

# VINAYAGAM D

Backend Engineer · 2+ Years Production Experience · Chennai, India

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## SUMMARY

Backend Engineer with 2+ years of production experience building scalable systems in Python and Django. Designed and shipped webhook-driven architectures, multi-tenant SaaS platforms, real-time messaging systems, and AI-integrated validation pipelines serving **200,000+ users**. Deep hands-on experience with REST API design, Redis caching strategies, asynchronous task processing, and AWS cloud infrastructure. Shipped **8+ production applications** across civic tech, SaaS communication, and fintech — with measurable outcomes: **200% API performance improvement** and **60% reduction in manual communication workload**. Currently expanding into TypeScript and Node.js backend systems at Trames (Singapore).

## TECHNICAL SKILLS

<b>Languages</b>	Python, JavaScript, TypeScript, HTML5, CSS3
<b>Backend</b>	Django, Django REST Framework, Flask, Node.js
<b>Databases</b>	PostgreSQL, MySQL, Redis, SQLite
<b>Cloud / Infra</b>	AWS (EC2, S3, IAM, Route53, SES, SNS) · Docker · Nginx · Linux
<b>APIs</b>	WhatsApp Business API, Meta Graph API (Instagram / Messenger), OpenAI API, Gemini API
<b>Real-time</b>	Django Channels, WebSockets, Redis Pub/Sub, Celery
<b>Practices</b>	REST API design, Webhook systems, Async processing, Multi-tenant SaaS, Redis caching, Idempotency, SQL optimisation, OOP, Agile
<b>Tools</b>	Git, GitHub, Postman, VS Code, PyCharm, Cursor

## EXPERIENCE

### Trames Private Limited | Backend Engineer

Feb 2026 – Present | *Singapore (Remote)*

- Building backend services in TypeScript and Node.js for a global logistics and freight management platform handling real-time shipment tracking and operational automation.
- Designing scalable REST APIs and backend workflows that process logistics events, manage freight data, and integrate with carrier and customs systems internationally.
- Collaborating with cross-functional engineering teams to improve backend performance, data reliability, and system observability.

### Thaagam Foundation | Python Django Developer

Oct 2023 – Oct 2025 | *Chennai, India*

- Architected and deployed **8 production Django backend systems** across government civic platforms, NGO operations, and e-commerce applications serving real users at scale.
- Designed **webhook processing architectures** for real-time payment events from Razorpay and PayU; implemented idempotency keys and signature verification for exactly-once processing guarantees.
- Delivered a **200% API performance improvement** by implementing Redis caching with Django signal-based cache invalidation, eliminating redundant database queries on high-read endpoints.
- Engineered automated communication pipelines using **WhatsApp Business API, AWS SES, and SNS** — reduced manual notification workloads by **60%** across field operations.
- Integrated **OpenAI and Gemini APIs** to build AI-driven image validation and fraud detection pipelines for civic complaint verification workflows.
- Built real-time messaging dashboards using **Django Channels, WebSockets, and Redis Pub/Sub** for live operational visibility across distributed field teams.
- Managed **AWS infrastructure** (EC2, S3, IAM, Route53) supporting systems with **200,000+ registered users** and 99%+ uptime SLA.
- Implemented secure backend authentication, role-based access control, and partner API integrations for mobile clients and third-party service providers.

## SELECTED PROJECTS

Commai – Omnichannel AI Communication SaaS

2025

<https://commai.m7corporation.com/>

Stack: Django, DRF, PostgreSQL, Redis, Celery, WhatsApp Business API, Instagram Graph API, Facebook Messenger API, Email APIs, AWS, Docker, Nginx

- Built a **multi-tenant SaaS backend** unifying WhatsApp, Instagram, Facebook Messenger, and Email into a single business communication platform — one dashboard, four real-time channels, one unified conversation store.
- Designed a **webhook-driven ingestion architecture**: channel-specific endpoints validate payload signatures, normalise events into a unified schema, and enqueue in Redis — returning 200 OK immediately to prevent provider retries under load.
- Implemented **Celery async workers** consuming queued events, persisting threaded conversations to PostgreSQL per tenant, and triggering AI-powered automated reply generation.
- Architected **tenant-level data isolation**: adding a new messaging channel requires only a new webhook handler — zero changes to the core processing pipeline.

### Chennai Corporation – AI Image Analysis Platform

2025

<https://imageanalysis.gccservices.in>

Stack: Django, OpenAI Vision API, PostgreSQL, Redis, AWS EC2, S3

- Built an **AI-powered civic verification system** for Greater Chennai Corporation — validates before-and-after complaint resolution images to detect fraudulent submissions.
- Integrated **OpenAI Vision API** into an async Celery pipeline; Redis caching eliminates redundant API calls on frequently re-checked image signatures.
- Deployed on AWS EC2 with S3 for image storage; infrastructure supports field officers across the city with consistent low-latency response.

### Thaagam Donation Management Platform

2024

<https://thaagam.org>

Stack: Django, DRF, PostgreSQL, Redis, Razorpay, PayU, AWS SES, WhatsApp API

- Built a full donation lifecycle backend — donor management, multi-gateway payment processing, automated 80G tax receipt generation, and finance reconciliation dashboards.
- Webhook handlers for Razorpay and PayU with idempotency keys prevent double-processing; receipts dispatched automatically via AWS SES and WhatsApp on payment confirmation.
- Reconciliation time reduced from **days to under 5 minutes** — zero manual receipt generation; full compliance audit trail maintained in PostgreSQL.

## EDUCATION

**Master of Computer Applications** | Madras University

2024 – 2026 (Ongoing)

**Bachelor of Computer Science** | Thiru A Govindasamy Government Arts College

2017 – 2020

## ACHIEVEMENTS & CERTIFICATIONS

### Key Achievements

- 8 production systems shipped across government, SaaS, and fintech
- 200% API performance gain via Redis caching in production
- 60% reduction in manual workload through automated pipelines
- AI validation system for civic complaint images at Chennai Corporation
- Live SaaS product (Commai) integrating 4 real-time messaging APIs

### Certifications

- Machine Learning with NumPy, Pandas, Scikit-learn  
Educative, 2024
- PHP Web Development  
CADD Centre, 2023

**Open to:** Full-time backend roles, product-focused engineering teams, early-stage startups (YC / seed), MNC engineering divisions, and open-source projects.