

Raj Salonia

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SUMMARY

Computer Science undergraduate pursuing B.Tech at Bhagwan Parshuram Institute of Technology (BPIT) with a strong backend focus: Python, FastAPI, REST APIs, SQL databases, Java, C++, Data Structures and Algorithms and DBMS. Built backend services in a microservice architecture during an internship, and developed full-stack, AI-driven and cloud-ready applications through hackathons and independent projects spanning voice-first AI assistants, graph-based infrastructure modeling and solar planning optimization.

EXPERIENCE

Software Engineering Intern | Dexpert Systems Private Limited, Pune, India

Apr 2026 – Jul 2026

- Architected RESTful backend services and SQL database layers for the SAHAJAYOGA web portal within a microservice architecture, exposing APIs consumed by the frontend.
- Implemented request validation, business logic and error handling across backend modules, and wrote SQL schemas and queries for reliable data storage and retrieval.
- Integrated backend, database and frontend components end to end, debugging and testing APIs to ship production-ready features.
- Translated stakeholder requirements into maintainable features, collaborating with the Software Engineering team using agile practices.

PROJECTS

RoofShift AI – Rooftop Solar Planning and Budget Optimization Platform

GitHub: github.com/rajsalonia/roofshift-ai | Live: d2pxwgtcwn203c.cloudfront.net

- Engineered a full-stack rooftop solar planning platform (FastAPI, SQLAlchemy, React, TypeScript) combining rooftop GIS analysis, NASA POWER-based energy forecasting, 25-year financial modeling (NPV, IRR, payback) and automated PDF proposal generation.
- Implemented an exact Multiple-Choice Knapsack budget optimizer using decimal dynamic programming, delivering +22.4% net annual savings over naive allocation across campus rooftops.
- Designed versioned REST APIs with Pydantic validation, AWS service adapters (STS, S3, CloudWatch, SSM) with local fallbacks, Docker and Nginx setup, GitHub Actions CI and 195 automated pytest tests.

JudgeForge – Hackathon Judging Platform

GitHub: github.com/rajsalonia/JudgeForge | Live: judgeforge.onrender.com

- Built a self-hosted hackathon judging platform (Python, FastAPI, SQLite, Docker) with role-based access control and end-to-end submission and evaluation workflows.
- Implemented statistical score normalization and an auditable judging process to keep scoring transparent.

CityGraph – Smart-City Infrastructure Risk Intelligence Platform

GitHub: github.com/rajsalonia/citygraph | Live: citygraph-intelligence.vercel.app

- Modeled urban infrastructure as a graph of 70 nodes and 113 roads using NetworkX and FastAPI, simulating cascading failures and historical flood scenarios; a heavy-rain run flagged 5 failed and 13 affected nodes.
- Built an interactive React frontend (Cytoscape.js, Leaflet) for infrastructure mapping, geographic risk visualization, failure-cascade analysis and risk-aware route analysis.

BoloAI – Call-Based Voice AI Agent for Offline Access

GitHub: github.com/rajsalonia/BoloAI | Live: boloai-web.onrender.com

- Built a voice-first agentic AI assistant in Python and FastAPI that users can reach through a phone call on a toll-free number, with no internet connection required on the caller side.
- Supports Hindi, Hinglish and English conversations by connecting callers to the AI agent through voice-processing integrations, with configurable AI and speech providers.
- Designed tool-orchestrated agent workflows that verify information before answering, and deployed the application as a web app on Render.

TECHNICAL SKILLS

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

Core CS: Data Structures and Algorithms, OOP, DBMS, Operating Systems, Dynamic Programming

Backend and APIs: FastAPI, REST APIs, Microservices, API Integration, Pydantic, SQLAlchemy, MySQL, SQLite, pytest

Frontend: React, TypeScript, Tailwind CSS, HTML, CSS, Leaflet

Cloud and DevOps: AWS (STS, S3, CloudWatch, CloudFormation, EC2), Docker, Nginx, GitHub Actions (CI/CD), Git, GitHub, Vercel, Render

AI and Data: Agentic AI, Scikit-learn, NumPy, Pandas, NetworkX, Cytoscape.js

ACHIEVEMENTS

- 10x Hackathon Finalist.
- Final Round Shortlisted, 2nd Washington Hackathon 2026 (WUST) – CityGraph, Track 03: Open Innovation.
- Finalist, Smart Delhi Ideathon 2025 and IIT Varanasi Hackathon.

EDUCATION

Bhagwan Parshuram Institute of Technology (BPIT), New Delhi

2024 – 2028

B.Tech in Computer Science Engineering, SGPA: 7.8/10 (4th Semester)