ANIL KUMAR THATHA VENKATACHALAPATHY

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SENIOR SOFTWARE ENGINEER - IOS, MACOS & FRAMEWORKS

Senior Software Engineer with 13+ years of experience building enterprise iOS and macOS applications, specializing in system-level macOS engineering, security, and performance optimization. Expert in Swift, Objective-C, XPC services, launchd, encryption, CloudKit, and on-device AI/ML. Proven record improving performance by 70%, reducing crash rates by 80%, and delivering secure apps used across Apple Retail and internal teams. Strong leadership experience mentoring teams, driving architecture decisions, and delivering production-ready software at scale.

TECHNICAL SKILLS

LANGUAGES & FRAMEWORKS

Languages: Swift · Objective-C · Python · Bash · SQL
Apple Platforms: UIKit · AppKit · SwiftUI · Combine · Core Data · Core Animation
System-Level: XPC Services · Launchd · FSEvents · POSIX APIs · pthreads · signals
Advanced: Vision · Core ML · Metal · NaturalLanguage

SECURITY & PLATFORM HARDENING

Security: Keychain Services · CryptoKit · Secure Storage · Certificate Pinning
Compliance: App Sandbox · Entitlements · Hardened Runtime
Monitoring: OSLog · File System Monitoring (FSEvents) · Process/Memory Instrumentation
Communication: Secure IPC (XPC) · Auth/AuthZ · ATS

ARCHITECTURE & DESIGN

Architectures: MVVM · VIPER · Clean Architecture MVC
Design Patterns: Observer, Delegate, Factory, Coordinator, Protocol-Oriented Design
Principles: Dependency Injection, SOLID, Modular Architecture

DEVELOPMENT & TOOLS

IDEs: Xcode · VS Code
Version Control: Git · GitHub · Bitbucket
CI/CD: Fastlane · Jenkins · GitHub Actions · Xcode Cloud
Package Managers: SPM · CocoaPods · Carthage
Debugging: LLDB · Instruments (Memory · Time Profiler · Allocations)

TESTING & QUALITY

Testing: XCTest · XCUITest · Snapshot Testing · TDD
Quality: SwiftLint · SwiftFormat · Static Analysis · Code Coverage

DATABASE & STORAGE

CoreData · SQLite · Realm · MySQL · Keychain · File APIs

AI & ML

On-device foundation models · LLM integration · AI-assisted development · NLP pipelines

TOOLS & PLATFORMS

Analytics: Firebase · Crashlytics · App Analytics
Design: Figma · Sketch · Adobe XD
Project Management: JIRA · Confluence · Agile/Scrum
Distribution: TestFlight · App Store Connect · Enterprise Distribution

PROFESSIONAL EXPERIENCE

TCS America | Lead Engineer
June 2021 - Present

Led engineering initiatives for enterprise iOS and macOS applications serving Apple Retail and internal teams. Managed offshore development teams of 8+ engineers while driving architecture decisions, code

quality standards, and delivery timelines. Collaborated with product managers, designers, and stakeholders to deliver mission-critical features impacting retail employees worldwide.

Key Achievements:

- Reduced application crash rate by 80% (from 15% to 3%) through implementation of comprehensive unit testing (85% code coverage) and automated CI/CD pipelines using Fastlane
- Improved app launch time by 70% through performance profiling and optimization of Core Data stack and network layer
- Leveraged AI-assisted development and LLM integration to accelerate feature development by 40%, including code generation, automated testing, and intelligent code reviews
- Led migration of 3 legacy Objective-C applications to Swift, reducing codebase by 25% while improving maintainability
- Established code review standards and architectural guidelines adopted across 4 development teams
- Mentored 6 junior developers, with 3 promoted to mid-level roles within 18 months

Notable Projects:

Genius (iOS) & RepairCentral (macOS) - Retail Repair Management Platform

- Architected and developed comprehensive repair management system used by Genius Bar employees across all Apple Retail Stores worldwide
- Integrated on-device foundation models for intelligent repair recommendations and natural language diagnostic assistance, reducing average diagnosis time by 35%
- Implemented real-time sync between iOS and macOS applications using CloudKit, reducing data conflicts by 90%
- Designed intuitive UI/UX reducing average repair creation time from 5 minutes to 2 minutes, improving customer satisfaction scores by 25%
- Built robust offline-first architecture ensuring 99.9% uptime even in poor network conditions

Technologies: Swift, SwiftUI, Core Data, CloudKit, Core ML, On-device Foundation Models, MVVM architecture, XCTest

Internal macOS Security Application

- Developed a secure macOS application for internal use with deep system-level integration
- Implemented military-grade encryption, secure data storage, and hardened communication channels using CryptoKit and custom security layers
- Designed and implemented XPC services and launchd daemons for secure background processing and inter-process communication
- Built advanced file system monitoring with FSEvents, process/memory instrumentation, and Unified Logging (OSLog) for detailed security telemetry
- Utilized POSIX APIs, pthreads, signals, and low-level system calls to achieve precise system control and high-performance monitoring
- Configured sandboxing, entitlements, and hardened runtime to enforce strict security boundaries
- Achieved 100% compliance across all internal security audits with zero security incidents in production
- Partnered with security teams to validate architecture, mitigate risks, and establish secure coding standards

> *Technologies: Swift, AppKit, XPC Services, Launchd Agents/Daemons, CryptoKit, FSEvents, POSIX APIs, Unified Logging (OSLog), Keychain, Internal OS SDK, Hardened Runtime, Sandbox & Entitlements*

Kickstart - macOS Device Setup Automation

- Developed automated device provisioning tool reducing new employee setup time from 4 hours to 30 minutes
- Implemented package manager integration installing 20+ essential applications with zero-touch deployment
- Created intuitive onboarding flow reducing IT support tickets by 40%

> *Technologies: Swift, AppKit, Bash scripting, URLSession, Combine*

Devices - macOS Employee Device Management

- Built native macOS application providing real-time device information for Apple employees
- Integrated with MDM APIs delivering instant access to device status, serial numbers, and application inventory
- Designed self-service portal reducing IT helpdesk requests by 35%

> *Technologies: Swift, AppKit, RESTful APIs, Core Data, SwiftUI*

Additional Projects

- **Sparkle Framework:** Enhanced open-source framework with enterprise security features deployed across 15+ internal macOS applications
- **MDM Automation Scripts:** Developed Python and Bash automation scripts reducing manual deployment time by 80%

Quest Global | System Analyst   *June 2014 - June 2021*

Spearheaded development of 10+ enterprise iOS and macOS applications from concept to App Store deployment. Collaborated with product managers and designers to define requirements, architect solutions, and deliver features impacting Apple employees. Progressed from Software Engineer to System Analyst, taking on increasing responsibilities in architecture, mentoring, and technical leadership.

Key Achievements:

- Successfully delivered 10+ applications to production with 4.5+ star average rating and 98% crash-free rate
- Reduced development cycle time by 30% through implementation of Agile methodologies and automated testing
- Established iOS development best practices adopted company-wide, including coding standards and architectural patterns
- Mentored 8 junior developers over 8 years, with 5 advancing to senior positions
- Led technical interviews and grew iOS team from 3 to 12 engineers

Notable Projects:

Apple Travel - iOS Travel Management Application

- Architected and developed enterprise travel management app used by internal Apple employees for booking flights, hotels, and managing itineraries
- Integrated with 3 third-party APIs (Concur, Sabre, TripIt) providing seamless booking experience
- Implemented push notifications reducing missed booking deadlines by 45%
- Achieved 4.6 App Store rating with 95% user satisfaction in internal surveys

Technologies: Swift, UIKit, Core Data, RESTful APIs, Push Notifications, MapKit

Expenses - iOS & macOS Expense Management

- Developed cross-platform expense management application with seamless data sync between iOS and macOS
- Implemented OCR receipt scanning using Vision framework, reducing manual entry time by 70%
- Added GPS-based automatic location filling improving compliance and reducing expense report errors by 50%
- Built comprehensive unit test suite with 80% code coverage ensuring reliability

Technologies: Swift, SwiftUI, UIKit, AppKit, Vision (OCR), Core Location, CloudKit

Global Security - iOS Security Management System

- Built comprehensive security management app for badge access, notifications, and key/lock service requests
- Integrated with Apple's internal security systems serving employees across multiple offices
- Implemented QR code scanning reducing badge request processing time by 60%

Technologies: Swift, UIKit, Core Data, Vision (QR scanning), Push Notifications

Additional Projects

- **Purchase Requisition POC:** iPad application streamlining requisition approval workflow, reducing approval time from 3 days to 4 hours; secured $500K budget
- **Swift Server Framework:** Built lightweight web framework in Swift for rapid API development; deployed 5+ microservices handling 10,000+ requests/day
- **Radar:** Enhanced Apple's internal bug tracking system with advanced search and batch operations, achieving 75% code coverage
- **1099 Tax Management:** IRS filing system reducing filing errors by 85% and saving 200+ hours annually
- **Funds Management:** Managed dealer reimbursements for advertising, promotion, and hiring costs related to Apple's business
- **Customs Tracking:** Compliance tracking system reducing manual review time by 70% with zero compliance violations

Exilant Technologies Pvt Ltd | **Software Engineer**   *Jul 2010 - Sep 2012*

Gained foundational expertise in iOS and macOS development, contributing to framework development and enterprise applications. Developed strong debugging skills and understanding of low-level system APIs.

Key Projects:

- **Software Depot:** Debugged ISTSU protocol for software installation package management on macOS
- **Enclosure Framework:** Designed Cocoa Client API for file storage interaction with comprehensive unit testing
- **ISTCore Framework:** Contributed to modular framework development with reusable components
- **Mobile Enclosures:** Built file upload/download system with pause/resume and background transfer capabilities, achieving 99% transfer success rate

Technologies: Objective-C, Cocoa, AppKit, UIKit, Core Foundation, SQLite, Unit Testing

EDUCATION

Asia University, Taiwan   **2014**
Master of Science in Computer Science and Information Engineering
(Career break taken to pursue advanced degree)

Visvesvaraya Technological University, India   **2010**
Bachelor of Engineering in Electronics and Communication Engineering