



Rittwik Sood

RF NR5G Senior Software Engineer, QUALCOMM  
Hyderabad/India | +91-7508340030  
rittwiksood3@gmail.com  
[in](#) LinkedIn | [GitHub](#) | [Google Scholar](#)

## EDUCATION

### NATIONAL INSTITUTE OF TECHNOLOGY HAMIRPUR, INDIA

B.TECH IN ELECTRONICS AND COMMUNICATION ENGINEERING

2014-2018

( 9.72/10 )

- Stood **1st** in entire batch
- **PRESIDENT OF INDIA Gold Medal** NIT Hamirpur (for highest CGPI, **Rank 1** in the institute) 2014-2018
- **DIRECTOR'S Gold Medal to the Best All Rounder** student among UG and PG NIT Hamirpur 2018

Relevant Courses: Wireless Communication | Spread Spectrum | Communication and Information Theory  
Digital Communication Systems | Data Communication

## RESEARCH EXPERIENCE

### QUALCOMM INC.

2018-Now / Hyderabad, India

SENIOR SOFTWARE ENGINEER, MODEM RF NR5G

- 4+ years in **Modem NR5G RF team**. Primary task includes reading and analysing 3GPP spec documents and programming HW RF components like Antennas, PAs, LNAs, ASMs.
- Works on **Physical layer** programming of RF front end components including Digital and Analog components.
- Created critical features and their SW frameworks, like ENDC (LTE + NR5G), NRDC (FR1+FR2, NR Dual Connectivity), MPE (Maximum Polarisation Exposure in mmw).
- Worked with various OEMs on 40+ product lines. Assisted teams across geographies (USA, CHN, Israel, EMEA) in day-to-day critical activities and Modem Bring ups.
- Got 2 promotions in last 3 years. Was awarded with Orion-Insta and Qualstar Awards in the company for excellent performance and work-ethic (Highest Awards).

NRDC framework created by me from scratch, was presented as a highlight (**one of the five features**) by Qualcomm CEO at Mobile World Congress (MWC) 2021, Barcelona. Download speed of **10GBps** was achieved for the first time.

Currently working on V2X systems, mmw technology, SUL bands.

### IBT, KARLSRUHE INSTITUTE OF TECHNOLOGY, GERMANY

2017-Summer / Karlsruhe, Germany

DAAD-WISE RESEARCH SCHOLAR 2017

"Instantaneous phase estimation and analysis of bio-signals including ECG and EEG signals to predict heart and brain disorders well in time". In a period of 3 months, formulated a novel method to predict heart and brain diseases timely, amalgamating benefits of conventional algorithms like Hilbert transform and Short-time Fourier transform. Performed mathematical analysis and took a comparative study of the novel method against the conventional methods available using Signal Processing algorithms. Mentored by Prof. [Olaf Dossel](#) and Dr. Nicolas Pilia. [\[Project details\]](#)

### INDIAN INSTITUTE OF TECHNOLOGY DELHI

2016- Summer / Delhi, India

INDIAN ACADEMY OF SCIENCES - SUMMER RESEARCH FELLOW (SRF) 2016

Tourist Assistance System to help geo-locate the tourists and assist them in remote areas, devoid of Mobile communication [\[IEEE\]](#). Made a prototype with a bluetooth enabled system and a Mobile App interface to evaluate the last available coordinates of the user and through data-analysis, find the most probable radius, where the user may be found. Worked under Prof. Subrat Kar in Bharti School of Telecommunication, wing of Electrical Engineering Department, IIT Delhi. Was awarded with 'The Best Intern Project' award in the internship.

### NIT HAMIRPUR

2014-2018

UNDERGRADUATE STUDENT

**Major Project:** Best Major Project Award, ECE 2018 batch.

(Thesis title): Identification of Brain Tumour by segmentation, and compression of brain MRI images for lossy transmission using ML algorithms. Awarded amongst 31 projects by external and internal faculty.

**Minor project:** 2nd best Minor Project Award, ECE 2017.

(Thesis title): 'IoT Enabled Smart Wearable Device' under Dr. Ashok Kumar, HOD ECED NITH. [IEEE]

**Real Time Smart Honking System** 2015-2016: Created a prototype for a disincentive measure to control unnecessary honking on roads. Priority RF signals intimation for emergency vehicles. Conducted a study on Delhi roads as well which found the system to reduce the effective noise by 65%. Filed a patent on same. [IEEE]

**Minor project:**

Pre-final year 2017: (Thesis title) SISO and MIMO System Model Reduction using heuristic algorithms. [IJEEI 2022]

## ACHIEVEMENTS

---

### DAAD-WISE Scholarship 2017

Given to top 100 meritorious students across India (Amongst 14,000 applicants). Accorded by the German government and the EU to undertake research internship in Germany. Selected for research internship at Institut für Biomedizinische Technik (IBT), Karlsruhe Institute of Technology, Karlsruhe, Germany.

### IAS-INSA-IISc Summer Research Fellowship 2016

Selected amongst Top 200 students across India to undertake research internship in premier institutes in India. Accorded by the Indian National Science Academy, Indian Academy of Sciences and the Indian Institute of Science (IISc) Bangalore. Selected for internship at the Indian Institute of Delhi (IIT Delhi), Electrical Engineering Department (Only 4 students across India).

### SJVN Merit Scholarship 2014-2018

Accorded to 35 students who have topped in Senior Secondary education examination across 5 Indian states. Awarded a four year scholarship to fund undergraduate studies.

### Patents

- 'REAL TIME SMART HONKING SYSTEM' published (201711042577 - IN)
- 1 US patent (in field of MIMO processing in antennas) in process of application.

### ALL INDIA 2<sup>nd</sup> Rank, ARM Design Contest 2015

Came 2nd ALL OVER INDIA at ADCOM ARM DESIGN CONTEST 2015, conducted by ACCS (Advanced Computing & Communication Society) and ARM University for the project 'Real-time Smart Honking System'. Competed with 650+ teams nationwide. Got appreciation from the Chief Minister of the Himachal Pradesh.

### Most Popular Project, KPIT Design Contest 2017, Pune

Led a team of 3 people in the competition and were voted as 'Most Popular Project' in KPIT Design Contest. Presented our project to Education Minister of India. 35 Projects were selected amongst 4500 projects.

## RESPONSIBILITIES HELD AND ACCOLADES

---

### **FOUNDER AND FIRST PRESIDENT, INNOVATIVE RESEARCH INCUBATION CLUB (IRIC)** 2015-2018

Founded official Incubation center of NITH. Got sponsored by the GOI (Govt. of India) and DST (Deptt. of Science & Tech). 3 of the projects got Chief Minister Startup Fund within first 6 month of the conception of IRIC.

### **FOUNDER AND FIRST STUDENT CHAIR, IEEE STUDENT BRANCH NIT-HAMIRPUR** 2017-2018

Held one National Conference in college along with hackathons and guest lectures.

### **STUDENT REPRESENTATIVE, DEPARTMENTAL UNDER-GRADUATE COMMITTEE, ECE DEPTT NITH** 2016-2018

Represented my batch of ECE 2014. Resolved student problems and raised critical issues for the welfare of students. 1 student is selected per year in the committee.

### **CORE-COORDINATOR, SPEC ECE NITH** 2014-2017

Society of Promotion of Electronics Culture (SPEC), Departmental Technical Society NIT-H. Conducted workshops, competitions, hackathons and technical festival (SPECathon) for 3 years in the club.

### **CONVENOR, DRAMATICS CLUB NITH** 2014-2018

Led College Dramatics Club at various platform across the country in myriad of performances across the nation.

### **DAV PUBLIC SCHOOL HAMIRPUR (H.P.)** (10/10) 2007-2014

Head Boy (Hansraj House). Winner (Himachal Pradesh state) Indian Science Congress, Science Quiz (2011). Convenor Debsoc Society. Represented school at various plays. Nature and Eco Club President.

## PROFICIENCIES

---

**LANGUAGES & TOOLS** C | C++ | Python | Matlab | Verilog | Perforce | GIT

**PUBLISHING TOOLS** Latex | Word

**BASIC PROFICIENCY** Qualcomm Tools | ORCAD Tools (PSpice, Tspice) | Tanner Tools | gEDA PCB Design | Cadence Tools