

DEEPANSHU KR CHAURASIA

Software Engineer | 3 Years | Python, Django, DRF, PostgreSQL | REST APIs, Redis, Docker, Azure

CONTACT

Chandigarh, India | Open to relocation and remote | Available to join immediately

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Portfolio: deepanshu-kr-chaurasia.vercel.app | Live demo: sc-oracare.onrender.com

SKILLS

Languages: Python, SQL, JavaScript, C#, HTML5, CSS3

Backend: Django, Django REST Framework, Django ORM, FastAPI, Flask, Celery, Django Channels, .NET, ASP.NET

APIs and Integrations: REST API design, API versioning, JSON, OAuth 2.0, JWT, WebSockets, Microsoft Graph API, Deepgram API, adapter pattern

Databases and Data Modeling: PostgreSQL, MySQL, SQLite, Redis, relational data modeling, schema design, indexing, migrations, batched backfills, full-text search, pgvector, row level security, row locking

Algorithms and Business Logic: ranking (reciprocal rank fusion), hybrid search, similarity thresholds, retrieval evaluation (recall@k, MRR), state transitions, rule-based de-identification, access decision rules, concurrency

Performance and Caching: query optimization (select_related, prefetch_related), Redis caching, blind indexes, load testing (Apache JMeter, Azure Load Testing)

Reliability: retries with jitter, circuit breakers, timeouts, idempotent operations, failure containment, resumable jobs

Cloud and DevOps: Microsoft Azure (App Service, Container Apps, Key Vault, Front Door, Blob Storage, Queue Storage, Azure Database for PostgreSQL, Application Insights), Render, Docker, Docker Compose, Git, Linux

Testing and Code Quality: pytest, unittest, coverage, ruff, mypy, modular monolith design, services and selectors layering

Security and IAM: OAuth 2.0, OpenID Connect, MSAL, RBAC, Azure AD B2C, Microsoft Entra External ID, Fernet encryption, HMAC-SHA256, HIPAA technical safeguards

AI and Machine Learning: embeddings, RAG retrieval, GLiNER, LLM APIs, TensorFlow, scikit-learn, pandas, NumPy, Jupyter Notebook, spaCy, NLTK, BERT, Tesseract OCR, NLP

Documentation: design decision records, architecture documents, API reference documents, deployment runbooks

EDUCATION

Master of Computer Applications (MCA), Chandigarh University

Jul 2021 - Jul 2023

Specialization: Cloud Computing and DevOps | GPA: 8.11 / 10

Competitive Examination Preparation

Jul 2019 - Jul 2021

Full time preparation for NIMCET, CAT, XAT, SBI PO, and IBPS PO, concluding with admission to the MCA

Bachelor of Computer Applications (BCA), Himachal Pradesh University

Jul 2016 - Jul 2019

Certifications

- Microsoft Certified: Azure Fundamentals (AZ-900), Microsoft, 2022
- Microsoft Certified: Azure AI Fundamentals (AI-900), Microsoft, 2022
- IBM Data Science Professional Certificate, IBM and Coursera, 2022

EXPERIENCE

Software Engineer, Shidul (Startup)

Aug 2023 - Jun 2026

Contract, remote, for ClearInsight, a US dental healthcare startup | Software engineer and architect

Four-person team with the founder as product owner, an RPA plugin engineer, and marketing; client closed pre-launch.

ClearInsight AI: Multi-Tenant SaaS Dental Referral and Workflow Platform

- Modeled the referral domain in Django and PostgreSQL: practices, patients, referrals, members, rooms, documents
- Built the referral flow: one five-step form post creates the patient, referral, membership, room, and PDF together
- Designed multi-tenant SaaS on a shared PostgreSQL schema, isolating each practice's patients in the app layer
- Integrated OAuth 2.0/OIDC sign-in via MSAL on Azure AD B2C and Entra External ID, with role-based access
- Pushed live referral status via Django Channels, Redis, and WebSockets, verified at 100+ concurrent connections
- Debugged WebSocket drops every 5 to 10 seconds to a Redis socket and brpop timeout race, and fixed the timeouts

- Encrypted patient fields with Fernet and recorded an audit trail of every PHI read and write
- Wrote pytest unit and integration tests for authentication, RBAC, and referral state transitions
- Added structured logging, App Insights metrics, and alerts to trace request failures, auth errors, and socket health
- Containerized with Docker, caching the dependency layer so code changes rebuild without reinstalling packages
- Provisioned nine Azure services, including App Service, Blob Storage, Key Vault, and Azure PostgreSQL

CI-Assistant: Windows Connector and Plugin Platform

- Built Python, C#, and .NET connector services that run the team's data-extraction plugins and automate workflows
- Built a 12-route connector REST API for credential exchange, office configuration, and package distribution
- Split backend, packaging, and delivery into separate services so one failing path never blocks the others
- Delivered packages asynchronously via Azure Queue and Blob Storage, resuming after dropped connections
- Secured transfers with JWT, signed URLs, and payload hashes, rejecting tampered or replayed packages
- Prototyped isolated plugin execution so a faulty plugin cannot reach the host, network, or practice data

Data Science Intern, AllHeart Web

Jan 2023 - Jul 2023

Mohali, India

- Built BeautifulSoup and Selenium scrapers collecting structured and unstructured data at scale into MySQL
- Served the collected data through Flask REST APIs backed by MySQL
- Parallelized multi-page scraping with ThreadPoolExecutor, raising I/O-bound throughput within rate limits
- Applied TensorFlow, spaCy, BERT, NLTK, and Tesseract OCR for text extraction, classification, and analysis

PROJECTS

SC-Oracare: Multi-Tenant SaaS Dental Practice Management Platform

Jun 2026 - Present

Live demo: sc-oracare.onrender.com | Evolved from the ClearInsight codebase | Synthetic data only

- Grew ClearInsight into a modular monolith of 12 Django apps: charting, scheduling, revenue cycle, operations, portal
- Modeled a patient ledger that computes balances from charges, adjustments, and payments instead of storing them
- Bucketed receivables into 0-30, 31-60, 61-90, and 90+ day A/R aging, alongside invoices, payment plans, and claims
- Built a versioned /api/v1 REST API in DRF with office-scoped reporting endpoints
- Found four DRF routes exposing all patient rows to anonymous users; removed them and made the API default-deny
- Added relationship-based access so a referred specialist opens a chart only through referral membership
- Made encrypted fields searchable with HMAC-SHA256 blind indexes and capped scans, avoiding full-table decryption
- Added a Redis cache and Celery tasks for email, appointment reminders, nightly backups, and retention purges
- Prevented duplicate MRNs under concurrent writes with a select_for_update lock on a single counter row
- Wrote resumable, batched management commands for data backfills, keeping slow work out of schema migrations
- Put payment, clearinghouse, and eligibility calls behind swappable adapters, mocked by default for tests
- Wrote 424 tests, including expected-failure tests that pin 33 known connector API defects until they are fixed
- Documented each change's decisions and residual risk, plus architecture docs and deployment runbooks

Oracare AI: Clinical AI and Retrieval Service

Aug 2026 - Present

- Built a FastAPI service for transcription (Deepgram API), medical entity extraction (GLiNER), and document capture
- Ranked results with hybrid pgvector and full-text search, fused by reciprocal rank fusion in a single SQL query
- Built a 24-question gold set and recall script, recording recall@5 of 1.0 and MRR of 0.845 as the baseline
- Measured the 0.55 similarity cutoff and showed it discarded real answers while rejecting none of the bad ones
- Isolated each patient's data with PostgreSQL row level security, so the search SQL needs no patient filter
- Built fail-closed de-identification rules: allowlisted fields, 90+ age banding, and an export-aborting PII sweep
- Added jittered retries on 502/503/504 and a circuit breaker after 5 failures, so outages fail fast
- Reached 404 tests at 91.9% coverage, with ruff and mypy clean across 64 files

Phishing Domain Detection: Machine Learning Pipeline on Azure

Nov 2022

- Trained and deployed a scikit-learn phishing URL classifier on Azure using URL, domain, and character features

Image to Text Converter: OCR Web Application

Nov 2022

- Built a Flask app with Tesseract OCR and TensorFlow to extract text and describe scenes, exporting PDF/TXT/DOCX