India

Oct. 2014 - Dec. 2016

- Involved in complete design, development, assembly, integration and testing phase of **PISAT**- a nano-satellite student project funded by **ISRO** and **PES University**. Worked in following subsystems under the expertize of ex-ISRO scientists:

- System Engineering: Subsystem level requirements collation, design and development life cycle, complete verification and validation for both hardware and software.

- OBC and ADCS: The subsystem included building real-time software for an imaging satellite in a component base manner which managed overall functionality such as attitude determination, control systems, telemetry and telecommand (RTE) on an Atmelmicro-processor with bare-metal architecture. Build test frameworks for scenario-based testing, open-loop and closed-loop simulations.

- Payload: Develop NanoCam C1Ufunctionality, operations and test bench for a complete analysis of the setting of the camera parameters.

- Assembly, Integration and Testing: Build robust test system which emulated sensors, interface cards and ground software. It was used for Avionics bring ups, On-board in Loop Simulation (OiLS), independent verification of telemetry, telecommand, payload interface and ground checkout.

- Mission Planning and Operations: Reviewing and making of the detailed design documents for CDR, PSR, PLR, the sequence of events, PISAT in orbit tracking and post data analysis.

Technical Skills

Programming Languages	C, C++, Python, Java, Bash, SQL, GraphDB, MongoDB, Matlab & Simulink, LaTeX
Platform Software	AWS (EC2, S3, Lambda), Nginx, Docker, Kubernetes, Load Balancers, Kafka, Yocto
DevOps & Tools	Git, GitLab CI/CD, Jenkins, Vagrant, Doxygen, CVE, Polyspace, Postman
Full-Stack Development	REST API, PostgreSQL, SQL, GraphDB, React.js, OAuth, JWT, Nginx
Operating Systems	RTOS (DEOS, VxWorks, FreeRTOS), Linux (Ubuntu, CentOS, Yocto, Buildroot)

Education

P.E.S Institute of Technology, Autonomous Institute under VTU, Belgaum
B.E IN ELECTRICAL AND ELECTRONICS ENGINEERING

Bengaluru, India
Aug.'13 - May'17

- GPA: 8.93/10.00

Kerala Samajam Model School
I.C.S.E, I.S.C IN PURE SCIENCE WITH COMPUTER APPLICATION

Jamshedpur, India
Mar'99 - May'13

- ICSE: 93.4%, ISC: 88.75%