Veer Ryait

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EDUCATION

University Of Petroleum and Energy Studies
- Bachelor of Technology in Computer Science & Engineering (Honors) Spz. AIML

Monash University
- Masters of Data Science

WORK EXPERIENCE

Energy Mentors & IIT Ropar Partnership (Internship: 2023)
- Developed digital twin simulation of Hybrid Energy System using MATLAB/Simulink; engineered data pipeline generating and processing 10K+ time-series data points (voltage, current, power output, efficiency metrics) across 15+ operating scenarios.
- Conducted statistical analysis through sensitivity testing and parameter sweep optimization on 1000+ simulation runs; identified key efficiency drivers and extracted actionable optimization insights.
- Optimized simulation algorithms achieving 25% accuracy improvement and 20% runtime reduction; developed energy optimization strategies reducing simulated power consumption by 22% while maintaining system stability.
- Documented data-driven findings and presented recommendations to the engineering team, enabling informed decision-making for Hybrid Energy System design.

Here Technologies (Internship: 2023)
- Developed machine learning pipeline using XGBoost to classify geospatial location records with 94% accuracy; improved map coverage accuracy by 25% across EMEA regions through systematic feature engineering and hyperparameter tuning.
- Optimized data pipelines processing location data from multiple sources using Apache Spark and custom ETL frameworks; reduced validation latency by 30% and data quality issues by 25%.
- Built anomaly detection algorithms to identify and flag duplicate locations and inconsistencies across 500K+ records; implemented automated QA ensuring accuracy before production deployment.
- Collaborated with product and engineering teams analyzing location patterns and coverage gaps; contributed data-driven insights informing product decisions for key clients.

Ekant Solutions (Full Time: 2025)
- Contributed to the Game Management System powering the Kho Kho World Cup in India supporting 23 nations, 39 international teams, 615+ players; optimized data pipelines processing 10K+ match records aggregating player performance metrics (win rates, match statistics, team dynamics) enabling real-time tournament analytics.
- Engineered scalable backend architecture for team management module with optimized PostgreSQL schemas and REST APIs managing 39 team rosters, group assignments, and match pairings.
- Designed interactive Power BI dashboards with visualizations displaying player statistics, team rankings, and live tournament standings..
- Implemented data validation and quality assurance frameworks using Python and SQL constraints to ensure accuracy of player records and match data, improving data reliability by 25% across the entire tournament dataset.

TECHNICAL SKILLS

- **Programming:** Python, SQL, R, C++, MATLAB, TypeScript, JavaScript
- **Data Science & ML**: TensorFlow, Keras, PyTorch, Scikit-learn, XGBoost, NumPy, Pandas, Feature Engineering, Statistical Analysis, A/B Testing, Graph Neural Networks
- **Data Visualization & BI:** Power BI, Tableau, Matplotlib, Recharts:
- **Web & Backend**: Next.js, FastAPI, React
- **Databases**: PostgreSQL, Advanced SQL
- **Data Processing**: Scrapy, Selenium, Beautiful Soup, ETL Pipelines
- **Tools**: Docker, GitHub, Jupyter, Vercel, Railway, MongoDB

ACADEMIC/ EXTRA CURRICULAR ACTIVITIES

- **Gold Medal** - IBM 2022 Technical Presentation Competition for best AI/ML project demonstrating innovation in emerging technologies.
- **IIT Cognizant Tech Conference & Exhibition 2022** - Selected presenter showcasing technical work to industry professionals, students, experienced professors, renowned speakers, and eminent personalities.
- **2nd Runner-Up** - Hyper Vision Hackathon: Ranked in top 3 among 100+ teams competing in 24-hour sprint event with real-world problem-solving challenges.
- **Mathematics & Science Excellence** - District-level recognition for academic excellence in quantitative disciplines foundational to data science.
- **Sports & Leadership** - District-level table tennis player and team captain, demonstrating discipline, strategy, and team coordination skills transferable to collaborative technical environments.

PROJECTS

Nexus Risk Platform - Supply Chain Risk Prediction AI   (https://nexus-risk-platform-vedq.vercel.app/)

- Developed ensemble ML models (Random Forest + Graph Neural Networks) predicting supply chain disruptions on Taiwan-to-US corridor; optimized GNN with 2-3 convolutional layers and attention mechanisms, achieving 94% accuracy, 92% precision, 89% recall, 90.5% F1-score (23% improvement over baseline).
- Built data pipeline processing 100K+ daily points from 3+ sources (MarineTraffic AIS, OpenWeatherMap, GDELT); engineered 15+ domain features (speed anomalies, weather indices, congestion ratios, sentiment scores); enabled continuous retraining with Pydantic validation and PostgreSQL.
- Engineered GNN analyzing 500+ port nodes for cascading failure detection; addressed data imbalance (10:1 ratio) with SMOTE + class weighting, boosting minority recall from 68% → 89%.
- Implemented Explainable AI using Integrated Gradients + SHAP values; generated natural language risk narratives for stakeholder decision-making.
- Deployed interactive Next.js dashboard with real-time sync, geospatial visualization, scenario modeling API on Vercel/Railway; CI/CD automation with model monitoring and retraining triggers.

TruthLens - Real-Time AI-Powered NLP Based Misinformation Detection Engine (https://truth-lens-tau.vercel.app/)

- Architected AI-driven verification pipeline integrating Google Gemini with 50+ global news sources, automating sentiment analysis and credibility scoring across 5 distinct truth categories (Likely Accurate, Misleading, Satire, Unverified, False).
- Engineered dual-mode analysis system combining forensic fact-checking (keyword extraction, entity verification) and contextual stance detection to reconcile conflicting reports into unified, confidence-weighted verdicts.
- Implemented privacy-first, zero-retention architecture synthesizing real-time reports from tier-1 outlets (Reuters, AP, BBC) into probabilistic truth scores without user tracking or persistent data storage.
- Deployed high-performance serverless architecture on Vercel with custom Express.js proxy layer, achieving sub-second response times while ensuring secure cross-origin communication between static frontend and global news APIs.

RoboDoc - ML-Powered Health Diagnosis System

- Led team of 4 building health prediction systems using Random Forest and TensorFlow neural networks; achieved 92% accuracy on 5K+ medical benchmark records through cross-validation and hyperparameter tuning.
- Implemented end-to-end ML pipeline: data preprocessing (missing value handling, outlier detection), feature engineering (symptom encoding, medical history normalization), model training with 5-fold cross-validation, and hyperparameter optimization.
- Designed Svelte web dashboard with interactive treatment recommendations, medical history visualization, and confidence score indicators for clinician review; integrated Flask REST API for real-time diagnosis serving.

A.I.T.I.A-Autonomous Investigation & Treatment of Infrastructure Anomalies (huggingface.co/spaces/veerryait/A.I.T.I.A)

- Built a Causal Inference Engine using Python and DoWhy (PC Algorithm) to model infrastructure failure dependencies as Directed Acyclic Graphs (DAGs), achieving a 5% False Positive Rate by statistically isolating root causes from spurious correlations.
- Engineered a Cloud-Native Control Plane on Hugging Face Spaces (Docker) integrating Llama-3-70B (Groq API) and ChromaDB for RAG-based incident diagnosis, mapping physical hardware symptoms to microservice latency metrics.
- Developed Non-Linear Forecasting Models using Scikit-Learn (Polynomial Regression) to predict Time-Series SLO breaches 30 minutes in advance, enabling proactive remediation of memory leaks and queue saturation.
- Implemented Active Learning (RLHF) loops and a deterministic Safety Guardrail system to validate autonomous CLI commands, ensuring Level 3 Autonomy safety for automated remediation actions.
- Tech Stack: Python 3.11, FastAPI, Causal Inference (DoWhy), LLM Agents (Llama-3), Vector Search, Streamlit, Docker, GitOps.