

# ABISHEK GOPAL

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## SUMMARY

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Senior QA Engineer and technical leader with 7+ years driving test strategy, automation infrastructure, and release quality across Meta, Tesla, and Google. Led QA teams of up to 5 engineers, defined org-wide test standards adopted across multiple product lines, and built cross-device automation frameworks from the ground up. Track record of mentoring engineers, partnering with cross-functional stakeholders, and owning quality gates for consumer hardware launches including Ray-Ban Meta, Meta Quest, and Autopilot.

## EXPERIENCE

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### META | Burlingame, CA

Senior QA Engineer, Wearables

Aug 2024 - Present

- Developed Cross-device Layered Automation for Wearables, a TypeScript E2E test framework covering 7 wearable device families (smart glasses, audio wearables, next-gen prototypes) with Android/iOS companion app pairing. Achieved 94% automated test coverage across the wearables portfolio.
- Defined and owned QA strategy for the wearables audio vertical, partnering with engineering leads across 4 teams (Audio, Firmware, Companion App, AI) to establish release quality gates and go/no-go criteria for 6 product milestones.
- Built automated code generation pipeline that converts TestRail test cases into platform-specific TypeScript scripts (iOS + Android), supporting app-aware media validation (YouTube, Spotify, Apple Music, Amazon Music), proximity sensor verification, and per-step assertion logic.
- Diagnosed and resolved 6 critical failure categories during real-hardware execution on Meta smart glasses. Patched framework APIs and batch-repaired 738 generated test scripts, bringing execution pass rate from 68% to 100%.
- Designed multi-layer hardware abstraction with graceful degradation: TDB-first with ADB dumpsys fallback for proximity sensor, audio stream, and hinge state APIs. Reduced firmware-dependent test flakiness by 72%.
- Engineered runtime topology guards for cross-device scripts using typeof checks and guardPhoneCalls() wrappers to safely gate phone-dependent APIs in glasses-only topologies. Resolved 158 runtime failures across 3 test configurations.
- Built full-stack TestRail Hygiene Manager (Next.js, TypeScript, Tailwind) with 11-rule scoring engine. Drove adoption across 3 QA teams as an org-wide test quality standard, improving average test case completeness scores from 61% to 89%.
- Mentored 3 junior QA engineers on hardware debugging workflows, ADB-based diagnostics, and test automation best practices. Created structured onboarding path reducing ramp-up time from 6 weeks to 3 weeks.
- Triaged 120+ Bluetooth audio defects across A2DP, HFP, and LE Audio profiles including adaptive volume, microphone occlusion detection, and don/doff audio transitions for third-party integrations (WhatsApp, Instagram, Messenger, Spotify).
- Co-authored OS-level knowledge base (v2.0) documenting tri-processor architecture (SoC, MCU, DSP), TDB command reference, and device capability matrices for 7 wearable platforms. Adopted as onboarding reference by 15+ engineers across 3 orgs.

### EMERGE.IO (Series B Startup) | Marina Del Rey, CA

QA Lead, Wave-1 XR Hardware

Mar 2022 - Aug 2024

- Built and led the QA function from the ground up: hired, onboarded, and managed a team of 5 (3 QA engineers + 2 contract testers). Defined test processes, release quality criteria, and defect triage workflows adopted across the engineering organization.
- Authored and maintained 400+ test cases across gesture recognition, haptic feedback accuracy, avatar interaction, and Unity/Unreal rendering. Presented release readiness and quality metrics to VP of Engineering and product leadership at each milestone.
- Identified critical memory leak in gesture processing pipeline during 48-hour stress test cycle (root cause: unreleased frame buffers in continuous tracking mode). Caught 2 weeks before Series B investor demo.
- Built Python device orchestration tool automating parallel log capture across Quest and Vision Pro. Reduced regression setup time from 2 hours to 20 minutes (83% reduction).
- Executed QA for 8 firmware releases across 3 SDK versions. Identified 23 SDK compatibility regressions and flagged 4 breaking API changes before integration, preventing 2 release rollbacks.

## **META | Reality Labs | Menlo Park, CA**

*QA Engineer, Imaging & XR*

Jun 2020 - Mar 2022

- Validated camera and imaging stack on Ray-Ban Stories (Gen 1): photo capture, video recording, HDR processing, and ML-based image enhancement across 50+ lighting conditions, skin tone variations, and motion scenarios.
- Isolated 200ms+ shutter lag in HDR pipeline under low-light conditions. Traced to buffer allocation bottleneck in the camera subsystem. Fix shipped in pre-launch firmware update.
- Managed gatekeeper (feature flag) configurations for Scene 2.0 on Meta Quest across 12 device configurations. Coordinated test access with 3 partner teams for pre-release VR social/presence platform validation.
- Ran thermal and battery stress tests (continuous capture 30+ min) resulting in 3 firmware-level power management changes. Built ADB-based video logging workflow with sensor overlay capture adopted as standard defect reporting template by the imaging QA team.
- Mentored 2 junior QA engineers on camera testing methodology, ADB diagnostics, and structured defect reporting. Both promoted to mid-level within 12 months.

## **TESLA | Palo Alto, CA**

*QA Engineer, Autopilot*

Jan 2020 - Jun 2020

- Validated computer vision models for Autopilot object detection (vehicles, pedestrians, lane markings, traffic signs) across 200+ annotated driving scenarios including occlusion, weather variance, and low-visibility edge cases.
- Identified systematic labeling error in training data where partially occluded stop signs were mislabeled, affecting 15% of edge-case test scenarios. Delivered structured validation reports used by ML team to prioritize model retraining cycles.

## **GOOGLE (via E.Team) | Mountain View, CA**

*QA Analyst, Trust & Safety*

Apr 2017 - Dec 2019

- Tested ML-based phishing classifiers and content safety models in Chrome and Google Safe Browsing. Built QA framework tracking false positive/negative rates during heuristic-to-ML migration, covering 50K+ daily classification events.
- Led quality reviews across 12 locales validating classifier accuracy for language bias. Defined precision/recall acceptance thresholds with ML team for production deployment. Ramped up and coordinated 4 offshore QA analysts on locale-specific test execution.

## **TECHNICAL SKILLS**

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**Testing:** E2E System Testing, Test Automation Framework Design, Performance/Memory/Stress, AI/ML Model Validation

**Languages:** TypeScript, Python, Shell/Bash

**Frameworks:** Next.js, Tailwind CSS, Node.js

**Tools:** JIRA, TestRail, Jenkins, ADB, Android SDK, Unity, Unreal Engine, Postman, Xcode, Git

**Hardware:** Ray-Ban Meta, Meta Quest, Apple Vision Pro, Android/iOS Devices, Smart Wearables

**Domains:** Wearable OS (Nucleus), Bluetooth Audio (A2DP/HFP/LE Audio), XR Haptics, Computer Vision

**Leadership:** QA Strategy, Release Quality Gates, Team Hiring/Mentoring, Cross-functional Stakeholder Management

## **EDUCATION**

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**Doctorate, Applied Computer Science** | Westcliff University, in progress

**MBA** | Westcliff University, 2022

**MFA, Animation & VFX** | Academy of Art University, 2016

**B.Tech, Information Technology** | Bharath University, 2011