Chanda Tharun

Portfolio | LinkedIn | GitHub | LeetCode | Codeforces

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Education

- **Indian Institute of Technology, Mandi** — *Himachal Pradesh, India*
  *B.Tech in Computer Science and Engineering; CGPA: **7.85**/10* — *2023 - 27*
  - **Relevant Coursework**: Data Structures & Algorithms, Design and Analysis of Algorithms, Mathematical Foundations of Computer Science,Data Science I,II,III, DBMS, AI & ML, Deep Learning and Applications.

Technical Skills

- **Languages**: C++, SQL, Python, JavaScript, HTML, CSS
- **Frameworks & Technologies**: React.js, Next.js, Node.js, Express.js, MongoDB, TensorFlow, Beautiful Soup
- **ML & Deep Learning**: Hugging Face, OpenCV, NLP, Gen AI, GANs, VAEs, Diffusion Models, Gemini API
- **Tools**: Git & GitHub, VS Code, Docker, Linux, Postman, LaTeX, Scikit-learn, Jupyter Notebook, Google Colab

Internship & Experience

Course Management System (CMS) - *(on-going)* — *June 2025 – Present*

IIT MANDI *Full-Stack Developer* *Express.js, React, Node.js, Tailwind CSS, Material UI* GitHub - Live Demo

- **System Design & Access Control**: Planned and building a full-stack, responsive Course Management System with distinct user roles (Admin,Instructor,Chairperson,Student).Applied secure authentication using bcrypt and JWT, and RBAC to manage permissions. The admin dashboard supports full CRUD operations for users, courses, and sessions.
- **UI/UX Development**: Created a modern, intuitive interface using component-based architecture and mobile-first principles for responsive, cross-device compatibility; emphasized usability, scalability, and maintainability.

Projects

NASA Space Hackathon Project – Team Kavtan — GitHub - Team - Project - Demo

React, Next.js, Flask, SciPy, Folium; datasets from NASA OCO2, SEDAC, MiCASA — *Oct. 2024 – Jan. 2025*

- **Global Finalist – NASA Space Apps 2024**: Ranked **Top 40 globally (out of 940+ teams), *Top 2 in India*** for building a full-stack ML platform to forecast and visualize greenhouse gas emissions for policymakers. **Scalable Data Pipeline** – Developed a Selenium pipeline to gather 200K+ emission data points from diverse sources with strong robustness, scalability, and automated data normalization, validation, and enrichment processes.
- **Predictive Modeling & Insight Generation**: Used *Random Forests and SVMs* to predict emissions with **92.33% accuracy**; improved model interpretability using LLM-based insight generation. **Geospatial Visualization** – Built dynamic, region-wise heatmaps with Folium, helping policymakers explore temporal and spatial emission trends.

Book Store Application — Live - GitHub

MongoDB, Express.js, React, Redux, Node.js, Tailwind CSS — *Jan. 2025 – Mar. 2025*

- **Full-Stack Development and Authentication**: Built a responsive Book Store web app with authentication, book management, and a interactive user dashboard. Enhanced encrypted password storage (**bcrypt**) and **JWT**-based authentication with Role-Based Access Control (**RBAC**) for Admin and Customer roles. Executed an admin panel to manage books, users, and orders, with complete **CRUD** functionality and automated stock updates.
- **Modern UI/UX Design**: Designed a sleek, mobile-first frontend using React and Tailwind CSS. Leveraged reusable components and intuitive layout principles to ensure a seamless user experience across devices.

Hierarchical Memory Transformer - Modified Research Implementation — GitHub

PyTorch, Transformers, Long-Context Language Modeling — *Jan. 2025 – Present*

- **Research Focus**: Extended the original Hierarchical Memory Transformer (HMT) with novel memory mechanisms to improve efficiency and performance on long-context tasks. **Model Enhancements-** Implemented dynamic segment-level memory compression and adaptive memory recall, **reducing model perplexity on Wikitext-103.**
- **Architecture Improvements**: Refactored the core memory module for modularity and scalability; introduced configurable memory-attention strategies. **Evaluation and Benchmarks-** Benchmarked modified HMT across PubMedQA and wikitext; improved long-text comprehension and fine-tuning stability over the baseline.

Achievements

- **ATF Coding Test 2024:** Qualified for Stage 2, ranked in the **top 7%** among 20,000 participants.
- **JEE 2023:** Secured an All India Rank of 63XX in Advance, ranking in the **top 0.6%** of all JEE applicants in India.

Positions of Responsibility

Head of Planning and Management, Xpecto'25 — Led events, workshops, and pronites.
Organizing Team, Prayas 3.0 — Conducted classes and Hands-on labs on Robotronics and AI&ML.
Core Team Member, SnTC — Organized the TIP and co-led Utkarsh'24, an intra-college technical fest.