SAJAG KAMTHAN

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EDUCATION

Vellore Institute of Technology — Vellore, India
Bachelor of Technology (B.Tech) in Computer Science and Engineering — *July 2025 – May 2029*

EXPERIENCE

Senior Core — Vellore, India
GDG On Campus VIT Vellore — *November 2026 – Present*

Senior Embedded System Engineer — Vellore, India
Levitate Hyperloop — *February 2026 – Present*

- Wrote low-level C/C++ firmware for 3+ core hyperloop-pod subsystems and real-time sensor acquisition.
- Integrated microcontrollers with onboard sensors across 3 communication buses: CAN bus, SPI, and I2C.
- Executed hardware-in-the-loop tests to validate fail-safe mechanisms with a 15+ member multidisciplinary team.

Open Source Contributor — Remote
Hack Club — *September 2022 – March 2026*

- Shipped 3+ software projects for Hack Club's You Ship We Ship programs and built community tooling.
- Reviewed pull requests and wrote technical documentation across multiple open-source repositories.
- Supported peers in Hack Club Slack by debugging build issues and helping contributors ship code.

PROJECTS

SpendBoundary | *TypeScript, Next.js 15, Prisma, PostgreSQL, Razorpay, MCP, Vitest*

- Built a 100% deterministic risk and policy engine for payment workflows using integer money arithmetic.
- Enforced 4+ safety controls: single-order caps, rolling spending limits, category allowlists, and approval gates.
- Exposed payment controls over OpenAPI and MCP with SHA-256 Merkle audit logs and HMAC-verified webhooks.

AgentTill | *TypeScript, React 19, Express, Bun, SQLite WAL, Razorpay, MCP*

- Built a trust and checkout layer for autonomous buying agents with 100% server-authoritative pricing.
- Used SQLite Write-Ahead Logging (WAL) and idempotent webhook handlers to prevent duplicate charges under load.
- Isolated API secrets and enforced strict validation boundaries across 2+ client and agent interfaces.

Vidminal | *Python, MoviePy, Pygame, Pillow, FFmpeg*

- Built a Python CLI tool that renders terminal-style animations and video clips using 4 core media libraries.
- Automated frame generation and video encoding pipelines with Pygame, Pillow, MoviePy, and FFmpeg.
- Packaged cross-platform releases with configurable resolution, frame rate, and styling options.

Self-Hosted Private Cloud | *Docker, Tailscale, Immich, FileBrowser, AdGuard/MagicDNS*

- Deployed a 4+ service private home-server stack in Docker for personal cloud storage and media management.
- Configured Tailscale mesh networking and AdGuard/MagicDNS for encrypted remote access across devices.
- Automated media backups with Immich and FileBrowser, maintaining 24/7 uptime without third-party cloud.

TECHNICAL SKILLS

Languages: C, C++, Python, TypeScript, JavaScript, Java, SQL, HTML/CSS, Shell, LaTeX
Frameworks & Web: React, Next.js, Node.js, Express, Bun, Tailwind CSS, Prisma ORM, REST APIs, OpenAPI, MCP
Databases & Data: PostgreSQL, Supabase, SQLite, MongoDB, NumPy, Pandas
Systems & Embedded: Linux, Docker, Git, GitHub Actions, Embedded C/C++, CAN bus, SPI, I2C, Raspberry Pi, FFmpeg

ACHIEVEMENTS & CERTIFICATIONS

- **Software Engineer Intern** – HackerRank (September 2026): Problem Solving, SQL, Data Structures.
- **Bay2BayHacks 2025 Certificate** – Certopus (September 2025).
- **Toycathon 2021 Digital Edition Grand Finale Qualifier:** Led Team Travelling Back (Idea ID 8698) to the national finale organized by the Ministry of Education's Innovation Cell (MIC) and AICTE.