

# Aditya Kumar Singh

Senior Software Engineer - RadiSys

M.Tech Computer Science Engineering

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## SUMMARY

Software Engineer with strong experience in C/C++ system development, Linux performance optimization, and real-time distributed systems. Hands-on expertise in profiling & optimizing CPU, memory, and I/O paths for high-performance 5G RAN workloads. Skilled in Kubernetes, containerized deployments, diagnostics, and debugging in production-like environments. Seeking to apply kernel-performance, systems design, and low-level engineering experience in platform and large-scale system development roles.

## EDUCATION

Degree	Institute	Board / University	CGPA/Percentage	Year
M.Tech CSE	Indian Institute of Technology (IIT), Hyderabad	IIT-Hyderabad	8.64	2019-2022
B.Tech CSE	University Institute of Engineering & Technology	CSJM University, Kanpur, U.P.	7.89	2014-2018

## EXPERIENCE

### • Radisys India Limited

*Senior Software Engineer - Cloud Engineering*

*Mar 2023 - Present*

Bangalore

- **C/C++ Development & Orchestration:** Orchestrated 5G-RAN components using C/C++, Docker, and Kubernetes to ensure seamless deployment and scalability.
- **System Performance Engineering:** Conducted system-level performance engineering of CU-DU modules on Linux-based Intel servers. Tuned CPU governors, optimized I/O pathways, and utilized `pidstat` and `numastat` to resolve NUMA-related bottlenecks and minimize latency.
- **Advanced Debugging:** Resolved complex distributed system issues and memory corruptions utilizing `perf`, `gdb`, Address Sanitizer, and Leak Sanitizer, significantly reducing mean-time-to-resolution.
- **Automation & Orchestration:** Developed Go-based controller to streamline deployment and profile creation, enforcing precise **CPU core** and **memory** requirements for optimized RAN component scaling.
- **Software Stability:** Established unit testing frameworks to ensure 90%+ code coverage, significantly reducing regression bugs in the CI/CD pipeline.

### • Dremio Software India Private Limited

*Software Engineer - Cloud Platform*

*Aug 2022 - Feb 2023*

Hyderabad

- **Billing System Framework:** Designed and developed the core billing infrastructure for Dremio Cloud using Java and MySQL.
- **Marketplace Integration:** Integrated billing accounts with AWS Marketplace via TACKLE to enable seamless payment processing.
- **Query Acceleration:** Optimized query performance for BI and SQL clients by implementing **Data Reflections** and advanced design strategies, significantly reducing data retrieval latency.
- **Data Consistency & Financial Integrity:** Engineered reconciliation logic to detect and resolve inconsistent replicas, handling automated credit reversals to ensure financial accuracy across the cloud platform.

### • Indian Institute of Technology- Hyderabad

*Research Assistant - Intel 5GCRAN*

*Aug 2019 - Jul 2022*

Hyderabad

- **Open Source Contribution:** Contributed to the **OpenAirInterface (OAI)** project for 5G-Cloud RAN, focusing on energy efficiency and architectural optimization of L2/L3 RAN functions.
- **Kernel Profiling & Debugging:** Performed deep-dive energy profiling and system debugging using **Intel V-Tune**, `perf`, and `gdb` to identify and minimize high-energy consumption paths in the kernel.
- **5G Testbed Optimization:** Analyzed and optimized RAN performance on a real-time OAI testbed utilizing **USRP (B210/N300)** SDRs, COTS servers, and Nexus UEs with programmable SIMs.
- **Data Analysis Automation:** Developed **Python** utilities for automated log parsing and massive data processing to visualize energy usage patterns across different O-RAN split options.

## PROJECTS

### • Master's Thesis : Cost-Benefit analysis of different ORAN deployment scenarios for 5G Networks

*Prof. Bheemarjuna Reddy Tamma and Dr. Antony Franklin*

*Aug 2019 - Jul 2022*

- TCO Analysis (CAPEX & OPEX) of deploying different split options for CU-DU-RU placement.
- Cost-effective Network deployment strategy for telecom operators in different regions based on Population and Traffic.

## TECHNICAL SKILLS

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- **Programming Languages:** C/C++, Java, Go Language and MySQL
- **DevOps & Tools:** Docker, Kubernetes, Git, Maven, CMake, LaTeX, IntelliJ IDEA
- **Performance & Debugging:** Intel VTune, Linux Perf, GDB, Wireshark, Address Sanitizer, pidstat, numastat
- **Domain & Simulation:** 5G-RAN, O-RAN, OpenAirInterface (OAI), NS-3
- **Testing:** JUnit, Mockito, Google Test

## RESEARCH AND PUBLICATIONS

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### • Conference:

U. Pawar, **Aditya Kumar Singh**, K. Malde, B. R. Tamma and A. Antony Franklin, "Understanding Energy Consumption of Cloud Radio Access Networks: an Experimental Study," 2020 IEEE 3rd 5G World Forum (5GWF), 2020  
[Published Version](#)

### • Poster Presentation:

Shah Alam, **Aditya Kumar Singh** "Design and Implementation of Image Cryptography using RSA Algorithm" IEEE International Conference on Engineering Science & Advance Research Faculty of Engineering Technology, 2018

## CERTIFICATIONS

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- **Data Reflections** Dremio Software
- **Architecting with Google Kubernetes Engine: Foundations** Coursera
- **Dremio Fundamentals** Dremio Software

## MISCELLANEOUS

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- **Participation,** Participated in different Programming Competitions on LeetCode, HackerRank, GFG and Olympiad Exam.
- **Interest,** Cricket, Chess, Bodybuilding, and Fitness training