

Maddi Karthikeya

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Education

Indian Institute of Information Technology, Design and Manufacturing, Kurnool Andhra Pradesh, India
B.Tech in Computer Science and Engineering — **CPI: 8.97** | Minor: Robotics & Automation Aug 2024 – May 2028
– **Coursework:** Machine Learning, Design & Analysis of Algorithms, Data Structures, Compiler Design, Theory of Computation, Computer Organization & Architecture, Discrete Mathematics, OOP, Linear Algebra, Probability & Statistics

Experience

ASKD Co-Founder
AI-Powered Education Technology Startup 2025 – Present
– Co-founded ASKD, building an AI-based automated answer script evaluation system to modernize academic assessment at scale

Projects

FORGE – Multi-Agent AI Software Engineering Platform | *Python, FastAPI, LangGraph, TypeScript, Gemini API* | GitHub
– Architected a multi-agent system where CodePlan analyzes the codebase and generates an execution plan requiring user approval before code is written, enforcing a human-in-the-loop safety gate
– Built Parsel, a task decomposition engine dispatching up to 5 concurrent SWE-Agent workers with real-time unified diff streaming to a live 3D visualization scene
– Integrated AutoCodeRover as a review agent for correctness validation and test execution; all changes land as atomic, reversible git commits

TenderCopilot – AI-Powered Government Tender Platform for MSMEs | *Next.js, TypeScript, Supabase, Gemma 4* | GitHub
– Built an end-to-end platform that ingests government tender PDFs, extracts structured data via AI, and matches MSMEs to eligible tenders using fuzzy domain matching and profile-based filtering
– Implemented AI chat assistant with tender context awareness, pre-flight compliance checking, and automated bid document generation in two-envelope government format
– Engineered bilingual support (English/Kannada) across the entire stack – AI analysis, TTS, voice input, and UI – deployed live on Vercel

CatScript – AOT Compiler & Graphical Virtual Machine | *C, Flex, Bison, SDL2* | GitHub
– Designed a full six-phase AOT compiler (Lexer → Parser → Semantic Analyzer → IR Generator → Optimizer → Executor) for a custom DSL controlling a 2D animated avatar
– Built AST traversal with symbol table validation, peephole optimizer for zero-effect IR removal, and a custom SDL2 Virtual Machine rendering at 60 FPS

Intelligent Traffic Analysis & Violation Detection | *Python, YOLO, OpenCV, Streamlit* | GitHub
– Architected a modular CV pipeline using YOLO detection and centroid-based multi-object tracking with persistent vehicle IDs for real-time CCTV monitoring
– Built rule-based violation engine using vector–stop-line geometric intersection for red-light detection and behavioral heuristics for erratic driving flagging

Technical Skills

- **Languages:** Python, C, C++, JavaScript, TypeScript
- **AI/ML & Vision:** XGBoost, CNN, GCN, SHAP, YOLO, OpenCV, Multi-object Tracking, Graph Neural Networks, LangGraph
- **Compiler Engineering:** Flex, Bison, AST Construction, Symbol Tables, IR Generation, Peephole Optimization, SDL2
- **Systems & Backend:** FastAPI, Next.js, Node.js, Express.js, Supabase, PostgreSQL, REST APIs, Concurrency, Git, Linux

Achievements

- **3rd Place – Netrik Hackathon:** Recognized for building high-impact technical solutions under time constraints
- **Competitive Programming – LeetCode:** Solved 220+ problems across data structures, algorithms, and dynamic programming