

Applied Multimodal AI and Data Mining for Competitive Intelligence Training

30 May – 3 June 2027
Johannesburg

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Training Center

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Ref: 2219_262383 **Date:** 30 May – 3 June 2027 **Location:** Johannesburg **Fees:** 4500 Euro

Overview

Applied Multimodal AI and Data Mining for Competitive Intelligence Training is an advanced one-week technical training program designed for professionals seeking practical expertise in Python-based data engineering, machine learning, multimodal artificial intelligence, and automated AI systems.

Participants learn to develop practical solutions for extracting, processing, and analyzing information from diverse sources, including text, audio recordings, videos, and market datasets. Through practical applications using Python, Natural Language Processing NLP, computer vision, Large Language Models LLMs, and predictive analytics, participants develop an integrated Multimodal Competitive Intelligence Pipeline Prototype to support market monitoring, analytical research, and data-driven decision-making.

Agile Leaders Training Center delivers this course to strengthen the analytical and technical capabilities of professionals across modern business organizations, enabling them to apply advanced AI technologies to competitive intelligence analysis and strategic insight generation.

Who Should Attend

- Teams responsible for strategic intelligence gathering and market competitor monitoring.
- Specialists in enterprise data mining and predictive analytics model development.
- Professionals responsible for processing unstructured multimodal data and feature extraction.
- Teams responsible for commercial risk monitoring and automated market surveillance.
- Computer Science Graduates, Data Engineers, and Technical Analysts developing AI-powered intelligence solutions.

Departments and Industries

- Corporate Strategy, Market Intelligence, and Business Development Departments.
- Telecommunications, Software Development, and Digital Services Companies.
- Commercial Banks, Asset Management Firms, and Financial Investment Institutions.
- Supply Chain, Retail Distribution, and Multinational Logistics Organizations.
- Healthcare Technology Companies, Pharmaceutical Manufacturers, and Clinical Research Organizations.

Learning Objectives

By the end of this course, participants will be able to:

- Develop automated pipelines for collecting and processing multimodal data using Python and Application Programming Interfaces APIs.
- Apply Natural Language Processing, speech recognition, and computer vision techniques to competitive intelligence analysis.
- Integrate multimodal Large Language Models, vector databases, and Retrieval-Augmented Generation RAG techniques.
- Build machine learning models for market trend forecasting and anomaly detection.
- Develop AI-powered applications for automated intelligence extraction and analytical reporting.
- Deploy and optimize multimodal AI pipelines while implementing appropriate security controls and data governance practices.

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Course Agenda

Day 1: Advanced Multimodal Data Engineering and Competitive Intelligence Collection

- Multimodal Data Collection Using Python, REST APIs, and Web Scraping Techniques.
- Automated Extraction of Competitor Data from Websites, Reports, and Market Databases.
- Processing Unstructured Text, Audio, Video, and Financial Data Using Python.
- Data Cleaning, Transformation, and Feature Engineering Using Pandas and NumPy.
- Practical Exercise: Build an Automated Competitive Intelligence Data Collection Pipeline.

Day 2: Advanced Natural Language Processing, Computer Vision, and Audio Analytics

- Natural Language Processing Using Transformer Models and Semantic Text Analysis.
- Speech-to-Text Conversion and Financial Earnings Call Analysis Using Whisper.
- Computer Vision Applications Using OpenCV and Pretrained Vision Models.
- Customer Sentiment Analysis, Topic Modeling, and Emerging Market Trend Detection.
- Practical Exercise: Develop a Multimodal Sentiment Analysis and Competitor Monitoring System.

Day 3: Multimodal Large Language Models and Cross-Modal Intelligence Integration

- Multimodal Large Language Model Architectures and Vision-Language Model Integration.
- Text and Image Embeddings, Vector Databases, and Semantic Similarity Search.
- Retrieval-Augmented Generation RAG for Competitive Research and Intelligence Reporting.
- Cross-Modal Information Retrieval and Automated Evidence and Source Verification.
- Practical Exercise: Develop an AI-Powered Research Intelligence Application Using Open-Source Large Language Models.

Day 4: Predictive Analytics and Automated Market Signal Detection

- Machine Learning Models for Market Trend Forecasting and Competitive Pattern Recognition.
- Anomaly Detection and Early Warning Indicators Using Scikit-learn.
- Automated Competitor Pricing Analysis and Market Movement Detection.
- Model Performance Evaluation, Data Drift Detection, and Analytical Reliability Measurement.
- Practical Exercise: Build a Predictive Competitive Intelligence Monitoring System.

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Day 5: Advanced Multimodal AI Pipeline Development and Deployment

- End-to-End Integration of Multimodal Data Processing and Artificial Intelligence Models.
- Python-Based API Integration and Automated Intelligence Pipeline Orchestration.
- AI Model Performance Optimization, Processing Speed Improvement, and Computational Resource Management.
- Implementing Data Privacy Controls, Access Management, and Secure AI Solution Deployment.
- Final Practical Workshop: Develop and Demonstrate an Integrated Operational Multimodal Competitive Intelligence Pipeline.

Practical Exercises

- Build Python-based pipelines to extract and process competitor information from public websites, APIs, and corporate reports.
- Apply speech recognition and sentiment analysis techniques using publicly available financial earnings call recordings.
- Develop an AI-powered document intelligence application using embeddings, FAISS, and locally hosted open-source language models.
- Build predictive models to detect competitor pricing changes, market anomalies, and emerging commercial trends.
- Integrate text, audio, and visual intelligence into an end-to-end automated analytical workflow.

FAQs

Who should attend Applied Multimodal AI and Data Mining for Competitive Intelligence Training, and what are the prerequisites?

This course is designed for data analysts, data engineers, computer science graduates, and competitive intelligence professionals with working knowledge of Python, data analysis, and basic statistical methods.

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How does this course differ from traditional Business Intelligence programs?

Applied Multimodal AI and Data Mining for Competitive Intelligence Training focuses on processing unstructured video, audio, and text data and applying cross-modal neural analysis. Traditional Business Intelligence programs primarily emphasize relational database queries and visual dashboards based on structured datasets.

What types of data and modalities are covered in this course?

The course covers unstructured text, images and spatial information, video content, corporate audio recordings, and transactional signals. Their features are integrated into unified vector representations to support analysis and intelligence extraction.

How are data protection and regulatory compliance integrated into the course?

Data protection is addressed through secure information collection, access controls, privacy-aware data processing, and responsible deployment practices within multimodal AI pipelines.

Conclusion

Participants complete the course by developing a functional Multimodal Competitive Intelligence Pipeline Prototype integrating Python-based data extraction, Natural Language Processing, computer vision, Large Language Models, and predictive analytics.

Through practical technical applications, participants develop the capabilities to automate competitive intelligence collection, analyze complex market signals, identify competitive patterns, and generate actionable analytical insights to support strategic decision-making within their organizations.