

# Gurinder Singh

Staff Software iOS & AI/ML Engineer

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## Career Summary

Staff iOS & AI/ML Engineer with over a decade of experience scaling applications for **millions of users**. **Patent-holder** and technical leader specializing in bridging cutting-edge AI/ML with practical mobile solutions. Proven track record of building legendary apps at global scale, from startup innovation to enterprise solutions serving **90M+ users worldwide**. Multi-cloud expertise across **AWS, Azure, and GCP**. Passionate about mentoring engineers, conducting technical interviews, and fostering inclusive tech communities while driving innovation at the intersection of iOS and artificial intelligence.

## Core Skills

**Languages & Frameworks:** Swift, SwiftUI, Python, TypeScript, JavaScript, Next.js, React, FastAPI, Vapor, Objective-C, Flutter/Dart, Node.js

**AI/ML Stack:** LLM Agents, RAG Systems, LangChain, LlamaIndex, OpenAI API, Claude API, Cohere, Embedding Strategies, Supabase, ChromaDB, Pinecone, Qdrant, DeepLake, Vector Databases, Core ML, MLX, LoRA Fine-tuning, Stable Diffusion, SDXL, Generative AI Models, PyTorch, scikit-learn, Python ML, Pandas, Computer Vision, Image Processing, NLP

**Mobile Systems:** iOS SDK, ActivityKit, WidgetKit, Dynamic Island, SwiftData, Realm, Combine, UIKit, Async/Await, XCTest, Snapshot Testing, WatchOS

**Cloud Platforms:** AWS (Lambda, DynamoDB, Serverless), Google Cloud Platform (GCP), Microsoft Azure, AI Cloud Foundry, Multi-cloud Architecture

**Cloud & Infrastructure:** Docker, Containerization, Kubernetes, Supabase Edge Functions, RunPod, DataDog Observability, Azure DevOps, Terraform, Infrastructure as Code

**Data & Databases:** SQL, PostgreSQL, Supabase, ChromaDB, Pinecone, Qdrant, DeepLake, Vector Databases, DynamoDB, Realm, SwiftData

**DevOps & Tools:** Git/GitHub, CI/CD Pipelines, Jira, GitHub Actions, Fastlane, Jenkins, Test-Driven Development (TDD), Agile/Scrum, Container Orchestration

**Automation & Integration:** MCP Servers, Manus, N8N, Playwright, Puppeteer, Selenium, Workflow Automation, API Integration

**ML Workflows:** Data ingestion & transformation, Model training & fine-tuning, Model deployment & scaling, A/B testing, Performance evaluation, RAG pipeline architecture, Embedding strategies

## Experience

### Staff iOS Engineer → Applied AI/ML Engineer

PayPal / Venmo (2020 – Present)

#### ■ AI/ML Evolution & Technical Innovation (2023–Present)

##### Team Mercury – AI-Powered Agentic E-Commerce Platform (October 2025)

- Built PayPal/Venmo's **first applied agentic AI platform** for autonomous merchant onboarding using **OpenAI API, Claude API, and Cohere**
- Pioneered AI image generation with custom **SDXL LoRA models** producing professional imagery in ~30 seconds, saving merchants \$100–\$500 per product
- Delivered **first org-wide MCP integration** with Manus for seamless AI agent orchestration
- Implemented **multi-vector database architecture** using ChromaDB, Pinecone, and Qdrant for optimal RAG performance
- Architected **embedding strategies** for semantic search across 100K+ product documents
- Built **N8N automation workflows** managing Venmo, Honey, Facebook/Meta, Google Ads, and TikTok integrations
- Deployed using **Docker containerization** with AWS Lambda for serverless scaling

##### AI/ML Implementation & Automation (2024)

- Developed **AI-powered crash detection system** using LangChain + DeepLake – now adopted org-wide
- Built **internal AI tooling on Google Cloud Platform (GCP)** for ML model experimentation and deployment
- Implemented **containerized ML pipelines** with Docker and Kubernetes for consistent deployment across environments
- Created **10%+ productivity improvements** via AI-powered automation tools with N8N workflows
- Championed AI coding assistants across teams with MCP server integrations

#### ■ iOS Engineering Excellence & Business Impact

##### Major Product Launches & Partnerships

- **Amex Partnership (2020)**: Built payment-splitting for **\$400M partnership deal**
- **Pay With Venmo Checkout (2024–Present)**: Key stakeholder with server-side Swift implementation
- **QRC Touch-Free Payments**: Led initiative winning **\$60M CVS contract**
- **Venmo x Amazon Partnership (2023)**: Built sandbox/integration app in two days

##### iOS Innovation & Patents

- **QRC Widget Patent (2022)**: Filed "Interface Widget Tool for Automatic QR Code Generation" – Reduced user friction by 66%
- **Dynamic Island / Live Activities**: Built end-to-end infrastructure with server-side Swift
- Architected features reaching **millions of active users**

#### ■ Technical Leadership

- Mentored cross-functional engineers on concurrency, accessibility, and feature-flag development
- Partnered with Design Systems to create SwiftUI component library that **cut development time by 30%**
- Built internal AI observability tooling using DataDog with containerized deployments

#### Selected Projects & Contributions

##### Personal Development & Open Source

- **VectorVerseEvolve**: Built full-stack AI application using **Microsoft Azure and AI Cloud Foundry** for scalable vector search and LLM orchestration
- **Rosicrucian Search Engine**: Implemented RAG pipeline with multi-cloud deployment across AWS and Azure for high availability
- **Real Estate Automation**: Developed video analysis pipeline using GCP Cloud Functions for automated content generation

### iOS Developer/Consultant

### Google Stadia (*July 2019 – 2020*)

- Worked on Google Stadia for mobile platforms in Flutter/Dart
- Leveraged iOS expertise for native plugins and crash debugging

### iOS Developer/Consultant

#### Morgan Stanley (*April 2018 – July 2019*)

- Hybrid Banking and Wealth Management apps for iOS
- Key features: check-deposit, **biometric authentication**, certificate-pinning, jailbreak detection
- Migrated codebase from 98% Objective-C to 80% Objective-C / 20% Swift

## Technical Leadership & Team Building

### Advisory Board & Strategic Leadership

- **Advisory Board Member** for multiple tech startups on iOS architecture and AI/ML implementation
- Conducted **technical interviews** for senior iOS and AI/ML positions
- Strategic advisor on product roadmap decisions and technology stack selections

### Mentorship & Knowledge Sharing

- Hosted technical workshops: SwiftUI, State Machines, AI/ML image generation, DataDog automation
- Created comprehensive documentation for ML architects and non-technical stakeholders
- Onboarded and mentored multiple senior engineers with growth plans and advancement advocacy

## Hackathon Achievements & Innovation

28+ hackathons attended across 6+ countries as participant, mentor, and judge. Earned 2 first-place wins and served as judge at Yale (2x). Recognized globally for innovation and technical excellence.

### ■ MLH @ Bloomberg London (2017) - 1st Place

Automated Search & Rescue System – Won among 500+ participants. Featured in BBC documentary.

### ■ Devcamp NYC (2016) - 1st Place

Talent Management App – Won among 300+ participants at Google NYC.

### ■ HackZurich (2018) - Finalist

AR Car Buying Tool – Finalist among 400+. Featured in Credit Suisse interview. Attended HackZurich 4x

### Mentorship & Judging

- **Hack Yale** – Judge (2x) – Yale University
- **PenApps** – Mentor – University of Pennsylvania

## Cultural Impact & Community Leadership

### Diversity & Inclusion

- **Interfaith ERG Chapter Lead (Sikh community)**: Organized events, secured speakers, created educational content
- **Built next generation**: Represented Venmo at Yale hackathons and high school tech education initiatives

### Recognition & Awards

- **Multiple PayPal Props Awards**: Paragon (5000 pts), Phenom (1500 pts), Powerhouse (750 pts)
- Consistent **"Successful" performance ratings** with leadership principle exemplification
- Recognized for: Customer obsession, innovation mindset, collaboration excellence, building next generation

## Education

### New York City College of Technology, Brooklyn

BS in Computer Systems (Deferred) – 2012 – 2016

*Building legendary apps at the edge of iOS & AI with multi-cloud expertise.*