JUSTIN JOE MATHEW

B.Tech CSE Undergrad @ Amal Jyothi · Software Engineering, Simulation & Edge Systems

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TECHNICAL SKILLS

Languages	Python, C (Academic Core), JavaScript, TypeScript · *Familiar:* C++, Kotlin, SQL
Web & Frontend	React, Next.js, Vite, HTML5, CSS3, Tailwind CSS
Tools & Systems	Git, GitHub, Linux / Bash, Vercel, Arduino Uno Q, Figma
Data & APIs	NumPy (Vectorized Operations), FastF1 Telemetry API, REST APIs, JSON
Languages (Spoken)	English (Fluent), Malayalam (Native), Hindi (Fluent)

FEATURED ENGINEERING PROJECTS

Formula 1 Monte Carlo Race Strategy Simulator

GitHub ↗

Python · NumPy · FastF1 API · React

- Built a vectorized Python simulation tool using **NumPy arrays** to run **10,000 stochastic race iterations**, modeling non-linear tyre degradation curves and safety-car probabilities.
- Integrated historical Grand Prix telemetry via the **FastF1 API** to inform tyre degradation curves and race-strategy simulation parameters.
- Developed an interactive **React dashboard** to compare multi-stint pit strategies and visualize degradation curves.

AroggyaGram-3 — Community Crisis Triage Web Platform

1st Place Winner — ACM Vibefest 2026 · GitHub ↗

TypeScript · Next.js · WebSockets · Rapid Prototyping

- Engineered a crisis triage web application prototype using **Next.js** and **TypeScript** to streamline emergency request dispatching for underserved communities.
- Implemented urgency classification logic to parse incoming distress signals, prioritize critical cases, and display incident coordinates for responder handoff.
- Secured **1st Place at ACM Vibefest Hackathon 2026** for rapid system design, functional interactive demo, and practical triage workflow.

Captain Lakshmi: Invicta — Interactive Web Monograph

Web Design Competition Entry · Live Demo ↗

Canvas 2D · React 19 · Vite · Frame Scrubber

- Designed and built an interactive biographical digital monograph commemorating Dr. Lakshmi Sahgal (INA) for a competitive web design event.
- Implemented an **HTML5 Canvas 2D frame-scrubber engine** cycling through 3,100+ frames synchronized with scroll progress for dynamic visual storytelling.
- Constructed a responsive editorial layout with modular typography, asset pre-buffering, and smooth scroll transitions.

Autonomous Search & Rescue Drone Concept (SIH 2026 Proposal)

Smart India Hackathon 2026 Shortlist

Drone Systems Research · Hardware Architecture · Arduino Uno Q

- Authored an aerial search-and-rescue UAV systems proposal for disaster zones experiencing communication blackouts, shortlisted for **Smart India Hackathon 2026**.
- Proposed a dual-compute architecture conceptually separating low-level flight stabilization from onboard edge inference, incorporating prototyping insights from the **Arduino Uno Q**.
- Outlined a design for offline peer-to-peer telemetry over LoRa and localized thermal detection, informed by UAV literature review and domain expert mentorship.

HONORS, HACKATHONS & RECOGNITION

- **1st Place Winner** — **ACM Vibefest Hackathon 2026** (ACM-W Chapter, March 2026) — Rapid product prototyping & system architecture.
- **1st Place Winner** — **AI Club Ideathon 2026** (Amal Jyothi College of Engineering) — Algorithmic community triage concept.
- **Stage 1 Winner** — **Idea From Industry Challenge Season 2** (MakerHub IEDC · BIRAC · MoE) — Smart transit telemetry concept.
- **National Shortlist** — **Smart India Hackathon (SIH 2026)** (MoE Innovation Cell & AICTE) — Search & Rescue UAV systems proposal.
- **Podium (Double 3rd Prize)** — **Azure 2026** — 3rd Prize in Extempore English & 3rd Prize in JamSpace (Just A Minute).
- **Participant** — **NASA Space Apps Challenge 2025** (Aerospace open data) & **K-DISC YIP 8.0** (Govt. of Kerala).

EDUCATION & BACKGROUND

Amal Jyothi College of Engineering (Autonomous) — B.Tech in Computer Science & Engineering — Kottayam, Kerala | 2025 – 2029

Fatimagiri Higher Secondary School — CBSE Class XII (85.60%) — Nilambur, Kerala | 2025

Prior Schooling: Completed early education across 5 schools spanning **Dubai (UAE), New Delhi, and Kerala**.