Diljot Singh

Senior Backend Engineer | Python, Django, FastAPI, PostgreSQL

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SUMMARY

Backend engineer with 5+ years in Python, Django and FastAPI, shipping production systems for US health tech, insurtech and SaaS products. Works across REST API design, PostgreSQL, Celery, Docker, AWS and LLM features in HIPAA-regulated products, collaborating directly with client CTOs and product staff. Recent results: a 44-page form read cut from 17.1 s and 533 MB to about 3 s and 250 MB, and silent 14.5 hour AI pipeline stalls replaced by a clear failure within about 4 hours.

SKILLS

Languages: Python, SQL, JavaScript, TypeScript, C#, Java

Backend: Django, Django REST Framework, FastAPI, Pydantic, SQLAlchemy, Alembic, Celery, Django Channels, Flask, Node.js, Express, REST APIs, GraphQL

Data: PostgreSQL (query tuning, advisory locks for concurrent writes), Redis, MySQL, MongoDB (NoSQL), SQL Server

Cloud and DevOps: AWS (CDK, Lambda, S3, CodeBuild), Docker, Docker Swarm, GitHub Actions, CI/CD, Caddy, Terraform, Azure DevOps, Linux, Sentry and Datadog monitoring

AI: LLM integration (Anthropic Claude, OpenAI), Pipecat voice agents, Twilio, AssemblyAI, MCP

Testing: pytest, Playwright, Cypress, JMeter, k6, Jest

Security: SAML 2.0, OAuth 2.0, Okta, Auth0, JWT, MFA, field-level encryption, HIPAA

Frontend: React, Next.js, Angular, Vue

Practices: Performance profiling and optimisation, code review, release management, system design, Jira, Scrum

EXPERIENCE

CodeArrest Softwares Pvt. Ltd. — Mohali, India (remote)
Technical Lead — Jan 2025 to Present

- Rebuilt a multi-tenant CRM backend for US Medicare insurance agencies in Django and DRF (authentication, tenants, agencies, policies, ETL), writing 626 of 677 backend commits.
- Wrote an AWS CDK stack and deployed a Django, GraphQL and Celery document platform on AWS for a health company; added multi-factor authentication to its GraphQL JWT auth.
- Built a Django and Celery service that lays out customer artwork into printable sheets for a US apparel shop on Shopify, with 263 commits and 104 merged pull requests in three months.
- Reviewed about 506 pull requests (460 merged) and ran QA to production releases for a US health tech client, including blocking an unsafe partial release when production was 182 commits behind QA.
- Lead a team of 5 engineers alongside hands-on backend work.

Mechlin Software Technology Pvt. Ltd. — Mohali, India
Technical Lead — Apr 2023 to Jan 2025
Software Development Engineer II — Mar 2022 to Mar 2023
Software Development Engineer I — Aug 2021 to Feb 2022
Software Development Trainee — Feb 2021 to Jul 2021

- Built patient, messaging, clinical notes and Stripe subscription features in the Django backend of a US telehealth clinic, plus webhooks and an AWS Lambda function; 478 commits in 9 months.
- Built the search and filter API (Node.js, Express, Sequelize, MySQL) of a UK company data SaaS, with filters on location, industry codes, directors, financials and trade, then started its Django rewrite.
- Built a photo marketplace backend alone in Django REST Framework with an S3 upload pipeline in Celery, multi-currency pricing and OTP login.
- Wrote a gold-backed ERC-20 stablecoin in Solidity with Chainlink price oracles, fees and trade limits, tested with Truffle on a public testnet.
- Promoted from trainee to Technical Lead in 2 years 2 months.

SELECTED PROJECTS

AI Benefits Enrolment Platform — Jul 2025 to Present
US health tech startup (client engagement)

- Cut a 44-page state Medicaid form read from 17.1 s and 533 MB to about 3 s and 250 MB by profiling the PDF pipeline and building each font map once per read, which unblocked publishing for every form and program.
- Built the agency forms feature of a new FastAPI and PostgreSQL platform, which maps state benefit PDFs to questions and fills them from applicant answers; took five go-live forms from unpublished to live in 3 days.
- Rebuilt a Pipecat, Twilio and AssemblyAI phone agent with async LLM calls and timeouts so one caller could no longer freeze live calls, and replaced silent 14.5 hour stalls in a Celery AI pipeline with a fail-only sweep (6 new tests, 218 passing).

Aging-in-Place Insurance Platform Sep 2022 to Mar 2025
US insurtech, Series C (client engagement)

- Led SAML 2.0 single sign-on integrations with partner insurers' engineering teams, using Okta, Auth0 and OAuth 2.0.
- Built the Django REST API behind a new member portal, plus Angular and Next.js pages and a Sanity CMS integration; 1,779 commits and 303 merged pull requests.
- Moved features from a C# .NET service to Django one at a time while both apps stayed live, and moved an acquired company's .NET codebase onto Linux containers.

Workforce Time Tracking SaaS Nov 2021 to Mar 2025
Company product

- Started the backend alone and set its architecture (Django, DRF, Channels, Celery, PostgreSQL, Redis); 1,450+ commits and 390 merges.
- Built the desktop tracker sync API that checks client clocks, splits sessions at midnight and rejects duplicate records from repeated syncs.
- Designed multi-tenant provisioning with one PostgreSQL database per customer, Stripe subscriptions and Docker Swarm deploys behind Caddy; load tested with k6 and tuned queries and caching.

Test Automation SaaS Dec 2023 to Nov 2024
Company product

- Built the Django and Celery engine that runs each Cypress or JMeter job in its own Docker container and reports errors per second and 90th, 95th and 99th percentile latency.
- Packaged the product into 6 Docker service images across three environments, moved it to Docker Swarm and deployed it on AWS; extended GitHub Actions CI/CD with build caching and a self-hosted runner.

rectpackbin (open-source npm library) Apr 2025 to May 2025
github.com/diljots99/rectpack

- Ported a Python rectangle bin-packing library to JavaScript and published it on npm, with Jest tests in 15 files; used in the print layout service above.

EDUCATION

Sri Guru Granth Sahib World University Fatehgarh Sahib, India
B.Tech, Computer Science and Engineering, First Division, CGPA 7.98/10 Jun 2021
Relevant coursework: Data Structures and Algorithms (9.1/10), Design and Analysis of Algorithms, Object Oriented Analysis and Design, Database Management Systems, Artificial Intelligence

CERTIFICATIONS

Backend Engineering Program (Python), AirTribe, in progress Oct 2026
Python for Data Science, IBM Aug 2020
AI with Neural Networks and Fuzzy Logic, C-DAC Mohali (six weeks) Jul 2019

AWARDS

Mechlin Quarterly Award (one engineer chosen per quarter), twice Q4 2021, Q4 2022