

RAJAT PATRA

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EDUCATION

Institute of Technical Education and Research, SOA University

Bachelor of Technology in Computer Science and Engineering

Bhubaneswar, Odisha, IN

Nov 2022 – July 2026

PROJECTS

Cricket Fantasy XI Predictor | *Python, XGBoost, PuLP, Docker*

June 2025

- Built an AI/ML-based predictive model to optimize fantasy cricket team selection for the *Indian Premier League (IPL) 2025*, using historical player data, pitch conditions, and weather to maximize fantasy points across 15+ matches.
- Trained a Gradient-Boosted Regressor (XGBoost) combined with constraint optimization (PuLP) to enforce fantasy sports rules, including a 100-credit budget and team composition constraints.
- Processed and engineered features from large-scale ball-by-ball cricket datasets (Cricsheet, Kaggle, ESPNcricinfo) to build batting and bowling performance metrics for player prediction.

Envault | *Next.js, Supabase, Redis, AES-256-GCM, Tailwind CSS*

May 2026

- Architected a zero-knowledge secrets vault using envelope encryption (AES-256-GCM) with a master/data-key hierarchy and automatic key rotation.
- Improved decryption performance with Redis caching and enforced database-level security using Supabase Row-Level Security (RLS) and immutable audit logs.
- Built a CI/CD pipeline with TravisCI to automate plugin builds on new releases.
- Developed a CLI for secret synchronization, engineering safeguards such as git-tracked file blocking and pre-commit hooks to prevent credential leaks.
- Implemented RBAC and Just-in-Time (JIT) GitHub integration to dynamically provision repository access for collaborators.

Synthetic Media Classification | *PyTorch, Torchvision, scikit-learn, imbalanced-learn, Matplotlib*

April 2025

- Fine-tuned a Vision Transformer (ViT-B/16) on the CIFAKE dataset (100K+ images) to classify real vs. AI-generated images, achieving 98.5% accuracy and 98.2% F1-score on the test set.
- Evaluated and maintained model robustness against adversarial examples using targeted data augmentation.
- Accelerated training with CUDA GPU optimization, cutting training time by 85%.

EXPERIENCE

Ekaayam

Design Lead

June 2024 – Aug 2024

Atal Incubation Centre, SOA University

- Led design and development of a ticketing platform that attracted 600+ unique registrations for SOA E-Summit 2024.
- Explored methods to visualize GitHub collaboration activity for classroom use, prototyping a tool to track student contributions.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL (PostgreSQL), JavaScript, HTML/CSS

Frameworks & Libraries: React, Next.js, Node.js, Flask, FastAPI, PyTorch, XGBoost, scikit-learn, pandas, NumPy, Matplotlib

Developer Tools & Platforms: Git, Docker, TravisCI, Redis, Supabase, Google Cloud Platform, VS Code, PyCharm, IntelliJ

Concepts: Machine Learning, Constraint Optimization, RBAC & OAuth, Encryption (AES-256-GCM), CI/CD

ACADEMIC ACHIEVEMENTS

- Secured **First Prize (Rs. 10 Lakhs)** in *Dream11 Gameathon 2.0*, competing against 40+ teams from Tier-1 universities across India, as part of a Rs. 25 Lakh prize pool.
- Finished **7th** in Pravaah ML Hackathon, organized by IIT Bhubaneswar.