

EDUCATION

UNIVERSITY OF MICHIGAN ANN ARBOR

MI, USA

MASTER OF SCIENCE EECs: NETWORK, COMMUNICATION, AND INFORMATION SYSTEMS

AUG 2022 – APR 2024

Coursework: Communication Networks, Probability Theory, Wireless Systems, RT Embedded Systems

GPA: 4.11/4.0

NATIONAL INSTITUTE OF TECHNOLOGY HAMIRPUR

HAMIRPUR, IN

BACHELOR OF TECHNOLOGY: ELECTRONICS AND COMMUNICATION ENGINEERING

GRADUATED MAY 2019

Coursework: Digital and Analog Communication, Information Theory

GPA: 9.49/10 (3.957/4)

ENGINEERING SKILLS

- **Programming Languages:** C++, MATLAB, Assembly Language.
- **Subject Knowledge:** Radio Frequency SW, Firmware, LTE, NR, V2X, PHY, L1, RTES, FW, Cellular Protocols.
- **Software/Other Technologies:** NS-3, MATLAB, Arduino, PyTorch, Raspberry Pi, Embedded Systems.

WORK EXPERIENCE

QUALCOMM

CA, USA

MODEM SW INTERN, MMW TEAM

MAY 2023 – AUG 2023

- Re-designed an algorithm for Frequency Independent **Side Band suppression** which provides **SNR improvements**.
- Revamped the call-flows between **co-procs** to allow for **faster convergence** times, and less **memory operations**.
- **Delivered significant optimizations** to Sideband Calibration timeline by 30 percent.

QUALCOMM

HYDERABAD, IN

RADIO FREQUENCY SW ENGINEER, MODEM AIR INTERFACES TEAM

JAN 2020 – AUG 2022

- Led **LTE -V2X RFSW** team for design, commercialization and support for the **first DSDA+V2X Modem** by **Qualcomm**.
- Developed RFSW solutions maintaining functionality of LTE, NR V2X as per the **3GPP** spec (ex: ACLR, SEM, EVM).
- Focused on **Physical** layer and programming of **front end embedded HW** modules (PLL's, LNA's, PA's) to facilitate communication and transfer of **data across protocol layers**.
- Execution of a **Real time Embedded System environment** with close time and memory constraints to honor the SW architecture and enable a **reliable modem subsystem**.

SAMSUNG RESEARCH INSTITUTE NOIDA

NOIDA, IN

NETWORK ENGINEER, COMMUNICATION PROCESSOR SYSTEM R&D

JUNE 2019 – JAN 2020

- Troubleshoot **Modem protocol procedures** for support in Galaxy A Devices, delivering 3GPP compliant performance.
- Analyzing the protocol logs across **RRC, MAC**, debugged Handover and CSFB Scenarios to establish the root cause.
- Designing and **developing interface between modem and application**, call processing of **3GPP/GSM/LTE/IMS**.

RESEARCH PROJECTS

UNIVERSITY OF MICHIGAN ANN ARBOR

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REDD (REAL-TIME EXPEDITED DISEASE DETECTION)

AUG 2023 – DEC 2023

- Developed a functional prototype for **Real-Time segmentation** of 13 lung diseases without reliance on internet.
- **Quantized** model weights of PSPNet by making architectural changes, **significantly reducing model size** (from 260MB to 0.55MB) which reduced memory usage on resource-constrained platforms like Raspberry Pi.
- **DICE score** for image segmentation of around **0.8** was achieved.
- Demonstrated capabilities of running a **Real Time offline inference on Pi within 25s**.

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TCP IN MMW NETWORKS

JAN 2023 – APR 2023

- Analyzed performance of conventional **TCP protocols over mm-Wave** networks.
- **Proposed and implemented** a new algorithm based on **TCP Reno, Vegas in NS-3**, demonstrating the need to improve current algorithms.

COGNITIVE RADIOS WITH 5G

MAY 2018 – AUG 2018

- Developed an algorithm for **Evaluation of Energy Detection for 5G Spectrum Sensing, Cognitive Radios**.
- Enhanced the 5G simulator with **Cognitive Radio and Spectrum Sensing capabilities**, in a **MATLAB** environment.
- Succeeded in **utilization of underused spectrum**, without having an impact on 5G performance.

INDIAN INSTITUTE OF TECHNOLOGY BHUBANESWAR

BHUBANESWAR, IN

RADIO OVER FIBER

DECEMBER 2017

- Investigated performance of **Visual Light Communication** system, with application in **Radio over Fiber** technology.

LEADERSHIP EXPERIENCES

IEEE HKN CHAPTER

UNIVERSITY OF MICHIGAN

PROJECTS OFFICER

APR 2023 – DEC 2023

- Organizing, managing, and facilitating community service opportunities for the entire chapter.

TEAM VIBHAV

NIT HAMIRPUR

COORDINATOR

APR 2018 – APR 2019

- Led and mentored a team of 35 members, to exhibition innovative projects for the technical fest of the institution.

TEDx NITH

NIT HAMIRPUR

VOLUNTEER, WEB DESIGN HEAD

FEB 2019 – APR 2019

- Organized a TED Talk at the university, collaborated with a team of 40 volunteers and members for the event.
- Designed a website for the TEDx Talk, with the information about guest speakers, venues, and organizational committee.

HONORS AND AWARDS

UNIVERSITY OF MICHIGAN, TAU BETA PI INDUCTION

DEC 2023

UNIVERSITY OF MICHIGAN, IEEE HKN INDUCTION

APR 2023

QUALCOMM, ORION INSTA AWARD

JAN 2021

NITH, AWARD OF SILVER MEDAL

NOV 2019

NITH, SJVN SILVER JUBILEE MERIT SCHOLARSHIP

AUG 2015