

PRABESH SHARMA

SOFTWARE ENGINEER / BUILDER

PROFILE

Software engineer building commercial platforms — multi-tenant SaaS for jewellery, travel, hospitality, manufacturing, workforce and finance, and a live marketplace — alongside an AI operating system in Rust, security and developer tooling, and low-level systems: compilers, virtual machines and databases written from first principles.

Full-stack engineering · Cloud infrastructure · Cybersecurity · AI / ML · SaaS · Automation · Developer tooling · Travel technology · Business software

TECHNICAL SKILLS

Language	TypeScript, Python, Rust, Go, JavaScript, C++
Interface	React, Next.js
Backend	Node.js, Express, NestJS, FastAPI
Data	PostgreSQL, Prisma, Redis, MongoDB, Supabase
ML	PyTorch, Transformers
Platform	Vercel, Cloudflare, Docker, GitHub Actions, Kubernetes

SELECTED PROJECTS

DataJewellers COMMERCIAL · PRIVATE

Multi-tenant jewellery ERP, billing and Nepal tax compliance — one deployment serving many businesses, each isolated in its own Postgres schema.
React 19 · TypeScript · Vite · Tailwind CSS 4 · Express · Prisma · PostgreSQL · Zod · JWT (httpOnly cookies)

TimeTravel COMMERCIAL · PRIVATE

Multi-tenant B2B airline ticketing: agent booking portal, admin dashboard, agency wallets with credit lines, and a pluggable flight-provider layer.
Next.js 15 · React 19 · TypeScript · NestJS · Prisma · PostgreSQL · Redis · Zod · Tailwind CSS 4 · shadcn/ui · Turborepo · Docker Compose

Kinamna DEPLOYED

A multi-vendor marketplace for Nepal: storefront, seller portal and superadmin console on one 183-endpoint API, with tamper-proof Khalti, eSewa and Fonepay payments.
FastAPI · Python 3.13 · SQLAlchemy · Alembic · Next.js 14 · React 18 · TanStack Query · PostgreSQL (Neon) · Redis · Kubernetes · Cloudflare R2

DataUdaan IN DEVELOPMENT

One travel platform — international and domestic flights, hotels and buses — behind a single supplier layer, with B2C, agent and admin portals.
Python 3.13 · FastAPI · Next.js · TypeScript · PostgreSQL · Redis · ARQ · Alembic · Docker · Vercel · Stripe

Geoland System DEPLOYED

Ticketing, supplier and finance system for a Nepal-based travel business — per-currency supplier ledgers, signed private attachments, WhatsApp confirmations and an end-to-end test suite.
Express 5 · Prisma 7 · PostgreSQL 16 · React 19 · Vite 7 · Tailwind CSS 4 · Playwright · Cloudflare Workers · Render · Neon · Backblaze B2 · GitHub Actions

DataAttendance

IN DEVELOPMENT

Attendance, scheduling, leave and a first-class public API — a workforce platform with a business portal, kiosk mode, an offline-capable mobile app and OAuth for integrators.

NestJS · Next.js · Expo / React Native · TypeScript · Prisma · PostgreSQL 16 · Redis · Zod · Playwright · OAuth 2.0 (PKCE)

Data Accommodation

WORKING BUILD

A multi-tenant hotel operating system: PMS, front desk, housekeeping, restaurant POS, booking engine, channel manager and guest portal on one data model.

NestJS 11 (Fastify) · Next.js 15 · TypeScript · Prisma · PostgreSQL · Zod · Caddy · Docker Compose

DataConstruct

IN DEVELOPMENT

A manufacturing platform built around one loop — plan, actual, variance, why, action, result — with finite-capacity scheduling and tenant isolation enforced by PostgreSQL row-level security.

NestJS · Next.js · TypeScript · Prisma · PostgreSQL (row-level security) · Redis · BullMQ · Decimal maths

DataItemize

WORKING BUILD

One inventory engine for many businesses — hardware, electronics, jewellery, pharmacy, clothing, rentals — configured, not coded, on an immutable stock ledger.

FastAPI · Python 3.13 · SQLAlchemy 2 · Alembic · Next.js 16 · React 19 · TanStack Query · PostgreSQL · Redis

MultiPaisa

WORKING BUILD

Double-entry company accounting across NPR, AED, INR, SAR and USD — every line kept in its original currency and the base currency at the historical rate.

FastAPI · Python 3.12 · SQLAlchemy 2 · Alembic · Pydantic v2 · PostgreSQL 16 · Next.js 15 · React 19 · TanStack Query · Recharts

TalentSentinel

WORKING BUILD

Live AI job interviews in the browser — follow-up questions grounded in what the candidate said — ending in a transcript and an evidence-backed assessment.

FastAPI · Python 3.13 · SQLAlchemy 2 (async) · Celery · Redis · PostgreSQL · React 19 · TanStack Start · WebSockets · faster-whisper

Restro POS

WORKING BUILD

A multi-tenant restaurant platform: POS checkout, real-time kitchen display, recipe-based inventory, loyalty, shifts and analytics.

NestJS 10 · Prisma 5 · PostgreSQL 16 · Socket.IO · argon2 · Next.js 15 · React 19 · TanStack Query · Zustand · Recharts · Redis · Docker Compose

Sita Shree Gold System

DEPLOYED

Billing, inventory and VAT registers for a gold and jewellery business — the first production deployment of the jewellery platform, prepared against Nepal's Electronic Billing Procedure 2082.

React 19 · TypeScript · Vite · Tailwind CSS 4 · Express · Prisma · PostgreSQL (Neon) · Zod · Vercel

Sugar OS

IN DEVELOPMENT

An AI operating system in Rust — memory, knowledge graph, policy-gated skills, agents, workflows and monitoring — built from a 259-page engineering blueprint, with a phone as the command center.

Rust · Tauri v2 · Cedar policy · gRPC / HTTP · tree-sitter · Ed25519 · Windows named pipes · GitHub Actions (Linux · macOS · Windows)

TesseraDB

RESEARCH · 2026

An embedded SQL database where the past is a first-class query: every row version retained, AS OF reads, and event streams in the same transactions.

Rust (edition 2024) · Zero dependencies · WAL + CRC · MVCC · Fuzz testing

Halyard

RESEARCH · 2026

A deterministic, gas-metered, capability-gated register VM for running code you don't trust — and replaying exactly what it did.

Rust · Zero dependencies · Custom ISA · Assembler · Debugger

Bellows

RESEARCH · 2026

An optimizing compiler you can read end to end — from source text to x86-64 machine code, with an IR interpreter that must agree with the native binary on every program.

Rust · Zero dependencies · x86-64 (System V + MS x64) · DWARF · Fuzz testing

Tarn

RESEARCH · 2026

A small language for agent workflows: deterministic tasks, typed capability-gated tools, and record/replay of every side effect.

Go · Standard library only · Gradual typing · Record / replay

Spindrift

RESEARCH · 2026

An HTTP/1.1 server with its own RFC 9112 protocol stack, a pipeline language instead of a config file, and reloads that never drop a request.

Go · Standard library only · RFC 9112 · Prometheus metrics · Docker

Emberline

RESEARCH · 2026

A 2D game engine where time is a data structure: fixed-step deterministic simulation, hold-to-rewind, replays and save files that are verifiable input logs.

TypeScript · Zero runtime dependencies · ECS · Canvas2D · Web Audio · Node test runner

Serverless Log Monitoring & Threat Alert System

PROTOTYPE · 2025

A security-focused serverless endpoint that turns raw log lines into incidents, evidence and alerts.

JavaScript · Node.js · Vercel Functions · Supabase · PostgreSQL · Supabase Storage · Webhooks

Animation Ad

WORKING BUILD

An agent skill that reads a product's source, writes a storyboard and renders a real animated ad locally — motion graphics, characters or low-poly 3D, with voice, music and captions.

Node.js 22 · FFmpeg · Agent Skills · eSpeak · Procedural 2D / low-poly 3D

Puffer

IN DEVELOPMENT · 2025 — 2026

A full-stack stock tracker with watchlists, market search and AI-written news digests delivered by background jobs.

Next.js 15 · React 19 · TypeScript · MongoDB · Mongoose · Better Auth · Inngest · Gemini · Finnhub · Nodemailer · Tailwind CSS · Radix UI

AI Slop Detector

RESEARCH · 2026

An end-to-end AI-writing detector: scraped data, synthetic generation, a LoRA-tuned BERT classifier, and an honest benchmark.

Python · PyTorch · Hugging Face Transformers · PEFT / LoRA · BERT · OpenAI Batch API · uv

ML Trading Bot

EXPERIMENTAL · 2026

A sentiment-driven trading strategy: FinBERT reads recent headlines, and only near-certain signals become bracket orders.

Python · Lumibot · Alpaca API · FinBERT · PyTorch · Transformers · Yahoo Finance

Validates .env files against the committed .env.example — catching the configuration mistakes that only surface after a deploy.

Python 3.10+ · Zero runtime dependencies · pytest · mypy (strict) · ruff · GitHub Actions

SYSTEMS LAB

- Statuscraft — Honest status pages**

Typescript

A status page generator that refuses to lie: statuses are derived from real synthetic checks, never hand-edited.
- ModelHarbor — LLM provider control center**

Typescript

A visual control center for every configured LLM provider — live health, task-aware routing with failover, and a real usage-cost dashboard.
- PacketLens — Readable packet inspector**

Rust

A live, readable packet inspector: pcap decode, connection tracking, and plain-English flow explanations. No bundled Wireshark.
- DocAtlas — Documentation engine**

Typescript

A documentation site engine whose cross-references cannot go stale — live code includes, dead-link checking, and BM25 search, built with itself.
- RepoGraph — Codebase architecture map**

Typescript

An interactive architecture map for a codebase: module dependency graph, circular-dependency and dead-code detection, API-surface extraction, and click-to-highlight blast radius.
- Waterfall Lens — Page-load forensics**

Typescript

Analyse a HAR capture into an interactive waterfall: blocking chains, third-party weight attribution, and a plain-English explanation of what delayed first paint.

OPEN SOURCE

63 public repositories across 10 languages: Python, TypeScript, Rust, Go, C#, C++, Java, JavaScript, PowerShell, Shell.

MILESTONES

- SEP 2026

Languages, runtimes and storage

Built systems from first principles: an optimizing compiler with x86-64 codegen, a gas-metered VM, a temporal SQL database, an HTTP server on its own protocol stack, and a language for agent workflows.
- AUG 2026

An open-source tooling run

Released dozens of focused, MIT-licensed tools across Rust, Go, TypeScript, Python, C++, C# and Java — security auditors, linters, data-quality checks and developer utilities.
- APR 2026

Applied machine learning

Published a LoRA-tuned BERT classifier for AI-generated text, benchmarked on RAID, and a FinBERT sentiment strategy for paper trading.
- DEC 2025

Full-stack market tracking

Began Puffer — a Next.js stock tracker with authentication, watchlists, and AI-written market digests delivered by background jobs.
- NOV 2025

Serverless threat detection

Shipped a serverless log-monitoring endpoint on Vercel and Supabase: rule-based detection, incident storage, brute-force windows and webhook alerts.
- APR 2022

Joined GitHub

Started building in public as hellpuffyt.