

Data Science: Introduction & Industry Research

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Transportation Industry

e.g. Navigation, Ridesharing, Intelligent Transportation, Airline Operations, etc.



Encompasses both **private and public transportation** services that **move people or goods by land, sea, air, and space**. Tech and data has been continuously leveraged.

It helps make things faster and more efficient. Data helps transportation become **smarter, safer, and more convenient** for everyone.

Skills & Tools

- ML & Data Engineering
- Python, R, SQL, Java; cloud (AWS, Azure, GCP);
- GIS & Visualization

Specific Use Cases

- Traffic Flow Prediction for Smart Traffic Lights Using Machine Learning Algorithms
- A Predictive Control for Autonomous Vehicles using Big Data Analysis
- Predictive Pricing Model for Shared Economy Ride Applications: Incorporating Latest Data and Factors
- Predictive Analytics for Enhanced Passenger Satisfaction in the Airline Industry: Leveraging Machine Learning to Drive Strategic Decision-Making

Entertainment Industry



e.g. Trending Music Spotting, Gaming Cheaters Detection, Content Recommendation, Audience Analytics, etc.

Wide range of sectors including **film, television, music, gaming, live performances, streaming services, and social media content.**

Today, it is driven largely by data and advanced analytics. Data science plays an influential role in **how entertainment is created, distributed, and consumed** today.

Skills & Tools

- ML & NLP Expertise
- Python, R, SQL, JavaScript; cloud, Spark, Hadoop
- Data & Media Tools

Specific Use Cases

- Netflix Bigdata Analytics - The Emergence of Data Driven Recommendation
- Real-Time Music Recommendation System Integrating PySpark and Kafka for Enhanced User Experience
- Movie Industry Economics: How Data Analytics Can Help Predict Movies' Financial Success
- Interdisciplinary Data Analytics Transforming Influencer Marketing Strategies

Fashion Industry



e.g. Predicting Trends, Managing Stock and Supply, Personalized Shopping, Finding Clothes with Images, etc.

Includes everything from **designing and production of clothes to selling them in stores or online**. It moves fast and changes often, based on what people like.

Data science helps brands understand what customers want, what styles are trending, how to manage stock, and give better shopping experiences.

Skills & Tools

- AI & Prediction
- Python, R, SQL, Java; cloud (AWS, Azure, GCP)
- Visualization & Tech

Specific Use Cases

- Data Mining and Augmented Reality: An Application to the Fashion Industry
- Style in the Age of Instagram Predicting Success within the Fashion Industry using Social Media
- Supplier Prediction in Fashion Industry Using Data Mining Technology
- Predictive Trend Analysis in Fashion: Leveraging Machine Learning for Forecasting Styles and Consumer Preferences

Government



e.g. Public Health Surveillance, Fraud Detection and Risk Assessment, Security and Law Enforcement, etc.

Public services e.g. **administration, law enforcement, urban planning, healthcare, transportation, and citizen relations.**

With the vast amount of data collected from citizens and systems, **data-driven governance is possible for proactively addressing societal needs.**

Governments can predict trends, prevent crises, and allocate resources efficiently.

Skills & Tools

- Advanced Analytics & ML
- Geospatial & Visualization
- Full-Stack Data Tools

Specific Use Cases

- E-Government with Big Data Enabled through Smartphone for Public Services
- Big Data-Driven Public Policy Decisions: Transformation Toward Smart Governance
- A Framework for Fraud Detection in Government Supported National Healthcare Programs
- Leveraging AI, Machine Learning, And Big Data For Enhancing Tax Compliance, Fraud Detection, And Predictive Analytics In Government Financial Management

Agriculture Industry

e.g. Crop Prediction, Soil & Weather Monitoring, Pest & Disease Detection, Market Price Forecasting, etc.



The industry that **grows the food we eat and the raw materials we use every day**. Includes **farming, livestock, fisheries**, and more.

Data science can help agriculture become more **productive, sustainable, and efficient by reducing guesswork for farmers**, help grow more food with fewer chemicals, protects the environment, and improves food quality and safety.

Skills & Tools

- AI & Analytics
- Geospatial & Remote Sensing:
- Python, R, SQL; Spark, Hadoop, AWS, Power BI.

Specific Use Cases

- Smart Weather Data Management Based on Artificial Intelligence and Big Data Analytics for Precision Agriculture
- Data mining and wireless sensor network for agriculture pest/disease predictions
- LiveCare: An IoT-Based Healthcare Framework for Livestock in Smart Agriculture
- Time series forecasting of price of the agricultural products using data science
- WB-CPI: Weather Based Crop Prediction in India Using Big Data Analytics