PARINITH REDDY

+91 8328534237 ◇ New Delhi, India
parinithreddymavurapu@gmail.com ◇ LinkedIn ◇ GitHub ◇ Portfolio

SUMMARY

Software development enthusiast with strong interests in back-end engineering, full-stack web development, and artificial intelligence/machine learning. Proficient in Python and C++ with a solid foundation in programming, data structures, and scalable back-end system design. Experienced graphic designer skilled in visual storytelling and digital content creation, bringing a design-driven perspective to building intuitive and impactful digital products.

EDUCATION

National Institute of Technology, Delhi — **CGPA : 8.28**
Bachelor of Technology, Electronics and Communication Engineering — 2024 - 2028

Alphores institute of Schooling, Warangal — **Percentage : 98**
Class XII , MPC — 2022 - 2024

SKILLS

Languages: C++, Python, Go, JavaScript, TypeScript, HTML, CSS, SQL

Frameworks & Libraries: NumPy, Pandas, PyTorch, Scikit-learn, FastAPI, Flask, TensorFlow, OpenCV, MediaPipe, LangChain, React, Next.js, Tailwind CSS,

Expertise: Data Structures & Algorithms, Web Development, Machine Learning, Computer Vision, DBMS, AWS, Retrieval-Augmented Generation (RAG)

Developer Tools: Git, Linux, Docker, VS Code, Jupyter Notebook, Figma, Vercel

PROJECTS

Handtracking Piano | *React, TypeScript, MediaPipe, Tone.js, Vite, WebAssembly* | Live | GitHub

- Engineered a real-time computer vision system leveraging Google MediaPipe's pre-trained neural network for on-device hand landmark detection, achieving sub-50ms end-to-end inference latency across 21 skeletal keypoints per frame entirely client-side via WebAssembly.
- Designed a gesture recognition and audio synthesis pipeline mapping normalized landmark coordinate vectors to polyphonic Tone.js synthesis events, with debounced collision detection (100ms cooldown gate) to suppress jitter artifacts and enable reliable key activation.

Audify | *Python, Next.js, Scikit-learn, Spotify API, K-Means Clustering* | GitHub

- Developed a content-aware music recommendation engine trained on 10,000+ Spotify tracks using K-Means clustering over high-dimensional audio feature vectors (tempo, energy, valence, danceability).
- Implemented a hybrid recommendation pipeline combining cluster-based retrieval with cosine similarity ranking, achieving 80% intra-cluster retrieval with 20% cross-cluster diversity sampling for improved recommendation relevance.

PurePixels | *Next.js, TypeScript, TailwindCSS, FastAPI, PostgreSQL* | GitHub

- Developed a full-stack image segmentation platform using FastAPI and a deep learning-based background removal pipeline, delivering transparent PNG outputs with sub-5 second processing latency under concurrent load.
- Engineered a scalable RESTful backend with PostgreSQL for authentication, image metadata persistence, and request validation while enforcing per-user daily rate limits across 100+ concurrent sessions.

RESEARCH PROJECT

F1 Strategy Prediction Engine | *Python, XGBoost, Pandas, scikit-learn, Optuna, Streamlit* | GitHub

- Engineering a FastF1 telemetry ingestion pipeline processing 200k+ laps across 20+ circuits and 4 seasons, implementing safety car filtering via TrackStatus flags, fuel load correction (0.08s/lap), and per-stint degradation rate estimation using OLS slope fitting over tyre age windows.
- Designing 3 chained ML models — XGBoost regressor for lap time prediction, class-weighted Random Forest binary classifier for pit timing (handling severe label imbalance), and XGBoost multiclass compound selector — with season-blocked cross-validation (train 2021–2023, test 2024) to prevent temporal data leakage.

RESEARCH EXPERIENCE

Locality Sensitive Hashing for Image Similarity Search | *NIT Delhi* 2026 - Present

- Investigating approximate nearest neighbour (ANN) search techniques using Locality Sensitive Hashing (LSH) for scalable image retrieval over high-dimensional feature spaces
- Implementing and benchmarking random projection-based hashing schemes on standard image datasets (CIFAR-10, MNIST), evaluating trade-offs between query latency, recall, and memory footprint
- Studying dimensionality reduction via random projections as a preprocessing step to improve hash bucket uniformity and reduce collision probability

TECHNICAL EXPERIENCE

Institute Software Development Cell (ISDC) - NIT Delhi | Link 2025 - Present

- Designed and enhanced UI/UX interfaces and contributed to backend development for the official institute website serving the NIT Delhi community (nitdelhi.ac.in).
- Contributed in designing placement brochures, LinkedIn posts, and digital media assets supporting institute outreach and placement initiatives.

Upvision (Technical Club) - Head Graphic Designer | Link 2025 - Present

- Led the design and branding for technical events, creating brochures, standees, and promotional graphics used across event marketing and communications.

ACHIEVEMENTS

- Solved 175+ problems on Leetcode (Algorithms, Database, Competitive Programming)
- Solved 200+ problems in Atcoder, Codeforces, Codechef combined.

RESEARCH INTERESTS

Scalable Machine Learning Algorithms, Dimensionality Reduction, Similarity Search, Clustering with Provable Guarantees, Locality Sensitive Hashing, Randomized Algorithms for Large-Scale Data

COURSEWORK

Data Structures & Algorithms, Object Oriented Programming, Operating Systems, Computer Networks, Database Management Systems, Computer Architecture, Linear Algebra, Probability & Statistics,Discrete Mathematics, Digital Signal Processing