# **AKSHAY CHANDRASHEKAR RAIKAR**

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#### **EDUCATION**

## Master of Science in Electrical and Electronics Engineering

Aug 2021 - Feb 2023

University at Buffalo, The State University of New York

GPA: 3.83/4.0

 Relevant Courses: MIMO Wireless Communication, Principles of Modern Digital Communication, Principles of Networking, RF / Microwave Circuits, Digital Signal Processing, Internet of Things

### **Bachelor of Engineering in Electronics and Communication**

Aug 2016 - Aug 2020

Visvesvaraya Technological University, Bengaluru, India

CGPA: 8.10/10

#### **EXPERIENCE**

### **Graduate Student Researcher**

Nov 2021 - Jun 2022

Wireless Networks 4 Smart Systems Lab, University at Buffalo

- Collaborated with a team of 3 to develop a low cost, low complex, LTE enabled Micro Phasor Measurement Unit (µPMU) by employing ARM Cortex-M3 Microcontroller.
- Transmitted synchrophasor frames using LTE cat-M module and evaluated LTE performance for a variable rate of transmission from 50 Hz to 80 Hz.
- Utilized internal timers of Arduino to bring down form factor and performed data transmission from multiple μPMUs to Phasor Data Concentrator (AWS Linux Cloud) by deploying UDP and assessed end-to-end delay.

# Implementation of srsRAN

Jun 2022 - Jan 2023

Wireless Intelligent Networking and Security Lab, University at Buffalo

- Integrated srsRAN, an open-source 4G/5G software radio suite to implement a flyable cellular network using SDR (Software Defined Radio) carried by an octocopter UAV.
- Decoupled components of srsRAN Evolved NodeB (srsENB) and Evolved Packet Core (srsEPC), on separate embedded systems using Wi-Fi.
- Increased scalability of the 4G LTE network by connecting multiple srsENB to a srsEPC and achieved 3 times more performance with Intel Nuc as srsENB compared to Raspberry Pi 4.

#### **TECHNICAL SKILLS**

Languages: MATLAB, Python, Verilog

**Certifications:** 4G Network Fundamentals, 5G Mobile Networking, Google IT Certification, Python Data Structures **Core Competencies:** LTE - protocol stack, call flow, OFDM, Networking (TCP, IP), Ambitious and Motivated

Equipments: Vector Network Analyzer, Oscilloscope, Multi-meter, USRP B210 SDR

## **PROJECTS**

## Wireless Communication Simulations using MATLAB

Feb 2022

- Simulated BPAM, 4-PAM and 4-QAM digital modulation schemes with optimum receiver detection and examined results using BER vs SNR curves.
- Generated four independent Rayleigh fading channels using Jake's fading simulator and plotted number of channel samples to channel amplitude in dB scale to review slow and fast fading.
- Simulated MISO (2x1) and MIMO (2x2) system using maximum likelihood decoding at the receiver and compared system performance by tracing BER vs SNR curve.

# 3-section Microstrip Directional Coupler using ADS

Nov 2021

- Designed a 20dB parallel line 3-section coupler with a center frequency of 3 GHz and bandwidth of 4 GHz.
- Realized directivity of 15 dB with low Insertion loss by compensating parasitic capacitances and inductances.

#### Performance Analysis of wavelets in De-noising Audio Signals

Nov 2021

 Constructed denoised signal at receiver by decomposing, thresholding, and reconstructing of a realistic noisy audio signal. Analyzed performance of different mother wavelets and obtained SNR of 9.29 dB for db4 wavelet.