DHANRAJ MURALI

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Education

Texas A&M University, College Station, Texas (USA) — **August 2023 - Present**
Master of Science in Computer Engineering — **GPA: 4.0**

College of Engineering, Guindy campus (Anna University- Chennai, India) — **August 2016 - April 2020**
Bachelor of Engineering in Electronics and Communication Engineering — **CGPA: 8.47**

Experience

Software Developer (Full Stack) – Texas A&M University — **February 2024 - Present**

- Responsible for developing a cross-platform full-stack application for Virtual Cement Concrete Testing Laboratory (VCCTL) simulation, prioritizing documentation, efficient file I/O, and seamless simulation initiation.
- Developed the front-end using **Vue.js** and **Bootstrap** to enhance user interface intuitiveness and optimize the overall user experience.
- Handling backend development with **Java Spring Boot**, integrating **MySQL** database for robust data management and streamlining simulation processes.

Integration Engineer – Ericsson Global India Pvt. Ltd. — **May 2021 - July 2023**

- Delivered projects as technical lead for design and deployment of charging solutions (IN) for **3G/4G** (Voice and SMS) deployments in real-time mobile networks for MTN and Turk-cell operators across Western Africa and Turkey to swap out legacy NSP deployments with CBA nodes.
- Conducted testing for real-time test-cases using simulators for local and roaming subscribers to ensure seamless integration of new services.
- Deployed **5G** Charging Access Function in virtualized environment in real time mobile network for Etisalat operator in Dubai as part of the solution integration team and handled testing of services in collaboration with operations assurance team and provided hands-on training.

Intern – Ericsson Global India Pvt. Ltd. — **Dec 2020 – May 2021**

- Contributed significantly to the deployment and integration of the Charging Control Node for the MTN network in Guinea Conakry. Recognized with an employee partnership award for outstanding performance.
- Initiated and implemented automation for non-functional testing, establishing uniform documentation practices across solution areas resulting in average savings of 17 hours per project with 75% decrease in documentation efforts across solution delivery unit.

Technical Skills

Languages	Java, C, Python, MATLAB, SQL, HTML, CSS
Tools/Frameworks	Git, Packet Tracer, NS2, Wireshark, Spring Boot, Vue.js, Bootstrap
Technologies	5G Core, 5G RAN, Linux, Docker, Massive MIMO, Beam forming

Relevant Projects

Numerical Performance Evaluation of Centralized Uplink Operation in Cell-free Massive MIMO — **Nov 2023**

- Analyzed performance variations in centralized uplink operation for cell-free massive MIMO in **MATLAB**. Simulated MMSE, P-MMSE, and MR combining schemes under different UE/Antenna distributions (400/1 and 100/4) under Rayleigh Fading conditions.
- Inferred insights into optimizing massive MIMO deployments, particularly with widely distributed antennas and observed (400/1) to give better SE.
- **SKILLS**: MATLAB, Channel Modeling, Combining Techniques, Massive MIMO

Operating System - Simple Kernel Development — **Oct 2023**

- Implemented an efficient kernel with a focus on memory management and multi-thread handling in **C**. Developed a paging system with a 2-level page table with logical page size of 4KB and schedulers using a FIFO mechanism.
- Resolved I/O wait issues by implementing device drivers to handle busy wait and designed a basic file system with sub-directory support.
- **SKILLS**: Operating Systems, C Programming, Paging

Advanced Infant Security and Identification System with RFID and Facial Recognition — **Mar 2020**

- Developed a Core **Java** solution for RFID-based infant attendant tracking and integrated **MySQL** using JDBC. Improved security standards in infant care systems by encrypting the enrolment data using AES in Java before storing in the database as stage 1 of the authentication framework.
- Enhanced attendant authentication by implementing facial recognition in **Python**, achieving accuracy of 97%. Contributed to improved security metrics and operational efficiency in infant care systems.
- **SKILLS**: Python, Java, Facial Recognition, JDBC, MySQL, AES Encryption

Relevant Course Work

Wireless Communication Systems	Machine Learning	Operating Systems
Computer Communication and Networks	Internet Protocol and Modelling	Network Security

Awards & Recognition

- Ericsson Impact Award for leading upgrade of 96 CCN nodes as part of EC Modernization for MTN Operator across Western Africa.
- Ericsson Ace Award for successful delivery of 3 CCN and 6 OCC Nodes for MTN Operator in Cameroon.
- Ericsson Power Award for leading delivery of 11 CCN Nodes as part of EC Solution for Turk-cell Operator in Turkey.