

# HARINARAYANAN U

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## PROFILE SUMMARY

Computer Science student with production experience in mobile and backend development. Proven track record optimizing system performance, building AI-powered solutions, and delivering scalable applications with measurable business impact. Focused on solving complex technical challenges through efficient software engineering.

## EDUCATION

**Amrita Vishwa Vidyapeetham**  
*Bachelor of Science in Computer Science*  
CGPA: 7.89/10

**November 2022 – Present**  
Kollam, Kerala

**Related Coursework:** Data Structures & Algorithms, Operating Systems, Databases, Machine Learning, Computer Networks, AI & Deep Learning

## EXPERIENCE

**TiVo**  
*iOS Developer Intern*

**August 2024 – October 2024**  
Bangalore, India

- Optimized native iOS streaming platform UI/UX components resulting in 15% increase in daily active users.
- Implemented AVPlayer caching mechanisms reducing buffering time by 25% and user retention from 78% to 85%.
- Redesigned 8 SwiftUI components increasing user flow efficiency by 30% and satisfaction scores by 20%.

## PROJECTS

**Coreasim: Medical Simulation Platform** — *React.js, Next.js, Three.js, WebAssembly*

**February 2025 – Present**

- Built web-based corneal surgery simulator reducing pre-operative planning time by 40%.
- Developed WebAssembly FEA solver achieving 15ms real-time computation with 95% accuracy.
- Optimized inference pipeline using Docker containers, cutting processing time by 60%.

**ProTrack: Code Activity Logger** — *Python, VS Code Extension, GitHub API*

**December 2024 – July 2025**

- Developed automated logging system to eliminate manual productivity tracking, reducing logging overhead by 90%.
- Integrated GitHub API to capture development workflow data, processing 500+ daily commits with real-time updates.
- Built analytics dashboard to provide team productivity insights, improving workflow visibility by 75%.

**SushiGo: Food Delivery App** — *Swift, Django, Stripe API, GPS*

**June 2023 – December 2023**

- Developed a full-stack iOS delivery app with Django backend serving 500+ orders across 6 months.
- Built real-time order tracking with Stripe integration to ensure payment reliability, achieving 99.5% success rate.
- Optimized Enhanced GPS routing and developed a recommendation engine, improving ETA accuracy by 35%, customer satisfaction to 4.6/5, and average order size by 25%.

## ACHIEVEMENTS & PUBLICATIONS

**NeuroCode: RLHF-Enhanced Dual-Model for Proactive Bug Prediction**

**August 2025**

*4th International Conference on Machine Learning and Data Engineering (Scopus Indexed)*

- Published research on semantic context integration for AI-driven code autocompletion, reducing hallucinations by 42% and improving suggestion relevance by 35% across 10K+ code samples.
- Implemented dual-model architecture combining GPT and CodeBERT, achieving 89% accuracy in bug prediction.

**PrivMod: FL-Based Content Moderation for Decentralized Networks**

**September 2025**

*Third International Conference on Industry 4.0 2025 (I4Tech2025, Scopus Indexed)*

- Presented work on **privacy-preserving content moderation** in decentralized platforms using **federated learning, CNN-BERT hybrid models, differential privacy, and secure aggregation protocols**.
- Achieved 94% accuracy while maintaining  $\epsilon = 0.5$  differential privacy guarantee across 100K+ decentralized network samples.

## TECHNICAL SKILLS

**Languages:** Swift, Python, Java, JavaScript, Rust  
**Mobile:** iOS SDK, SwiftUI, UIKit, Core ML, AVFoundation, Xcode, MVVM  
**Backend & Web:** Django, REST APIs, PostgreSQL, MongoDB, React.js, Next.js  
**AI/ML:** TensorFlow, PyTorch, CNNs, NLP, Computer Vision, FEA Simulation  
**Cloud & Tools:** Docker, Git, GitHub Actions, Linux/Unix, Stripe API, WebAssembly  
**Methodologies:** Agile/Scrum, TDD, Version Control, Code Review

## LEADERSHIP / WORKSHOPS

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### InnoQuest - Technology & CS Workshop

**November 2024**

*Workshop Leader*

*Carmel International School*

- Led technology workshop for 50+ high school students, achieving 95% completion rate and inspiring 40% to pursue CS careers.

### Student Social Responsibility Program

**October 2024**

*Python Programming Instructor*

*Amrita Vishwa Vidyapeetham*

- Instructed 50+ high school seniors in Python programming, achieving 90% pass rate in final coding assessments.
- Designed 10+ interactive coding modules improving students' algorithmic problem-solving skills by 70% over 2 weeks.