Phani Jyothi Kurada

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WORK EXPERIENCE

Texas A&M University – Dept. of Kinesiology and Sports Management *College Station, TX*
Student Full-stack Developer *Sep 2025 – Present*

◦ Contributed as a Full-Stack Developer for *sspain.ai*, a sports analytics platform for clients like NBA, WNBA, and Dallas Mavericks, developing responsive UIs using **React**, **Next.js**, **Tailwind**, and **ShadUI**, and integrating backend models via **FastAPI**, **RStudio**, and **rpy2** with **PostgreSQL**.

◦ Collaborated in full **SDLC** with **Git**, **Jira**, and **pytest**, implementing role-based authentication and sponsorship prediction using statistical modeling.

Infosys *Apr 2022 - Aug 2024*
Digital Specialist Engineer *Hyderabad, India*

◦ Supported a **U.K.-based telecom client** in cloud migration using **microservices architecture**, executing Linux operations and troubleshooting servers within **SDLC** workflows.

◦ Enhanced the **Self-Service Portal UI** for British Telecom's network monitoring system, which visualizes real-time alerts and alarms, using **Angular**, RESTful **APIs**, and **Jenkins CI/CD**, improving operational efficiency by **25%**.

Cognizant *Mar 2021 - Mar 2022*
Programmer Analyst Trainee *Hyderabad, India*

◦ Monitored large-scale **telecom networks** for a **U.S. client**, developing **Python-based diagnostic scripts** and using **Wireshark** for anomaly detection, improving reliability and recovery efficiency by **30%**.

Defence Research & Development Laboratories (DRDL/DRDO) *May 2019 – Sep 2020*
Software Engineer Intern – Independent Verification & Validation (IV&V) Lab *Hyderabad, India*

◦ Engineered a high-fidelity **UDP-based satellite communication simulation framework** leveraging **C++ socket programming** and **OMNeT++** to emulate real-time ground-to-satellite communication links and network propagation dynamics.

◦ Implemented advanced **jitter mitigation**, **latency drift correction**, and **adaptive buffering** mechanisms with **timestamp synchronization** and **multi-threaded message handling**, ensuring deterministic data transfer under stochastic network conditions.

PROJECTS

MLIR Playground | *C++, LLVM/MLIR, IR, Compiler Passes* ⬡ *Spring 2026*

◦ Built an interactive MLIR-based platform to visualize **IR transformations** and analyze compiler pass pipelines using **LLVM/MLIR**.

◦ Enabled step-by-step inspection of **custom and standard passes**, improving understanding of optimization behavior and IR evolution.

OS Kernel from Scratch | *C++, x86, Paging, Scheduling, Memory Management* ⬡ *Fall 2025*

◦ Developed a miniature x86 OS kernel with bitmap-based memory allocation, two-level paging, and demand paging using recursive page tables. Implemented kernel threads with a preemptive round-robin scheduler driven by hardware timer interrupts. Built a non-blocking interrupt-driven disk driver and a custom inode-based file system supporting 64KB files, ensuring reliable persistent storage and efficient system performance.

Tiny Scalable Networking System | *C++, TCP/UDP, gRPC, gcc, Distributed Systems* ⬡ *Fall 2025*

◦ Built a scalable networking system using **C++ socket programming** and **multithreading**, implementing efficient **TCP/UDP protocols** for low-latency, high-throughput client-server communication.

Matrix Optimization: m-Height Calculation | *C++, Algorithms, Linear Algebra* ⬡ *Spring 2025*

◦ Developed an algorithm to construct **systematic generator matrices (G = [I | P])** with minimal m-height for given (n, k, m).

◦ Applied **combinatorial optimization and linear algebra** techniques to reduce computational complexity and improve solution efficiency.

SKILLS

- **Programming Languages:** Python, JavaScript, TypeScript, Java, C++, C#, C, Ruby, HTML5/CSS3/SASS, XML, JSON, PHP, Bash, PowerShell

- **Frameworks & Web Technologies:** React, Angular, Express.js, Node.js, Spring Boot, Ruby on Rails, .NETs, REST APIs, Microservices, Axios, jQuery, Postman, FastAPI, Tailwind, ShadUI

- **Databases & Data Systems:** MongoDB, MySQL, Oracle, NoSQL,PostgreSQL

- **Cloud & DevOps:** AWS, Docker, Jenkins, Git/GitHub, Jira, CI/CD Pipelines, Cloud Migration, Virtualization, Containerization

- **Simulation, Networking & Communication Systems:** OMNeT++, NS-3, Satellite Communication Protocols, Network Programming (TCP/UDP Sockets), UDP/TCP Reliability Real-time Systems, Threaded Event Simulation, Performance Profiling, Wireshark, Real-time Monitoring, Log Analysis, Alerting, Network Diagnostics, Routing & Congestion Control, QoS Analysis

- **Software Engineering, Tools & Technologies:** Functional Test Case Design (manual), System Design, Data Structures & Algorithms, Distributed Processing Systems, Network Programming (C++ Sockets, TCP/UDP), Computer Networking, Operating Systems, Computer Architecture, Linux, Visual Studio Code

EDUCATION

Texas A&M University *Aug 2024 - May 2026*
Masters in Computer Science, CGPA: **3.8/4.0** *College Station, TX*

Jawaharlal Nehru Technological University *Aug 2016 - Sep 2020*
Bachelor of Technology in Computer Science & Engineering, CGPA: **9.3/10** *Hyderabad, India*