Diljot Singh

Technical Lead and Senior Backend Engineer | Python, Django, FastAPI, AWS

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SUMMARY

Technical Lead and backend engineer with 5+ years building Python, Django and FastAPI systems for US health tech, insurtech and SaaS products, including HIPAA-regulated products. Leads a team of 5 engineers (up to 9), reviews code, runs releases and scopes new work while still shipping production code, and collaborates directly with client CTOs, founders and product staff. Works across REST API design, PostgreSQL, Celery, Docker, AWS and LLM features. On a US AI benefits enrolment platform, owns the agency forms feature from design to production, cut a 44-page form read from 17.1 s and 533 MB to about 3 s and 250 MB, replaced silent 14.5 hour AI pipeline stalls with a clear failure within about 4 hours and reviewed about 506 pull requests. Promoted from trainee to Technical Lead in 2 years 2 months.

SKILLS

Leadership and practices: Team leadership, mentoring, hiring, code review, release management, technical specifications, system design, performance profiling and optimisation, estimation and presales, Jira, Scrum

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

Backend: Django, Django REST Framework, FastAPI, Pydantic, SQLAlchemy, Alembic, Celery, async Python, 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

Spoken languages: English, Hindi, Punjabi

EXPERIENCE

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

- Lead a team of 5 engineers (up to 9) working inside US health tech and SaaS client teams; assign work, review code, handle escalations and plan capacity while still shipping production code.
- Reviewed about 506 pull requests from a US client's engineers (460 merged) across platform, legacy Django and DevOps repos, and wrote the pre-review checklist each pull request passes before the team lead sees it.
- Ran QA to production releases for a US health tech client with release notes, risk tables and pre-deploy checklists, and blocked an unsafe partial release when production was 182 commits behind QA.
- Worked on and managed four 2025 client builds with two engineers: a print layout service, a legal e-discovery platform, a Medicare agency CRM and a wearable health app.
- 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.
- Scope and estimate new client work and write use case documents and technical diligence briefs for presales.

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

- Promoted from trainee to Technical Lead in 2 years 2 months and helped the company set up its team lead path.

- As Technical Lead, managed engineers' performance, mentored on best practices, handled client escalations and kept coding.
- Started the company's time tracking SaaS alone, set its architecture and led its team part time while working full time in a US insurtech client's team.
- Mentored the 2022 Python and Node.js trainee batch and wrote the company's technical hiring tasks for Django, Angular, Node.js and .NET roles.
- 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.

SELECTED PROJECTS

AI Benefits Enrolment Platform Jul 2025 to Present

US health tech startup (client engagement)

- Owned the agency forms feature as client contact and primary engineer, from high-level design and written spec to production on a new FastAPI and PostgreSQL platform; it maps state benefit PDFs to questions and fills them from applicant answers, and took five go-live Medicaid and SNAP forms from unpublished to live in 3 days.
- 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 LLM features on Anthropic Claude and rebuilt a Pipecat, Twilio and AssemblyAI phone agent with call scripts in 9 languages and async LLM calls with timeouts, so one caller could no longer freeze live calls.
- Replaced silent 14.5 hour stalls in a Celery AI pipeline with a fail-only sweep that marks dead runs failed with a clear reason within about 4 hours (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 (Okta, Auth0, OAuth 2.0), owning the SAML design and running each partner's integration calls.
- Built the Django REST API behind a new member portal, plus Angular and Next.js pages and a Sanity CMS integration (1,779 commits, 303 merged pull requests), and took a weekly on-call shift.
- Moved features from a C# .NET service to Django one at a time while both apps stayed live, and moved an acquired company's Windows and Azure .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), then led the team that grew around it; 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 and Stripe subscriptions, deployed with Docker Swarm behind Caddy with TLS for each customer subdomain; 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 dev, stage and production, moved it to Docker Swarm and deployed it on AWS; extended GitHub Actions CI/CD with per-service image builds, 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