

Thursday
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Campus scientifico
Via Torino 155, Mestre

AIMO – Artificial Intelligence for Touristic Motion Analysis

AI-based RAG Engine for Tourism & Mobility Data Integration

The growing need to understand and anticipate tourism dynamics relies increasingly on the use of advanced territorial data. In this context, geospatial data, TELCO data (Vodafone) and statistical indicators play a crucial role in analyzing preferences, flows, points of interest, and mobility patterns. Integrating and interpreting these

sources through AI techniques enables the generation of forecasts, the evaluation of scenarios and the support of tourism planning and management strategies. AIMO addresses this challenge by developing an AI engine dedicated to analyzing and predicting tourist behavior, built upon certified data and intelligent models.

An AI-based system capable of integrating heterogeneous territorial datasets and producing data-driven insights, analytical evaluations, and predictive forecasts for advanced tourism planning



System Modules

INPUT – Data Sources

Information streams feeding the AI engine

- Vodafone data: mobility flows, presence patterns, origin/destination matrices
- ISTAT data: official statistics on tourism, population and accommodation facilities
- Google data (POI / Reviews): points of interest, territorial context, reviews and user perception of places

AIMO – AI ENGINE

Integrated AI for tourism and mobility

- Combines RAG, API-based access to structured data and predictive models
- Operates exclusively on certified datasets (Vodafone, ISTAT, Google)
- Generates insights, analyses, and forecasts for territorial planning

GPT CUSTOM – Decision & Interaction Layer

The system's conversational and decision interface

- Interprets user queries in natural language
- Decides whether to use RAG or structured data through Agent using Actions OpenAI
- Applies rules, constraints, and style defined in the operational prompt

OUTPUT – Answer & Insights

Machine Learning models to anticipate tourism dynamics

- Predictive analysis to estimate daily tourism demand in specific areas, supporting efficient resource allocation, capacity planning and visitor flow management
- Lasso Regression and Random Forest models trained on Vodafone data to generate accurate and data-driven demand forecasts.

AI-DRIVEN REVIEW ANALYTICS NLP & LLMs

Advanced text analysis to understand tourism behaviors

- Embedding and clustering of Google Reviews for sentiment analysis, text classification, and structured feature extraction
- Identifies tourist preferences and perceptions through automated summarization and semantic analysis

DATA WAREHOUSE – Integrated Territorial Model

Organizes and harmonizes territorial data

- Multidimensional model described via XML
- Integrates Vodafone, ISTAT, and Google data into coherent analytical views
- Supports analysis across areas, periods, and types of demand and supply

RAG CORPORA - Internal Knowledge Base

Documents and structured knowledge supporting the AI

- Glossaries, guidelines, operational instructions
- Technical documentation and derived datasets

PREDICTIVE MODELS – ML-based Forecasting

Tools for strategic planning and decision-making

- AI-generated answers and dashboards addressing complex queries
- Indicators, territorial comparisons, maps, and trend analyses
- Decision support for tourism and mobility policies