

Galileo.XAI

THE INSIGHT DATA PLATFORM FOR EXPLAINABLE AI

A Revolutionary Approach Based on Connected Data Science & Graphs

BENEFITS AT A GLANCE

- Make better decisions by analysing ALL available data connected in one place
- You can scan your data and automatically identify clusters to find patterns of interest
- Identify high value entities via easy risk scoring
- Graph visualization enables you to identify hidden relationships and view large networks of interconnected objects
- You can easily analyse your data through an Intuitive Visual Interface
- Explainable artificial intelligence, always Human Centered Analysis
- Minimal setup is required to deploy and operate
- Cloud Native by design
- Cloud IT security guaranteed by certifications 27001 \27017 27018 iso\iec
- Create analyses and reports that can be shared with the team
- Fast response, even with billions of records
- Produce repeatable results: instantly save and re-run analyses

OUR EXPERIENCE FOR YOUR DATA

Artificial intelligence usually works on unconnected data, but why not also considering the relationships that exist between these data? It works even better!

Thanks to decades of experience accumulated by LARUS, Galileo.XAI uses graphs as an input for AI algorithms and is able to make predictions by capturing feedbacks capable of fueling improvement processes.

So, this solution overcomes the difficulties that today prevent us from translating knowledge into action.

In LARUS we know very well how human beings are born to reason by associations, links and relationships, hence we are sure that only graphs are the right representation for complex data analysis at scale.

Galileo.XAI, through Network Science and Graph Visualization, helps to simplify what is complex, allowing you to discover business insights in an easy and intuitive way.

INSIGHT DATA PLATFORM

Through sophisticated components of Graph Visualization, Artificial Intelligence, Natural Language Processing, Big Data Analytics and Network Science,

Galileo.XAI is able to:

- Simplify the understandability of big data through graphs.
- Enable the business to obtain the information to make better decisions about its points of weakness and the most pressing opportunities.
- View information in a clear way and highlighting links and relationships between data.
- Making predictions in a human centric way with the help of explainable artificial intelligence.

A VISUAL REPRESENTATION OF DATA, IN THE FORM OF GRAPHS, HELPS US GAIN ACTIONABLE INSIGHTS AND MAKE BETTER DATA DRIVEN DECISIONS.

GALILEO.XAI CORES

POWERED BY GRAPHS

Graphs provide a better way of dealing with abstract concepts like relationships and interactions. They offer an intuitive visual way of thinking about these concepts.

Graph Theory is used to study and model Social Networks, Fraud patterns, Power consumption patterns, virality and Influence in Social Media.

From a Computer Science perspective – Graphs offer computational efficiency. The Big O complexity for some algorithms work better for data arranged in the form of a graph (compared to tabular data).

Traditional databases allow you to see blocks of facts – but if you want to find out how they're connected, you need to work harder to perform some analysis. If you're dealing with a large amount of data this can take significant time and effort.

Key benefits of using graph networks for link analysis:

- **Intuitive and easy to use:** Our brains love visualization – over 50% of the brain is involved in visual processing, so a graph network is inherently easy to understand.
- **Insightful and powerful:** Reveal hidden connections between data to define and assign different profiles to users or find pattern and use this information to feed AI algorithms and get predictions.
- **Save time on analysis:** Spend less time on manual scanning and analysis to discover and identify trends, and get an always up-to-date picture of your data.

EXPLAINABLE ARTIFICIAL INTELLIGENCE

Organizations are relying more and more on Artificial Intelligence (AI) and machine learning models. This leads to increasing attention on the reliability, correctness and ethics of the results: Artificial Intelligence has to be explainable and above all it must be understandable to end users.

Today most machine learning applications do not allow you to understand the operations and the basis of algorithms, making machine learning a kind of black box.

Explainable Artificial Intelligence (XAI) was born as a direct consequence of the need to give an answer to this issue, with a set of techniques and approaches useful for understanding, presenting and providing a transparent view of AI models, thus infusing greater confidence in the algorithms used and giving important feedbacks for improving results.

For these reasons, among the fundamental characteristics of Galileo.XAI there is the explainability of the AI models results. **Because analytics and artificial intelligence should help, but not completely replace, human experience and understanding.**

BUSINESS-FRIENDLY INTERFACE

Galileo.XAI is a platform with an interface designed to allow the users to connect with technology.

It is an easy-to-use graph data platform, in fact it requires minimal explanation on its usability even for non-technical users.

It allows collaboration on analysis creation which helps improve teamwork and time management.

Galileo.XAI is not overly complex, but instead is straightforward, providing quick access to common features or commands. It has a well-organized front-end, making it easy to locate different tools and options.

- Galileo.XAI is:**
- Simple to install
 - Easy to update
 - Intuitive
 - Easy to troubleshoot
 - In line with standards
 - an effective error handler
 - Efficient
 - Pleasant, easy-to-navigate
 - Easily integrated

GRAPH DATA CLOSSES THE GAP BETWEEN HUMANS AND MACHINES

FUNCTIONALITIES

Galileo.XAI, nomen omen, follows the modern empirical-experimental scientific method introduced by Galileo Galilei which provides: the formulation of hypotheses, the deduction of observational consequences of the hypotheses and verification as an empirical control, trying to lead reality to a quantitative mathematical fact like data-driven decisions.

• Business Understanding:

Business Understanding consists of a precise specification of the problem together with evaluation methods on how to achieve the goals.

Galileo.XAI allows the user who has already formulated a series of hypotheses, to encode them in the system (which will automatically provide the evidence), and the user who still has to formulate these hypotheses, to analyse their data through the Discovery and Graph Data Science sections to formulate them.

• Knowledge extraction

Knowledge extraction is the creation of knowledge from structured and unstructured sources (find anomalies, extracting and discovering patterns and correlations)

Galileo.XAI, through the Database section, imports structured and unstructured data (also using a natural language structure - NLP -) to build the database that will constitute the Knowledge Graph on which knowledge will be extracted, as well as creating both BTREE and FULLTEXT indexes to speed-up your researches and enhance your filtering

• Data Quality

Data quality is a measure of the condition of data based on factors such as accuracy, completeness, consistency, reliability and whether it's up to date.

The presence of poor data quality is a real business problem that negatively affects the effectiveness of critical decisions made by companies. To address this issue, Galileo.XAI offers functionalities of verification and continuous Improvement of Data Quality.

• Data Exploration

Data exploration is the first step of data analysis used to explore and visualise data to uncover insights from the start or identify areas and patterns to dig more into.

Galileo.XAI provides significant statistics and a complete set of Graph Visualization features that allow you to investigate the data interactively, also capturing the temporal dimension, in fact the knowledge Graphs are rarely static and, as networks, they evolve dynamically following the connections.

• Graph Data Science

Graph Data Science is a science-driven approach to gain knowledge from the relationships and patterns in data, typically to power predictions

Galileo.XAI allows the user to easily build very dynamic and complex pipelines. Combining network science algorithms, the user can find the most important nodes, cluster them into meaningful groups, find the best paths and much more. Graph algorithms have a proven applicability in many areas. If graphs are the best way to represent complex systems, graph algorithms in Galileo.XAI are the Swiss Army knife to uncover unknown dynamics from them.

• Feature Engineering

Feature engineering is the process of using domain knowledge to extract features (characteristics, properties, attributes) from raw data. Features are used by predictive models and influence results.

Galileo.XAI, through the Discovery section and Graph Visualization, allows the identification and the building of different features that enables the user to train models and configure Machine Learning algorithms.

• Predictive Modeling

Predictive modeling is a commonly used statistical technique to predict future behaviour.

Galileo.XAI offers a Predictive Modeling Solution, a form of knowledge extraction technology that works by analysing historical and current data and by generating a model to help predict future outcomes. It may have a great impact on many business scenarios helping reducing costs or increasing profits.

• Data Visualization

Data visualization is a way of representing information graphically, highlighting patterns and trends in data and helping the reader to achieve quick insights.

Galileo.XAI allows the user to understand the outputs, making them explainable and reliable through sophisticated visual representation techniques. These outputs, once validated, enrich the starting Knowledge Graph, transforming themselves into new knowledge useful to make the right business choices.

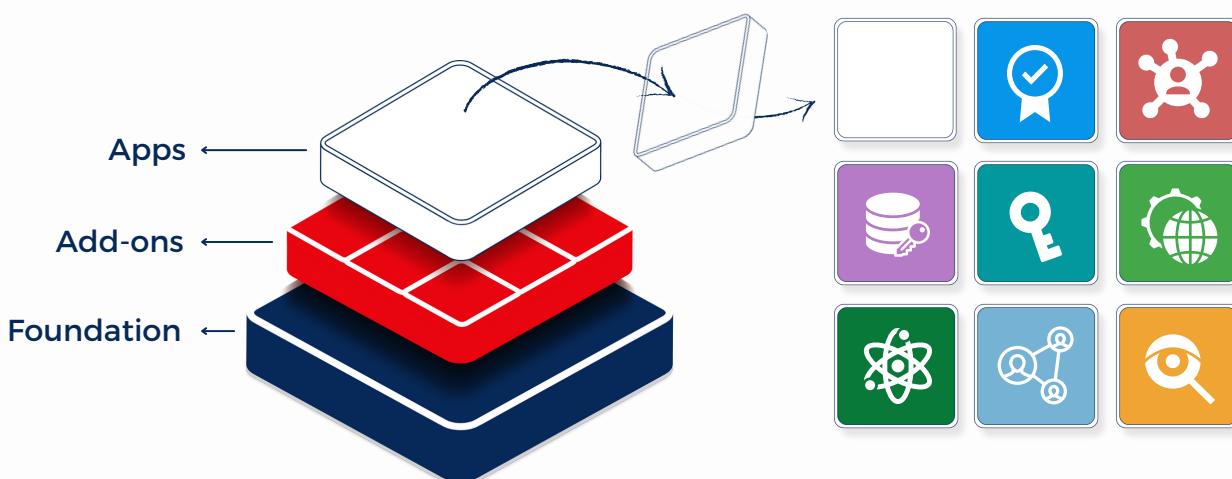
GALILEO.XAI DESIGN

GALILEO.XAI IS CONFIGURED AS A PRODUCT BASED ON A MODULAR DESIGN WITH 3 LAYERS, THEREFORE THE AREAS OF USE OF THIS SOLUTION CAN BE CONSIDERED INFINITE, IN THE MOST VARIED MARKET SEGMENTS.

Galileo XAI foundation is identified as an Insight Data Platform. It uses state-of-the-art graph-related technologies and it can be extended with:

- Additional components (mid layer) composable by the users themselves by buying additional components or modules from the marketplace to benefit from more features.
- Apps (top layer) where you have the most common use cases in the form of micro applications, tailored with ad-hoc functionalities. This Apps are totally custom, fully tailored on customer needs; and built with Structr (low-code approach).

YOUR CHALLENGE, OUR SOLUTION!



Business domain experts benefit from the insights generated by the underlying graph-based algorithms and Explainable Artificial Intelligence with dedicated features, specifically designed for their business challenge.

DISCOVER ALL OUR APPS AND FIND THE SOLUTION TO YOUR BUSINESS PROBLEM! YOU CREATE THE CHALLENGE AND GALILEO.XAI PROVIDES YOU WITH THE SOLUTION.

- **FRAUD DETECTION**
- **RECOMMENDATION**
- **MASTER DATA MANAGEMENT**
- **IDENTITY AND ACCESS MANAGEMENT**
- **CUSTOMER ANALYTICS**
- **LIFE SCIENCE**
- **IT ASSET MANAGEMENT**
- **SOCIAL NETWORKS ANALYSIS**

LARUS helps clients to build custom data solutions in order to optimize their decision-making process, boost profits and stay competitive.

In LARUS we create your exclusive software for business and we help companies all over the world by designing big data-driven platforms, based on the most innovative open-source technologies, thanks to a solid experience gained in different areas: governance, insurance, finance, industry, commercial and telco.

Do You Have Any Questions?

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