Anurup R Krishnan

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Education

Amrita Vishwa Vidyapeetham *Coimbatore, India*
B.Tech in Computer Science and Engineering 2023 – 2027
CGPA: 7.78/10.0

Relevant Coursework: Distributed Systems, Cloud Computing, Compiler Design, Deep Learning, Network Systems & Security, AI/ML, Full Stack Frameworks

Technical Skills

- **Languages:** C++, Python, Java, JavaScript (ES6+), TypeScript, Go, Kotlin, SQL, Bash
- **Frameworks & Libraries:** React.js, Next.js, Node.js, Express, FastAPI, Spring Boot, Jetpack Compose, Redux
- **Cloud & DevOps:** AWS (EC2, Lambda, S3), Docker, GitHub Actions (CI/CD)
- **Databases:** PostgreSQL, MySQL, MongoDB, Redis
- **Tools & Technologies:** Git/GitHub, RESTful APIs, OAuth 2.0, Postman, Wireshark, JIRA

Experience

Research Intern – Computational Intelligence Group (CGSE) *May 2025 – June 2025*
Indian Space Research Organisation (ISRO) *On-site, Bengaluru*
[Certificate]

- Engineered a CNN-based optimal thresholding algorithm using Python (PyTorch, NumPy) to process telemetry signals, reducing noise artifacts by 15%
- Analyzed large-scale telemetry datasets to identify signal anomalies, optimizing the data ingestion pipeline speed by 20%
- Documented research findings on signal processing and thresholding techniques, presenting results to senior scientists at HRDD

Projects

Optimized Load Balancing Simulation — Python, YAFS, Docker *GitHub*

- Designed and implemented a Digital Twin simulation framework for Smart Healthcare IoT networks to analyze fog computing latency patterns across distributed edge nodes
- Developed custom load-balancing algorithms achieving 25% reduction in server response time compared to traditional Round-Robin methods through intelligent request distribution
- Containerized simulation environment using Docker and visualized performance metrics with Matplotlib for reproducible research and analysis

SecureMed Health — Regulatory-Compliant Backend (Ongoing) — Spring Boot, Spring Security, JPA, PostgreSQL, MFA, Audit *GitHub*

- Engineered a secure healthcare information backend in Spring Boot, converting GDPR + HIPAA mandates into enforceable access policies using strict RBAC and least-privilege design
- Implemented MFA (TOTP) + JWT authentication with refresh-token rotation, idle-timeout session invalidation, and account lockout to mitigate credential and terminal misuse risks
- Built immutable HIPAA-grade audit trails, intercepting all access events, structuring logs in JSON, scrubbing sensitive fields, and verifying integrity using SHA-256 hashes
- Secured clinical documents and high-value patient attributes with encryption at rest (DB-level + app-level) and validated compliance-aware data access through JPA middleware
- Delivered a threat-resilient, auditable, and regulatory-aligned system, backed by automated authentication/RBAC test suites and tamper-traceability tooling

Sanctuary – Modern EPUB Book Reader — React, TypeScript, Supabase *GitHub*

- Developed a feature-rich web-based book reader with user authentication, library management, and reading progress synchronization across devices
- Integrated epubjs for high-fidelity EPUB rendering with customizable reading experience including font adjustment, themes, and annotation support
- Implemented Zustand for efficient state management and designed responsive UI with Tailwind CSS featuring light/dark themes and accessibility optimizations

Leadership

Core Committee Member, Anokha 2024 – *Amrita University Techfest*

- Managed technical infrastructure for the event website, handling 10,000+ concurrent visitors during peak registration
- Organized and coordinated the "Treasure Hunt Event" with 50+ participants, designing technical challenges and managing logistics