

KARTIK PATEL

SENIOR BACKEND ENGINEER | AI & SCALABLE SYSTEMS

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PROFILE SUMMARY

Senior Backend Engineer with 3+ years of experience designing and optimizing high-performance backend systems. Expertise in **Laravel, Symfony**, and real-time architectures (**WebSockets/Reverb**). Proven experience building scalable **communication platforms** (Twilio), **AI-powered search** systems (Solr, LLMs), and **automation** across social media platforms. Strong focus on **database optimization**, system performance, and financial webhook processing. Actively contributed to backend architecture decisions and **mentored** junior developers.

CORE TECHNICAL EXPERTISE

- Core Architecture & System Design** : Latency Optimization, Scalable System Design, Microservices Architecture, API Design & Strategy, Database Design (ERD)
- Backend & Programming** : PHP, JavaScript (ES6, jQuery), Python (FastAPI), Shell Scripting
- Frameworks** : Laravel, Symfony, Livewire, Django, Node.js
- Real-Time & Communication Systems** : WebSockets (Laravel Reverb), Twilio API (Voice/SMS), Apple Push Notification Service (APNs)
- Databases & Search** : Apache Solr, MySQL (Query Optimization), PostgreSQL, Redis
- AI & Automation** : LLM Integration, Vector & Image Search, TTS/STT Systems, Meta Graph API, TikTok & Telegram Automation
- DevOps & Infrastructure** : Docker, AWS (EC2, S3), CI/CD (GitHub), RunCloud
- Testing & Code Quality** : PHPUnit, Pest, Larastan, Pint
- Security & Integrations** : OAuth 2.0, JWT Authentication, API Security (Rate Limiting, Token Validation), Webhook Security (Signature Verification), Cisco Duo (2FA), REST & Third-Party API Integration, Shopify App Development
- Operating Systems** : Linux, macOS, Windows

EDUCATION

Master of Technology (CSE) Parul University, Vadodara	2023 - 2025
Bachelor of Technology (CSE) Parul University, Vadodara	2019 - 2023

PUBLISHED RESEARCH (IEEE)

AI-Driven Mobile Usage Tracking (93% accuracy using Random Forest).	2025
Youth Mobile Usage Monitoring Trends & Tools.	2024

PROFESSIONAL EXPERIENCE

Senior Backend Developer & Architect

September 2025 – Present

Techmero, Vadodara

- **Scalable Architecture** : Architected and deployed a unified backend system for 12+ global iOS applications using Twilio (VoIP, SMS, Voicemail), improving communication reliability and scalability.
- **Fraud Detection System** : Engineered real-time API-level spam detection and reputation scoring to identify and block fraudulent calls, improving communication security and reliability.
- **Real-Time Push System** : Developed a centralized push notification hub (FCM/APNs) with dynamic credential routing for large-scale app ecosystems.
- **Performance Optimization** : Optimized SQL queries, resolved N+1 query issues, and implemented caching strategies, improving API response speed by 40%.
- **Real-Time Communication** : Implemented Laravel Reverb (WebSockets) to enable low-latency, real-time system interactions.
- **Webhook Processing Engine** : Built a high-integrity system for Apple Server-to-Server webhooks supporting 80+ applications with reliable financial event handling.
- **AI Refund System** : Designed an AI-based refund validation mechanism to reduce revenue leakage and automate decision workflows.
- **SaaS Automation Platform** : Engineered a multi-platform automation and chat system integrating Instagram, Facebook, TikTok, and Telegram.
- **AI Audio Service** : Developed a Python (FastAPI) service for voice synthesis and background noise suppression.

Full-Stack PHP Developer

July 2023 – August 2025

Siimteq Technology, Vadodara

- **Search Architecture** : Implemented Apache Solr to enable millisecond-latency search across large-scale ERP datasets, improving query performance by up to 4x compared to traditional SQL.
- **System Performance** : Optimized complex database queries, resolved N+1 issues, and implemented caching strategies to significantly reduce application load time for high-traffic ERP systems.
- **AI-Powered Search** : Integrated local LLMs to build vector-based and image-to-product search capabilities, enhancing search accuracy and user experience.

Trainee PHP Developer

January 2023 – June 2023

Simform Solutions, Ahmedabad

- **Backend Foundations** : Built web applications using Core PHP and Symfony MVC architecture, focusing on scalable and maintainable code structure.
- **Version Control** : Worked extensively with Git workflows including branching, merging, and conflict resolution in a collaborative environment.
- **API Development** : Developed and integrated RESTful APIs with emphasis on secure data handling and performance optimization.
- **Code Quality** : Applied clean code practices, debugging techniques, and standard design patterns to ensure reliable application behavior.
- **Project Development** : Designed and developed a full-cycle Project Management System to strengthen backend logic, routing, and application flow.