

RICHIE THOMAS

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EDUCATION

Bachelor of Engineering - Information Technology

2022 – 2026

Fr. C. Rodrigues Institute of Technology, Vashi

CGPA: 7.42/10.0 (Sem 6)

WORK EXPERIENCE

Research Intern | IISER, Mohali

July 2025 – Present

- Architected a sparse neural network on a PYNQ-Z2 FPGA using Python and Vivado HLS, pruning near-zero weights to boost real-time edge AI performance while maintaining **96% MNIST recognition accuracy**.
- Optimized matrix multiplication kernels with Vivado HLS pragmas (loop unrolling, pipelining), reducing latency by **3.2×** and improving throughput by **2.7×** compared to baseline FPGA implementation.

Full Stack Web Developer Intern | Bayside Sports, Bandra

March 2025 – Sept 2025

- Built a Server-Side Rendered (SSR) sales portal using React.js and Laravel, cutting initial page load time by **50%** and enhancing crawlability.
- Developed admin dashboard that cut lead qualification time by **40%**, allowing sales reps to tailor outreach based on user booking data.

Backend Developer Intern | Sports Mentoring Infusion, Mumbai

July 2025 – July 2025

- Architected a scalable educational management platform using Node.js, Express, and PostgreSQL, supporting multi-role authentication for **500+ students, coaches, and administrators** with JWT-based security.
- Developed comprehensive REST API with 12+ interconnected database tables, implementing gamified learning features including points system, badges, and real-time progress tracking, reducing manual administrative tasks by **60%**.

Android Developer Intern | GetFly Technologies, Sion

June 2025 – July 2025

- Delivered a comprehensive campus ERP solution using Flutter for VPP College of Engineering, digitizing operations for over **1,000 students and faculty** across 8 modules.
- Established a unified, scalable project architecture by consolidating multiple codebases, integrating 8+ REST APIs, and optimizing data fetching to reduce sync latency by **40%**.

PHP Developer Intern | FCRIT, Vashi

March 2024 – April 2025

- Enhanced and maintained a campus information management system by implementing new features based on faculty feedback and resolving critical bugs, improving usability for over **1,000 users**.

PROJECTS

ChatApp - End-to-End Encrypted Messenger

2025

Flutter, Node.js, E2E Encryption

- Implemented hybrid encryption combining **Diffie-Hellman** key exchange (X25519) with **RSA**-style authentication (Ed25519) for secure session establishment, achieving military-grade encryption comparable to WhatsApp and Signal.
- Built Double Ratchet messaging with AES-GCM encryption, achieving perfect forward secrecy and post-compromise security.

SMI - Behavior Management Platform

2025

React Native, Node.js, PostgreSQL

- Built a comprehensive cross-platform educational management system using React Native (Expo) and Node.js, serving multiple user roles with real-time data synchronization.
- Designed and implemented PostgreSQL database with 12+ interconnected tables using UUID primary keys, integrated speech-to-text capabilities, and developed gamified learning features with points system and progress tracking analytics.

TECHNICAL SKILLS

Languages: JavaScript, Python, Java, Dart, SQL

Frontend: React.js, Flutter, React Native

Backend: Laravel, Node.js, Express, REST, GraphQL

Databases: PostgreSQL, MongoDB, Firestore, ORM (Prisma, Mongoose, Eloquent)

DevOps: Kubernetes, AWS, Docker, CI/CD, Git, Firebase, Postman

CO-CURRICULAR AND VOLUNTARY ACTIVITIES

- **Head of Documentation**, Computer Society of India: Oversaw documentation for **10+ technical events** with **500+ participants**; designed standardized templates and built an automated certification system using Python.
- **Finalist (Top 5)**, HackQuinox 2024 Hackathon, Computer Society of India – FCRIT.
- Advanced through the **Internal Round**, Smart India Hackathon 2024.
- **Organizing Committee Member**, ETAMAX 2024 (College Fest).
- **Top 20%**, BuildWithIndia Hackathon by Google India.