SURYAKANTA MANGARAJ

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To excel in a challenging role within the RFCT field, utilizing my skills, education, and work experience to the fullest extent.

EXPERIENCE

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RF Software Engineer III, Viasat India Pvt. Ltd. **Aug 2023 – Till Date**

- Developed an automation suite for all test and measurement equipment.
- Created drivers for all instruments using .NET, ensuring seamless integration and functionality.
- Designed IVI standard drivers to streamline automation and standardization.
- Developed the drivers for RF-related measurements, implementing the underlying mathematics.
- Developed RF measurement methodologies for enhanced test accuracy.
- Implemented RF calibration routines for precision of RF instruments.
- Conducted RF circuit analysis and troubleshooting.
- Validated RF test procedures on satellite communication systems.
- Utilized Python and SCPI commands for program-related automation.
- Collaborated with cross-functional teams to validate the test suite as per requirements.
- Applied AI/ML techniques to analyze and validate test data and system specifications, driving data-driven decision making.
- Leveraged Git and CI/CD for smooth software deployment.
- Contributed to the design and development of software tools, test architectures, and processes.
- Worked closely with product development teams to enhance test coverage, methodologies, and processes, thereby accelerating the qualification of test instruments and software products.

RF Engineer II (RF Product Development and Testing), Honeywell Technology Solutions Lab Pvt. Ltd. **Nov 2021 – Aug 2023**

- Simulated and analyzed RF systems for Tx/Rx line-up compliance with industry and internal standards, including MOPS (DO-160).
- Performed test characterization and validation to ensure compliance with the standards after the simulation and analysis.
- Developed the schematic for board-level design.
- Provided design guidelines and reviewed PCB and flex layouts with the layout team.
- Drove the execution of HW design-to-cost innovation using state-of-the-art technology.
- Worked with failure analysis (FA) to determine root cause of any reliability and qualification failures.
- Created and maintained RF component specifications, collaborating with component engineers and vendors to develop components for the obsolescence program.
- Utilized AI and ML techniques to optimize the architecture of new products and drive innovation in the aerospace industry.

RF Engineer (RF Product Development and Testing), VVDN Technologies Pvt. Ltd. **Nov 2020 – Oct 2021**

- Derived transceiver (Tx/Rx) chain requirement specifications from system requirements by using an RF link budget.
- Drove and performed HW verification, integration, bring-up, and performed data analysis.
- Collaborated with software engineers to develop CFR and DPD algorithms for linearizing amplifiers in different communication systems, including massive MIMO and OFDM.
- Collaborated closely with software and FPGA engineers to establish a connection between the RF front end and the PHY and MAC layers.
- Created and maintained specifications for RF components and collaborated with vendors to drive component development.
- Designed and developed the test suites for automation.
- Conducted hands-on disassembly and experimental modifications to intricate hardware.
- Tested and debugged design issues from early development stages to productization.

Application Engineer (RF Test and Measurement Instruments), GSAS Microsystems Pvt. Ltd. **Apr 2018 – Nov 2020**

- Provided technical expertise and support to internal teams, conducted internal technical training, maintenance seminars, and workshops for field engineers and customers.

- Provided pre-sales and post-sales support for global customers, while leading field support activities and coordinating with other internal functions.
- Troubleshot RF Systems Tx/Rx performance issues for 5G, LTE, and legacy cellular wireless standards based on 3GPP and ORAN specs to reproduce and resolve customer technical problems in the lab.
- Was responsible for on-site support activities such as installation, implementation, and maintenance of company and multi-vendor systems solutions, which includes wireless communication testers, RF test and measurement instruments, OEM, and 3rd party software.
- Resolved a broad range of hardware and/or software problems of varying scope and complexity through troubleshooting, debugging, and diagnosis.
- Ensured customer satisfaction with prompt support.

SKILL SUMMARY

- Design Tools: Keysight ADS, Cadence AWR, MATLAB, NI LabVIEW, Allegro, Virtuoso, OrCAD, Mentor Graphics Xpedition (DxD - HyperLynx), Altium Designer, LTSpice
- Scripting: Python, Linux/Unix shell scripting, Tcl/Tk scripting
- Programming Languages: C, C++, C#
- Testing and Measurement Tools: Oscilloscope, Logic Analyzer, Signal Generator, Power Supply, Spectrum Analyzer, Network Analyzer, Multi-meter, LCR meter etc.
- Test Automation Tools: NI TestStand, Keysight PathWave
- Other Tools: MS Office, Git, JIRA, DOORS, CI/CD, JAMA, Agile, Collaborator

PROJECTS

VHF Data Link Radios for commercial aircraft

- Design and development of VHF Data Link radios for communication in commercial aircraft.

Radar Altimeter for commercial and business aircraft

- Development of a radar altimeter for precise altitude measurement in commercial and business aircraft.

AI-Assisted battery management system for next gen UAV/UAM

- Design and implementation of an AI-assisted battery management system for next-generation UAVs and UAMs.

Indoor small cell radio unit base station

- Development of an indoor small cell radio unit base station for enhanced indoor coverage.

Outdoor macro cell radio unit base station

- Design and development of an outdoor macro cell radio unit base station for wide area coverage.

B-tech project on “Design of Low Power and High PSRR LDO Regulator using Cadence Tool”

- Design of a low power, high PSRR LDO regulator using Cadence tools.

Seminar on “Automated Space Rover using FPGA”

- Presentation on the development and automation of a space rover using FPGA technology.

EDUCATION

Indian Institute of Technology, Kanpur	**Master of Technology (Executive)**	**2023**
National Institute of Science and Technology, Berhampur	**Bachelor of Technology**	**2018**
KBDAV College, Odisha	**Intermediate**	**2014**
Ramchandra Vidyaniketan, Odisha	**Matriculation**	**2012**

AWARDS AND ACHIEVEMENTS

- Secured two proprietary advancements in RF and Next-Gen UAV technology, contributing to strategic innovation during my tenure at Honeywell.
- Secured victory in the inaugural edition of Aero Zommers 2022, Honeywell’s Internal Incubation program, with a selected and winning idea, showcasing excellence among young employees.

- Finalists of the Cadence Design Contest 2018 under UG category for B-tech Project “Design of Low Power High PSRR LDO Regulator with Smart Power Save Operation using 180nm Technology”.
- Published a paper titled “Design of two stage classical model Op-Amp for LDO applications” in “8th IEEE MINI-COLLOQUIUM” by IEEE ED-NIST Student Chapter.
- Certified as the VLSI Design Engineer Framework Level-5 by ESSCI (NSDC), India.
- Qualified to qualifying round of INDIA INNOVATION CHALLENGE WEBENCH design contest 2016 organized by Texas Instruments Inc.

REFERENCES

Available on request