IDEA4RC

Intelligent ecosystem to improve
the Governance, the sharing, and the re-use
of health data for rare cancers

INFER
aI developmeNt Framework for hEalth oRganizations

MAY 21st, 2025

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement no. 101057048

Component

INFER – aI developmeNt Framework for hEalth oRganizations

Partner

ENG: Engineering – Ingegneria Informatica

Brief description

A web browser accessible IDE (*integrated development environment*) that presents to its users the full set of functions they need to collaboratively and effortlessly design, train, evaluate and deploy biomedical ML models, including management of datasets and data features. It is based on a FHIR server backend to store datasets and a Jupyter front-end that allows to effortlessly and collaboratively create virtual processing environments, define reusable features and feature sets, select patient cohorts and extract relevant data, conduct data analysis tasks.

Intended users

For biostatistical researchers who need a ready-made solution for investigating ML and AI models, without the need to manage low level infrastructural details.

Functionality

INFER offers the following functions:

1. **User Management**: Administrators can create, remove, edit, and reset researcher accounts.
2. **Environment Management**: Researchers can create, configure, share, and monitor AI development environments.
3. **Teams Management**: Researchers can create, modify, and delete teams for collaborative AI research.
4. **Models Management**: Researchers can automate Jupyter notebook creation, dataset injection, model predictions, and artifact management.
5. **Data Extraction Management**: Researchers can extract, format, and monitor patient data from a FHIR server.
6. **CSV Data Schema Management**: Researchers can create and manage reusable data schemas for extractions.
7. **Features Management**: Researchers can define, modify, and reuse features for structured data extraction.

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Comparison with competing approaches (business value)

With respect to the current state of the art, INFER offers the following advantages:

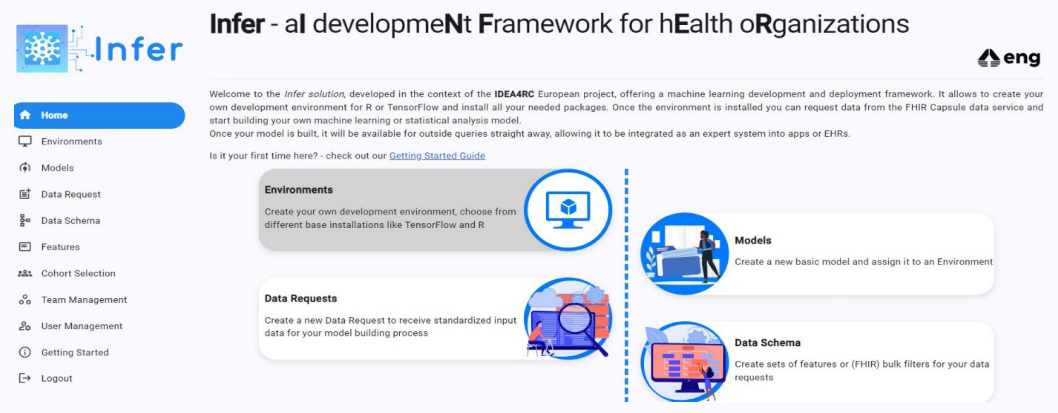
1. **Integrated AI Framework**: Combines model management with collaborative feature engineering.
2. **Control Center for ML Models**: Provides a backend framework for building and deploying AI models.
3. **Collaborative Feature Engineering**: Enables users to define and reuse features and feature sets for data extraction.
4. **Optimized Data Extraction**: Ensures structured and reusable data extraction for AI model training.
5. **Holistic AI Development**: Streamlines the entire lifecycle from data preparation to model deployment.
6. **Researcher: Focused Collaboration**: Fosters teamwork while maintaining control over both data and models. Once the personalised environment is set up, INFER is user-friendly for clinical

Development status

INFER has been implemented and alpha-tested.
It is available for registered beta-users.
A demonstration is available on demand.
The product is expected to be market available in a 2-years horizon.

Imagery

The IDE presents to its users a full set of functions they need to collaboratively and effortlessly design, train, evaluate and deploy biomedical ML models, including management of datasets and data features.



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