

# Nachiket Kulkarni

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Senior Systems Software Engineer with 10+ years of experience across Linux and xnu environments. Expertise spans from **core system libraries and daemons** to the development of robust **in-kernel and user-space automation** frameworks. Specialized in **test suite optimization** to streamline developer workflows and **enhance engineering productivity**. Proven track record in **bespoke hardware lab orchestration and cross-functional quality leadership**, delivering regular strategic quality metrics and **technical readouts to executive leadership**.

## CORE COMPETENCIES

**Test Infrastructure & Automation:** Enterprise-scale test framework development, in-kernel testing solutions, CI/CD pipeline optimization, performance benchmarking environments

**Quality Engineering Leadership:** Cross-functional QE strategy, milestone-driven signoffs, executive reporting, compliance validation, release management, mentoring, Test Suite and Workflow Optimizations

**Systems Programming:** Kernel-space development, device driver engineering, low-level system optimization, custom tools and frameworks, lab setup and management

## WORK EXPERIENCE

Apple Inc.

Cupertino, CA

*Sr. Software Engineer*

Oct 2024 – Present

- Led development and maintenance of enterprise testing ecosystem including proprietary C-based unit test framework for multi-team code validation and python-based automation platform, supporting 40+ active projects with 1.5 million device testing hours per week
- Designed and implemented end-to-end automation infrastructure including custom tooling for 125+ device restores and configuration, performance monitoring systems with failure categorization, and diagnostic gathering capabilities, improving testing efficiency 10x (2 weekly → 2+ daily runs)
- Drove integrated end-end QE strategy across CoreOS, WiFi, Bluetooth and factory team, presenting regular updates to executive leadership and delivering critical QE signoffs at project milestones for feature implementation
- Directly managed vendor contractor operations including hiring requirements definition, interviewing, comprehensive onboarding, daily task oversight, and skill development mentoring while ensuring transparent communication and proper documentation
- Manage secure open source release program for macOS and iOS, establishing compliant processes that achieved zero IP leaks across 7+ major releases, implementing audit workflows with build and validation for scrubbed kernel and project source, and maintaining zero security incidents

*Software Engineer*

Jun 2015 – Oct 2024

- Built custom in-kernel unit testing framework to test kernel-level code directly within kernel space, bypassing userspace limitations and enabling comprehensive validation of previously untestable kernel components

- Developed lightweight testing platform utilizing minimal OS components and ramdisk boot architecture to create isolated environment for high-fidelity performance testing and benchmarking without system interference
- Optimized enterprise test suite performance across 20 projects, reducing nightly runtime by 87% (from 32+ device hours to under 4 hours) through parallelization and VM deployment for non-hardware tests, accelerating developer productivity and enabling responsible shared resource utilization
- Served as QE DRI for multiple Darwin projects, developing comprehensive test plans, test driven development, coordinating cross-functional validation efforts, providing regular quality reporting to feature QE leadership, and delivering strategic quality guidance to development teams

**Broadcom Corporation**  
***Software Development Intern***

Durham, NC  
 May 2014 – May 2015

- Contributed to development WLAN device drivers for enterprise Access Points and implemented WiFi Indoor Location functionality using TOF, FTM, and TOA protocols
- Optimized firmware performance and created custom Wireshark plugins for 802.11ac Wave 2 device characterization and analysis

**Cisco Systems (I) Pvt. Ltd.**  
***Software Engineer II***

Pune, India  
 July 2011 – July 2013

- Developed 4G LTE network solutions on Cisco ARES platforms, built network device simulators packet-data gateways (PGW, SGW, MME), and implemented automated IEEE specification compliance testing for network interfaces
- Built tool for manual testing by understanding their workflow, that captured meta-data during the manual test and provided automated python scripts based on pre-defined recipes, reducing automation time by 80%

***Software Engineer I***

July 2010 – July 2011

- Created Python automation frameworks for regression testing and pre-ship validation ensuring IEEE spec compliance for tier-1 customers including Verizon and AT&T
- Promoted and Received Cisco CAP, Star, and Spark awards for technical innovation in automation and customer delivery excellence

**TECHNICAL SKILLS**

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**Programming Languages:** C, Golang, Swift, Python, JavaScript, Bash, iTcl/Expect

**Operating Systems:** macOS/iOS (xnu kernel), Linux

**Development Tools:** Git, lldb, Sniffers, CI/CD systems, virtualization platforms

**EDUCATION**

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**North Carolina State University**, Raleigh, NC

Masters in Computer Science — GPA: 3.8

May 2015

*Relevant Coursework: Operating Systems, Filesystems, Internet Protocols, Advanced Data Structures, Cloud Computing, Enterprise Storage Architecture*

**College Of Engineering, Pune (COEP)**, Pune, India

B.Tech in Computer Science (IT) — GPA: 9.04/10 (Rank 2)

June 2010