

# SAYANTAN SIKDAR

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## Technical Skills

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**Programming Languages:** Python, Java

**Machine Learning & Statistics:** Regression (Linear/Logistic), Classification, Clustering (K-Means, DBSCAN), Time-Series Forecasting (ARIMA, Rolling Window), XGBoost, PCA, Hyperparameter Tuning, Cross-Validation

**Python Ecosystem:** pandas, numpy, keras, scikit-learn, PyTorch, TensorFlow, FastAPI

**Data Engineering & SQL:** SQL (joins, aggregations, window functions), PySpark, Airflow, ETL Pipelines

**Data Visualization & BI:** Tableau, Power BI, Matplotlib, Seaborn, Plotly, Dashboard Design, KPI Tracking

**CI/CD & Version Control:** GitHub Actions, Git, CI/CD Pipelines, Deployment Automation

**Cloud & Tools:** AWS (SageMaker, S3, Redshift), GCP, Git, Docker, Airflow, MLflow

## Work Experience

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**Morsaabs Restaurant** — *Freelance Full Stack Developer* [Repo](#) **Feb 2026**

- Engineered full-stack restaurant website using 8 strategic AI prompts (6 frontend/2 backend) - compressed 90+ hours of development into 4.5 hours, delivering at 70% lower cost than traditional developers.
- Tech Stack:** Claude Code (Opus 4.6), AntiGravity, Code Rabbit

**WBSEDCL** — *Architect-Machine Learning Trainee* [Repo](#) **Mar 2024 – Apr 2024**

- Developed a Deep Learning-based AEMR system using YOLOv5–v8 and COCO, achieving 99% accuracy, 94% precision, 93% mAP; applied erosion, HSV correction on 466-image set, reducing errors by 95% and saving 500+ hours annually.
- Tech Stack:** Python, Roboflow, YOLO v5, v7, v9-e, COCO v8

**NIELIT Kolkata** — *Artificial Intelligence Intern* [Repo](#) **Sep 2023 – Mar 2024**

- Designed and implemented a Deep Neural Network framework with AlexNet and ResNet v2 for automated fruit grading, achieving 99% accuracy on Dataset I (2200 images); enhanced preprocessing on Dataset II (15,474 images) to reach 98.33% accuracy and 0.9752 F1-score using ResNet v2.
- Tech Stack:** Python, keras, numpy, openpyxl, OpenCV, AlexNet, ResNet v2

## Projects

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**Advanced Basket Trading Optimization Framework** [Repo](#)

- Benchmarked 6 advanced optimization methods for cointegration-based basket trading, achieving 3.851 Sharpe ratio with CVFS-CMA-ES and 63.76% total return with Bayesian Optimization, outperforming traditional Johansen test through performance-oriented weight optimization.
- Tech Stack:** Python, NumPy, Pandas, Scikit-learn, Bayesian Optimization, CVFS-CMA-ES, SAASBO, TuRBO

**Book Recommendation System with MLOPS** [Repo](#)

- Built an end-to-end MLOps Book Recommender utilizing SVD collaborative filtering and 8 orchestrated Docker microservices; integrated Airflow pipelines for automated DVC data processing of 10,000+ records, cutting manual deployment by 85% and achieving less than 35ms recommendation inference latency via FastAPI and React.
- Tech Stack:** Python, FastAPI, React, Docker, Apache Airflow, DVC, SVD, Scikit-learn, PostgreSQL

**EmpaChat** — **Empathetic Response AI** [Repo](#)

- Fine-tuned GPT-2 XL (1.5B params) using LoRA (99.4% reduction to 8.4M params) on GoEmotions dataset, achieving 89% classification accuracy, 150ms inference latency, and simulated 35% A/B test improvement over rule-based baseline.
- Tech Stack:** PyTorch, HuggingFace Transformers, GPT-2 XL, LoRA, QLoRA, FastAPI, Gradio, Docker

## Research Work

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**Deep Neural Network Based Yield Phenotyping Framework: Fruit Grading and Classification, IEEE**

**Authors:** Cassandra Chang, Sayantan Sikdar — [Link](#)

## Education

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**Masters of Technology**, Netaji Subhas University of Technology, CGPA: 6.8

**Bachelors of Technology**, Haldia Institute of Technology, CGPA: 8.65

## Certifications and Achievements

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Google Cloud Training: Cloud Engineering Fundamentals & Essentials, Cloud Application Development, Cloud ML-AI, DevOps & Kubernetes

AWS Machine Learning Scholarship 2021, Udacity - Recipient

GATE CS 2024 - Qualified