CHANDRA PRAKASH

Indian Institute of Technology Madras

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EDUCATION

Indian Institute of Technology Madras — **CGPA: 7.52/10** — **2026**
Bachelor of Technology in Electrical Engineering

Sri Chaitanya Junior College, *Class XII* — **Percentage: 98.8%** — **2022**

Sri Chaitanya International School, *Class X* — **CGPA: 10/10** — **2020**

PROFESSIONAL EXPERIENCE

Hanyaa Auto Technologies, Software Engineer Intern — May–July 2025

- Designed a hybrid **Flux-1 Schnell** pipeline with **image embedding** integration to overcome multi-character limits
- Fine-tuned **Flux-1 Schnell** using **LoRA** across diverse datasets and advanced configurations for consistent generation
- Implemented robust techniques for **character consistency** in image generation using **IP-Adapters** and **ControlNet**
- Evaluated multiple **text-to-image** and **image-to-image** models, thoroughly analyzing their architectures and designs

Skygad, Software Engineer Intern — June–July 2024

- Researched existing **mental health apps** and designed the full **app architecture** with advanced comprehensive features
- Developed multiple **Flutter** frontend screens with **Node.js** backend, integrated seamlessly using **RESTful APIs**
- Conducted research on approaches to design domain-specific **conversational AI** for mental health, exploring **Rasa**

Cybersecurity Intern – IIT Madras — May–June 2024

Under Prof. Jaimandeep Singh, Dept. of Computer Science & Engineering

- Implemented and documented three **real-world CVEs**, including **Outlook Mail** exploits, in **VirtualBox VMs**
- Analyzed **OAuth 2.0** authentication flows, roles, and grant types with a focus on secure token-based delegated access
- Explored **OIDC** as an identity layer over **OAuth 2.0**, leveraging **ID tokens** for secure **SSO** and **federated login**

PROJECTS

Real-Time Project Tracking and Collaboration Tool — 2025

- Architected a project management API in **NestJS** with **PostgreSQL**, supporting **Kanban boards** and **sub-tasks**
- Implemented hybrid authentication using **JWT** (local) and **OAuth 2.0** (social) with a **refresh token rotation** strategy
- Designed a granular authorization system using **Role-Based Access Control (RBAC)** and custom permission guards
- Engineered collaboration with **WebSockets**, built **RESTful APIs** on **PostgreSQL**, and integrated **Elasticsearch**

Lightweight Relational Database Engine — 2025

- Built a relational DB in **C++** from scratch with custom **SQL parser**, **B+ Tree index**, and **page-oriented storage**
- Engineered a **slotted page layout** for variable-length records, optimizing **disk I/O** and enabling faster batch inserts
- Developed a **B+ Tree** indexing mechanism with **persistent storage**, reducing lookups from **O(n)** to **O(log n)**
- Developed an interactive **CLI** for direct execution and a **RESTful API** with FastAPI to serve a visual data dashboard

RAG-based Code and Document Query System — 2024

- Developed a full-stack **RAG application** in **Python** to query **codebases** and **documents** using the **Gemini API**
- Engineered a polymorphic **data pipeline** with **syntax-aware code splitters** and **recursive chunking** for documents
- Developed a **semantic retrieval core** using **BGE embeddings** and **ChromaDB** for indexing and similarity search
- Built a stateful **UI** in **Streamlit**, with a **LangChain (LCEL) chain** enabling context-aware, source-cited responses

Applied Programming Lab (EE2703) — 2023

Prof. Nitin Chandrachoodan

- Engineered a **Cython-optimized DC circuit solver** in **Python**, using **MNA** to parse and analyze netlist files
- Implemented **Simulated Annealing** for the **TSP** and **Gradient Descent** to optimize complex, multi-variable functions
- Utilized **Least Squares regression** to perform curve fitting on noisy data, extracting underlying **function parameters**

TECHNICAL COMPETITIONS

Project K Hackathon, KUKU FM & InsideIIM — April 2025

- Architected an AI pipeline with **Gemini API** and **Pydantic** for structured script generation from text and audio inputs
- Engineered a full-stack **FastAPI** and **React** application to orchestrate **Whisper (STT)** and **Piper (TTS)** models
- Developed a drag-and-drop **timeline editor** for audio editing, clip arrangement, and sound effect synchronization

RELEVANT COURSEWORK AND TECHNICAL SKILLS

- Data Structures and Algorithms
- Probability, Statistics and Stochastic Processes
- Machine Learning Foundations
- Deep Learning Fundamentals
- Applied Programming Lab
- Computer Organization

Programming Languages: C, C++, Python, SQL, JavaScript, HTML, CSS, AVR Assembly, MATLAB
Tools and Frameworks: React.js, Node.js, NestJS, PostgreSQL, FastAPI, Streamlit, TensorFlow, PyTorch, OpenCV, NumPy, Pandas, LangChain, ChromaDB, Git

POSITIONS OF RESPONSIBILITY

Project Manager | Project Management Team **Apr–Mar 2024**
Center for Innovation (CFI)
- Conducted biweekly review meetings with heads and advisors, documenting work progress and ensuring accountability
- Oversaw project budgets and coordination, conducted research and provided strategic recommendations to the project

Junior Developer | DevOps Team **Apr–Jan 2024**
Saarang, IIT Madras
- Built the frontend of events and sales portals for Saarang using React.js and ensured smooth operation without issues
- Maintained websites and monitored workflows, coordinating with other clubs for timely updates and efficient collaboration

Coordinator | Events and Workshops Team **Apr–Jan 2024**
Shaastra, IIT Madras
- Planned and organized workshops and technical events for Shaastra in collaboration with companies and student teams
- **Led a 3-hour Machine Learning workshop** for engineering students in Hyderabad as a pre-Shaastra publicity event

Coordinator | Facilities & Requirements Team **Apr–Jan 2024**
Saarang, IIT Madras
- Coordinated with multiple clubs to **plan and optimize** resource allocation, logistics, and budget prior to events
- Managed distribution during events and effectively **resolved issues** raised by multiple teams, ensuring smooth operations

Mentor **Jul–May 2024**
Saathi, Student Wellness Centre, IIT Madras
- Mentored three first-year undergraduates in academics, extracurricular activities, and mental well-being

ACHIEVEMENTS

- **Codeforces Rating**: **1229**(pupil), demonstrating strong algorithmic thinking and competitive coding
- Earned ***LeetCode 100*** *Days Badge – 2025*, demonstrating consistency in daily coding and problem-solving
- Received ***LeetCode*** *Daily Coding Challenge Awards* for **Four** months, highlighting consistent engagement

EXTRACURRICULAR ACTIVITIES

- **Captain** of a team in the **Electrical Engineering Association Volleyball Tournament**, 2024
- **Represented** the **National Sports Organisation (NSO) Yoga Team**, selected among 40 students, 2022
- **Volunteered** as **Deputy Coordinator** for the **Informals Club**, managing multiple non-competitive events in **Saarang**

CVE: Common Vulnerabilities and Exposures; MNA: Modified Nodal Analysis; TSP: Travelling Salesman Problem