

# Akansh Tyagi

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## EDUCATION

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### IIT Madras

BS in Data Science and Applications

July 2022-2026

## PROJECTS

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### World Cup Data Analytics - Cricket Analysis | *Python, Web scrapping, Pandas, Power BI*

- Created a Power BI report to identify top 11 players for a T20 cricket team by scraping data from ESPNcricinfo with a Brightdata website tool, cleaning and transforming the data with pandas, and evaluating various player performance metrics.
- Used the resulting Power BI dashboard to select players for various categories (openers, middle order/anchors, finishers, all-rounders, specialist fast bowlers) and ultimately choose the top 11 players to play in the match.
- Selected team using the Power BI dashboard has 90% of chances to win the game. Implemented A/B testing and dashboards to track CTR (Click-Through Rate), latency, and zero-result rates.

### Movie Recommendation System | *Machine Learning, NLP, Python*

- Content-based recommender for 5,000+ TMDB titles using Python and scikit-learn, delivering sub-second, highprecision suggestions.
- Applied NLP (CountVectorizer, cosine similarity) to consolidate genres, cast, keywords, and achieving 95%+ accuracy in blind tests.
- Deployed Streamlit app with real-time TMDB API integration for dynamic poster display and user interaction.
- Managed end-to-end ML workflow: JSON parsing, feature engineering, model serialization, and web deployment.

### Hybrid Search & Recommendation Engine | *Elasticsearch, FastAPI, ML*

- Combined BM25 keyword search with vector embeddings to improve relevance.
- Implemented personalized recommendations and typo-tolerant semantic queries.
- Implemented A/B testing and dashboards to track CTR (Click-Through Rate), latency, and zero-result rates.

### Order & Inventory Management System | *Microservices, Kafka, FastAPI, PostgreSQL*

- A microservices-based Order & Inventory system with Kafka event streaming, achieving sub-100ms processing.
- Designed REST APIs using FastAPI and Swagger UI, cutting integration effort by 40%.
- Automated dev and deployment using Docker Compose and Poetry, reducing setup time by 60%.
- A cloud-ready architecture deployable on AWS ECS (Elastic Container Service)/Kubernetes for horizontal scaling.

## TECHNICAL SKILLS

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- **Languages & Data Management:** Python, SQL (PostgreSQL)
- **Machine Learning & Deep Learning:** TensorFlow, PyTorch, Keras, Scikit-learn, Deep Learning, Gradient Boosting, Model Validation, Cross-Validation
- **Natural Language Processing:** NLP, Text Analysis, Semantic Search, Feature Engineering
- **Statistical Analysis & Modeling:** Exploratory Data Analysis (EDA), Statistical Modeling, Hypothesis Testing
- **Data Visualization & Analytics:** Matplotlib, Seaborn, Power BI
- **Frameworks & Libraries:** FastAPI, Flask, Pandas, NumPy
- **Tools & Infrastructure:** Docker, Kubernetes, Elasticsearch, Git, Jupyter Notebook, Google Colab, Poetry,
- **Specializations:** Machine Learning Model Development, Model Risk Management, Risk Assessment, , Recommendation Systems, Model Interpretability, Production Deployment, Payment Systems Integration, Web Scrapping, DBMS