

Senthilnathan

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EXPERIENCE

Agnikul Cosmos Pvt. Limited

Software Engineer

Jan. 2025 – Present

Chennai, Tamil Nadu, India

- Built and maintained **10+ enterprise applications** supporting manufacturing, production planning, payroll, task management, and mission operations, serving **1,000+ concurrent users** across the organization.
- Developed an **AI-powered satellite imagery analysis system** to estimate tree density, identify tree species, and analyze forest coverage, achieving **over 90% accuracy** on benchmark datasets.
- Designed and built an **enterprise document intelligence platform** indexing **1M+ documents**, enabling employees to retrieve information in **under 500 ms** via vector search and AI-powered retrieval.

Ailaysa Technologies Pvt. Limited

Software Engineer (Intern)

Nov. 2024 – Jan. 2025

Chennai, Tamil Nadu, India

- Developed a **cross-platform digital book reader** to improve the reading experience for native-language users transitioning from print to digital.
- Built a responsive reading engine supporting **EPUB and PDF** content with adaptive layouts and smooth pagination across different screen sizes.
- Optimized rendering performance and memory usage in collaboration with the frontend team, enabling the reader to reliably support **500+ concurrent users**.

IAgami Technologies Pvt. Limited

iOS Engineer (Intern)

Mar. 2024 – Nov. 2024

Trichy, Tamil Nadu, India

- Developed an **offline-first iOS application** for agricultural field assessments, enabling **5,000+ farmers** in low-connectivity regions to record and synchronize data reliably.
- Designed data synchronization mechanisms to ensure consistent and reliable updates between mobile devices and backend systems.
- Engineered an AI-assisted crop analysis feature using **LiDAR-based 3D data** to estimate crop characteristics and support yield prediction.

PROJECTS

kvgo | Go, Raft

github.com/ssenthilnathan3/kvgo

- Building a **distributed key-value store** implementing the **Raft consensus algorithm** to provide fault-tolerant, strongly consistent data replication across multiple nodes.

dossier | Python, Qdrant, LLMs

github.com/ssenthilnathan3/dossier

- Designed and built an **open-source AI-powered document search platform** with a scalable ingestion, embedding, and low-latency retrieval pipeline for querying large document collections via semantic search.

kuttygrad | Python, NumPy

github.com/ssenthilnathan3/kuttygrad

- Engineered a **lightweight deep learning framework from scratch** with automatic differentiation and dynamic computation graphs, validating gradient correctness through numerical testing.

PEBA | Python, PyTorch, Computer Vision, Pose Estimation

Closed Source

- Developed a **computer vision system to analyze basketball player movements** from video, extracting pose and motion data to generate shooting form and defensive posture insights.

glyphd | Python, OCR, Computer Vision

Closed Source - Graduate Project

- Built an **OCR system** to digitize ancient Tamil manuscripts, recognizing rare and previously unseen characters while preserving document structure for historical and linguistic research.

TECHNICAL SKILLS

Languages: Python, Go, Rust, C/C++, TypeScript, Zig

Backend & Infrastructure: FastAPI, Django, REST, PostgreSQL, MongoDB, Redis, Docker, AWS

AI/ML & Distributed Systems: PyTorch, LLMs, RAG, Vector Databases (Qdrant, pgvector), Raft, CRDTs, gRPC

EDUCATION

Sri Shanmugha College of Engineering and Technology

Bachelor of Technology, Artificial Intelligence and Data Science

2021 - 2025

CGPA: 9.2/10