

# Siddesh Patil

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## SUMMARY

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AI/ML practitioner with hands-on experience building end-to-end intelligent systems. Developed an AIoT platform, an NLP recommendation engine achieving 94% precision, and a production grade RAG pipeline. Proficient in Python, ML, NLP, and actively building on AWS (S3, EC2, FastAPI deployments). Seeking roles in AI/ML engineering, data science, or cloud-adjacent development..

## PROJECTS

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### SoilStream | *Python, TensorFlow, SVR, ResNet50, ESP32, Flask, Firebase* | [GitHub](#)

- Built an SVR-based rainfall prediction model achieving **92.86% accuracy** and **0.93 precision** on Konkan regional climate data, outperforming LightGBM and GRU baselines.
- Trained ResNet50 for multi-class crop identification achieving **99.7% test accuracy**; integrated with a rule-based irrigation controller to prevent waterlogging during unpredictable monsoon seasons.
- Designed a solar-powered IoT pipeline (ESP32 + BME280 + Firebase) with a React Native app for real-time field monitoring, pump control, and crop disease diagnosis via Kindwise API.

### VeriDoc | *Python, FAISS, BM25, Sentence-Transformers, Mistral, MLflow, RAGAS, Gradio* | [GitHub](#)

- Built a **hybrid RAG pipeline** combining dense (FAISS) and sparse (BM25) retrieval with Reciprocal Rank Fusion and cross-encoder reranking over local PDFs with source-level citations.
- Achieved **Faithfulness 1.0, Context Precision 1.0, Answer Relevancy 0.89** on automated RAGAS evaluation using synthetic QA generation; tracked experiments with MLflow.

### Sidekik | *Flask, Python, BERT, FAISS, Elasticsearch, Supabase, PostgreSQL* | [GitHub](#)

- Engineered a **BERT + FAISS recommendation engine** for semantic freelancer-project matching, achieving **94% Precision, 90% Recall, 92% F1** a 22-point improvement over TF-IDF baseline.
- Implemented semantic search with Elasticsearch over **10,000 freelancer profiles and 7,000 project records**; integrated Adzuna API for real-time skill demand analytics.
- Built full-stack platform with Flask REST APIs, Supabase/PostgreSQL, React frontend, and a pre-built project marketplace enabling freelancers to monetize completed work.

## EDUCATION

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### University of Mumbai

2022 – 2026

*B.E. Computer Science and Engineering (Data Science)* | **Honours in AI/ML**

## TECHNICAL SKILLS

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**Languages:** Python, SQL, Java, C

**AI/ML:** Machine Learning, Deep Learning, NLP, RAG, Recommendation Systems, LSTM, SVR, ResNet50, LightGBM

**Frameworks & Libraries:** Flask, FastAPI, TensorFlow, Keras, pandas, NumPy, Sentence-Transformers, FAISS, MLflow, RAGAS

**Cloud & Tools:** AWS (S3, EC2, CloudFront), Firebase, Git, GitHub, Supabase

## PUBLICATIONS & INTELLECTUAL PROPERTY

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### Research Paper – IEEE CONIT 2026 (Accepted)

Paper ID: 960

*A Solar-Powered AIoT-Based System for Intelligent Soil Monitoring and Automated Irrigation Control*

### Patent – Government of India

App. No: 202621042187

*Smart Solar-Powered AIoT System for Precision Agriculture (SoilStream)*

## CERTIFICATIONS

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### AWS Academy Data Engineering

*Amazon Web Services (AICTE)*

### Generative AI

*Google Cloud Virtual Internship (AICTE)*

### Google AI/ML

*Google Cloud Virtual Internship (AICTE)*

### Data Science Methodology

*IBM Developer Skills Network*