

# Anjaninithin Chalamchala

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## EDUCATION

### IIITDM Kancheepuram

B.Tech in Computer Science and Engineering

Relevant Coursework: Data Structures & Algorithms, Machine Learning, Operating Systems, DBMS, Web Development

2023 - 2027

**CGPA: 9.1/10**

## SKILLS

**Languages:** C++, Python, Java, JavaScript, PHP, SQL, SystemVerilog

**Technologies:** React, Node.js, TensorFlow, Docker, Git, Linux, WebRTC, MySQL

**Core Competencies:** Full Stack Development, Deep Learning, System Design, FPGA Acceleration

## WORK EXPERIENCE

### GearUp - Motorcycle Business Portal

Jun 2024 - Aug 2024

#### Intern Engineer

- Designed and developed a responsive web portal for showcasing motorcycle product catalogs using modern frontend technologies.
- Optimized UI/UX and asset delivery, ensuring a seamless user experience across devices.

### FPGA-Accelerated Metaheuristic Optimization

Jan 2025 - Present

#### Research Project

- Designing a hardware accelerator for complex partitioning problems (MDTWNPP) using Binary Bat and Grey Wolf Optimization.
- Implementing parallel processing architecture on Xilinx ZCU106 FPGA using SystemVerilog to outperform CPU execution speeds.

## KEY PROJECTS

### Bone Age Prediction (AI & MLOps)

[Link](#)

- Built a deep learning system (InceptionV3) for pediatric bone age assessment, achieving **0.86 QWK** and 95% faster diagnosis.
- Deployed the model for production use using **Docker** and **TensorFlow Serving**, exposed via a Streamlit dashboard.

### LANConf - Offline Video Conferencing

[Link](#)

- Engineered a serverless-style video conferencing tool for offline LANs using **WebRTC** and **Express.js**.
- Implemented real-time video/audio streaming, screen sharing, and socket-based text chat without internet dependency.

### XV6 Operating System Enhancements

[Link](#)

- Enhanced the XV6 kernel by implementing a Multi-Level Feedback Queue (MLFQ) scheduler with aging to prevent starvation.
- Developed a secure file permission system with UID-based access control and added shell features like history and tab completion.

### Supermarket Billing System

[Link](#)

- Developed a full-stack billing application using **PHP**, **MySQL**, and JavaScript with distinct admin and customer portals.
- Implemented inventory management, secured login authentication, and real-time sales reporting features.

### cfg2yacc (Compiler Tool)

[Link](#)

- Built a command-line tool to convert Context-Free Grammars to YACC/Bison format with automated precedence handling.
- Developed a dual-view visualizer (Terminal/Web) for debugging grammar rules and generating parse trees.

### US Accident Analytics Dashboard

[Link](#)

- Built an interactive dashboard using **Streamlit** to visualize accident patterns, integrating geographic heatmaps and time-series analysis.
- Processed large-scale datasets to identify key risk factors, enabling real-time severity prediction with machine learning models.

## AWARDS & LEADERSHIP

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- **Competitive Programming:** Solved **500+** problems on **LeetCode**.
- **Leadership:** Joint Core of CS Club; Organized technical events and logistics for college fest.