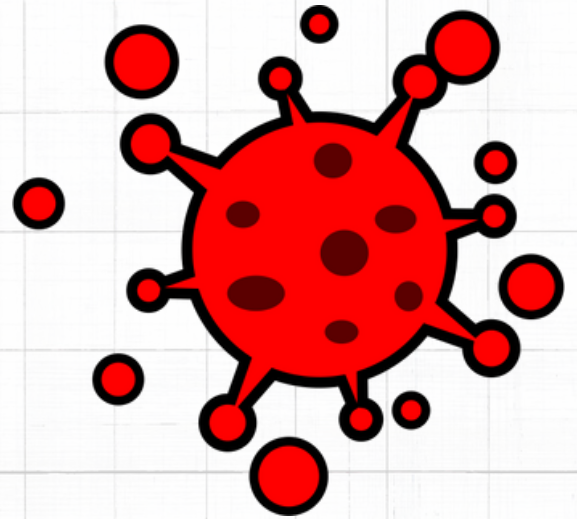




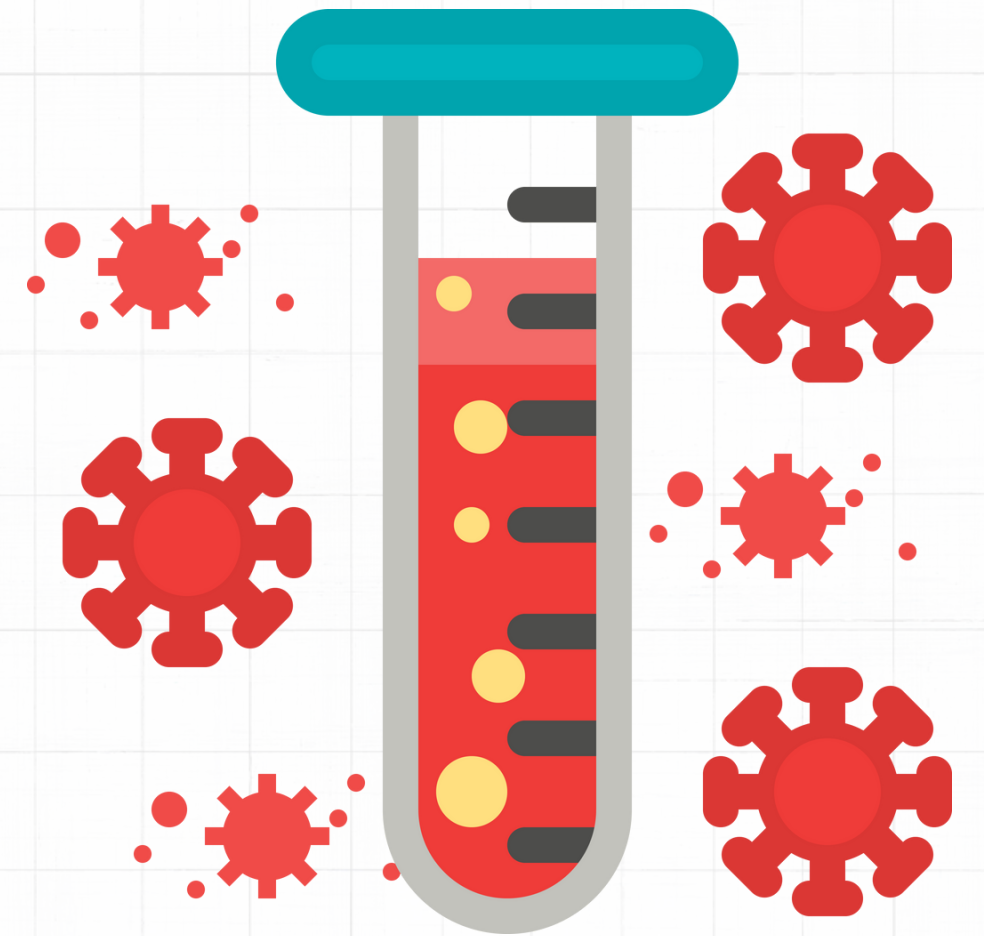
AutoAI-Pandemics

Democratizing Machine Learning



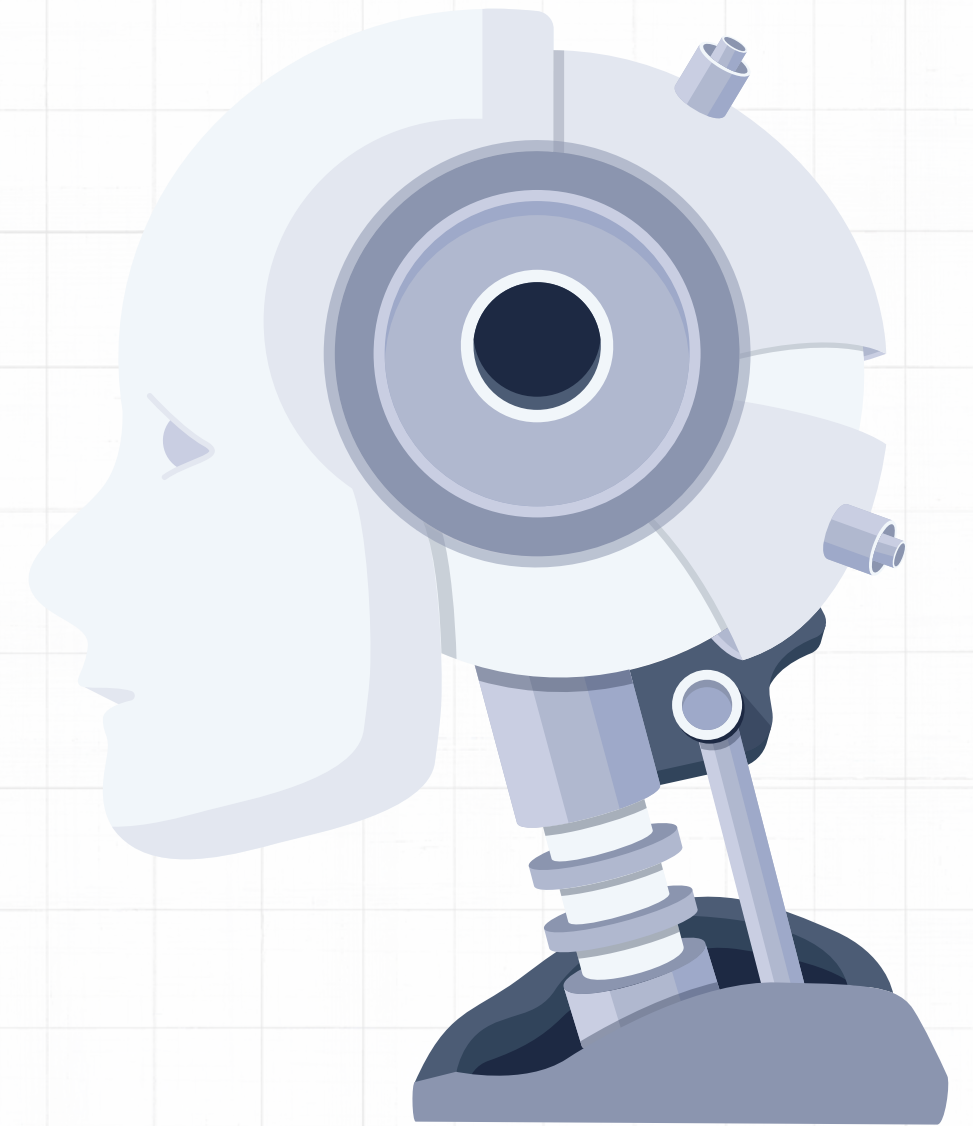
BACKGROUND

Infectious diseases, transmitted directly or indirectly, are among the main causes of epidemics, or even pandemics. Despite recent achievements, there are several open challenges in predicting epidemic outbreaks, detecting variants, contact tracing, discovering new drugs, and fighting misinformation. Artificial Intelligence (AI) can provide tools to deal with these scenarios, demonstrating promising results in the fight against the COVID-19 pandemic.



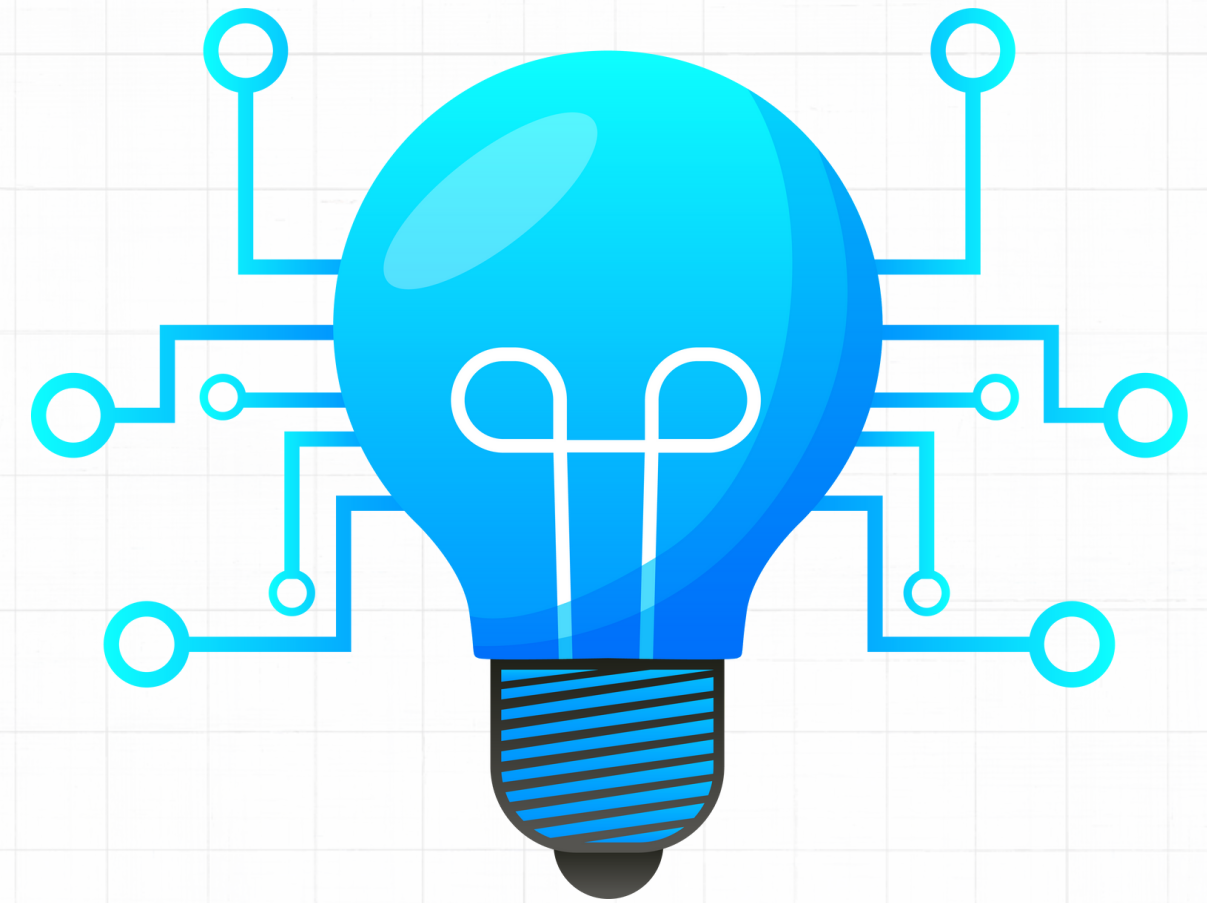
PROBLEMATIC

Although AI creates new opportunities, its proper use requires advanced knowledge of computing, statistics, and mathematics, restricting its use by public health professionals working with infectious diseases.



CHALLENGE

To develop an integrated and user-friendly platform that can be effectively employed by non-experts working with infectious diseases.



OUR PROPOSAL

A platform, called AutoAI-Pandemics, which provides the following solutions:

- 1 - Automated epidemiological analysis
- 2 - Automated bioinformatics analysis
- 3 - Fighting misinformation/disinformation

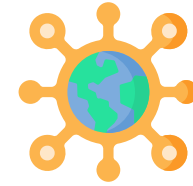


AutoAI-Pandemics



AutoAI-Pandemics

Solutions



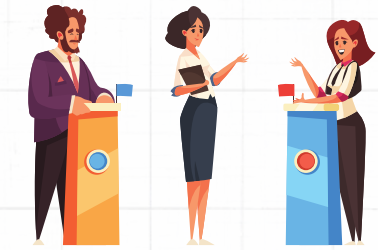
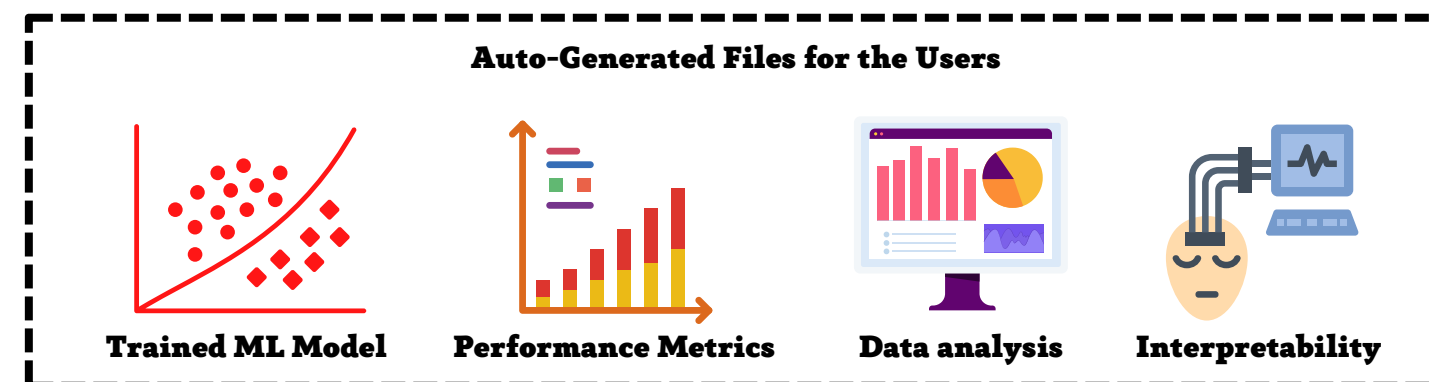
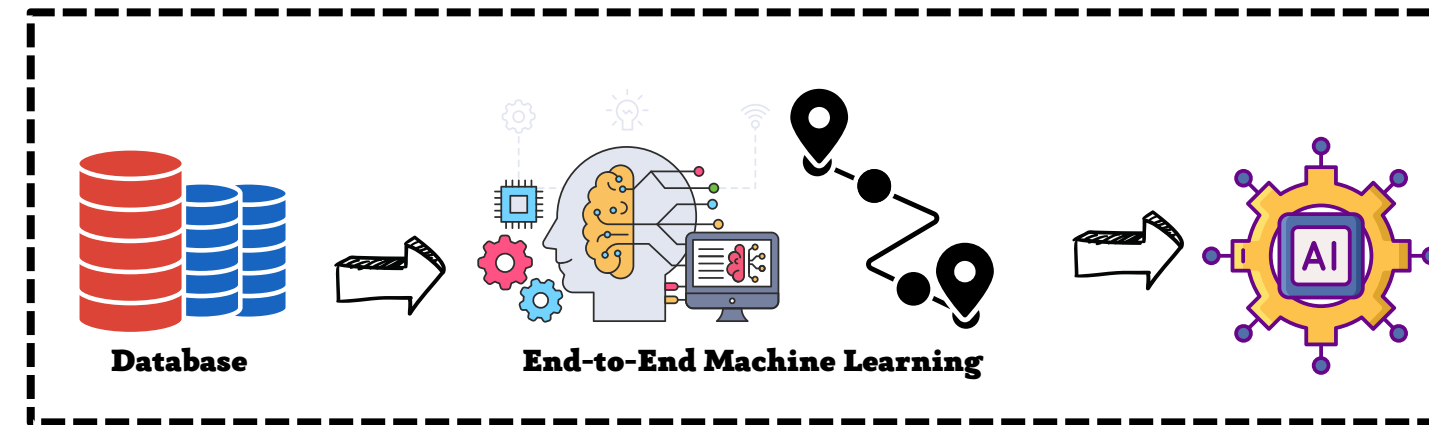
(T1) Automated epidemiologic analysis to detect possible epidemic scenarios



(T2) Automated bioinformatics analysis, e.g., drug discovery or pathogen genome mining.



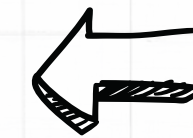
(T3) Fighting misinformation/disinformation to assist in the search for reliable sources



Policymakers



International organizations



Users



Healthcare professionals

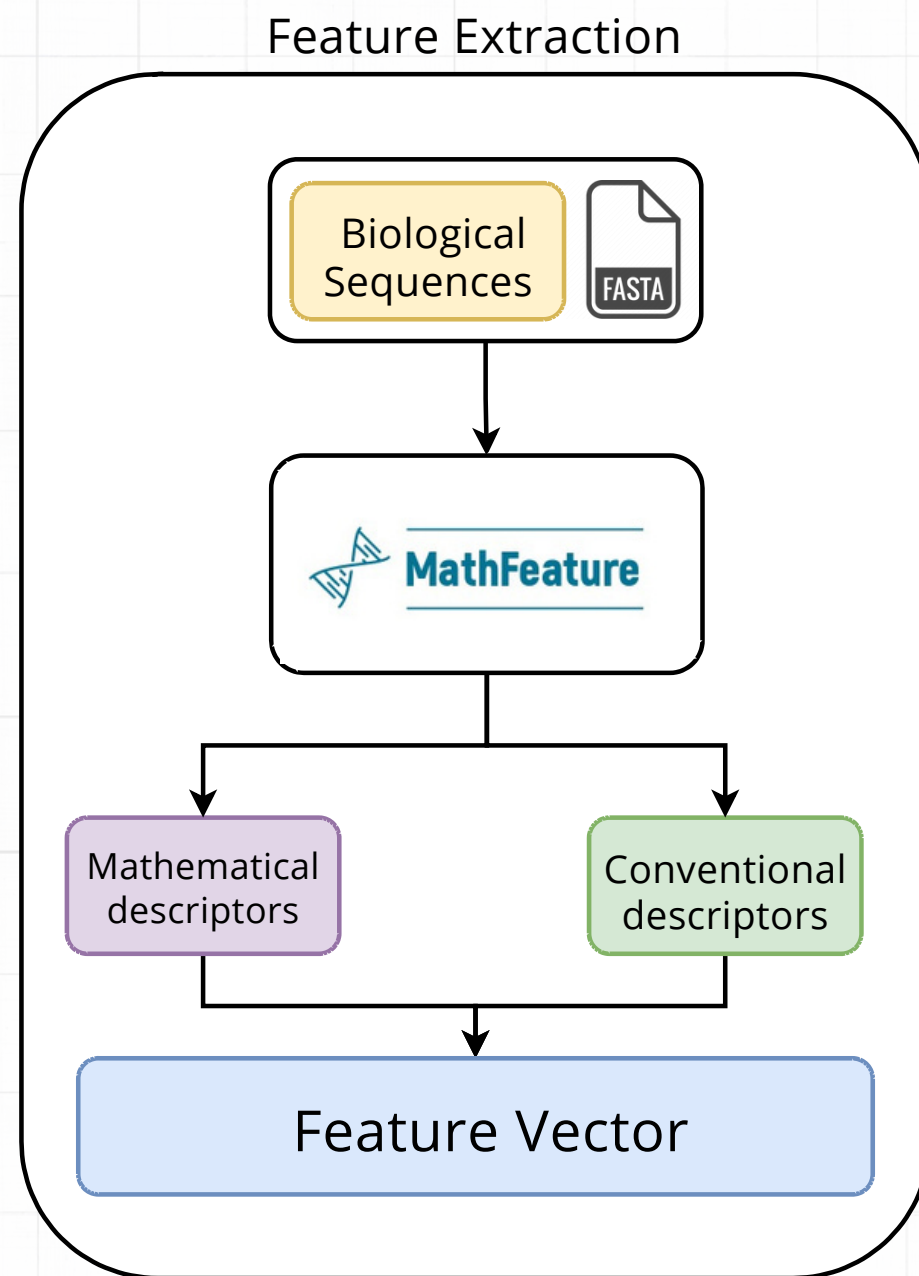


Scientists

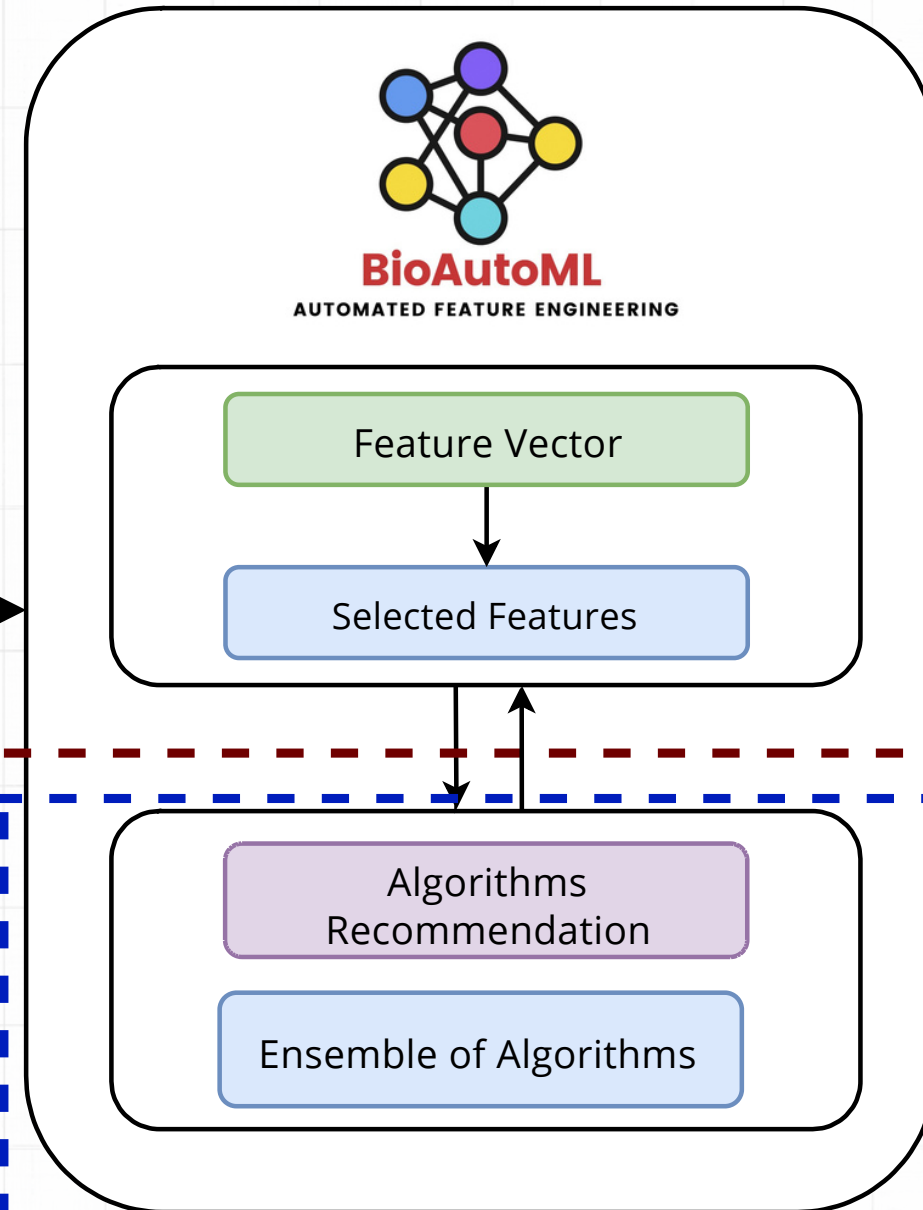
WORKFLOW

EXAMPLE - AUTOMATED BIOINFORMATICS ANALYSIS

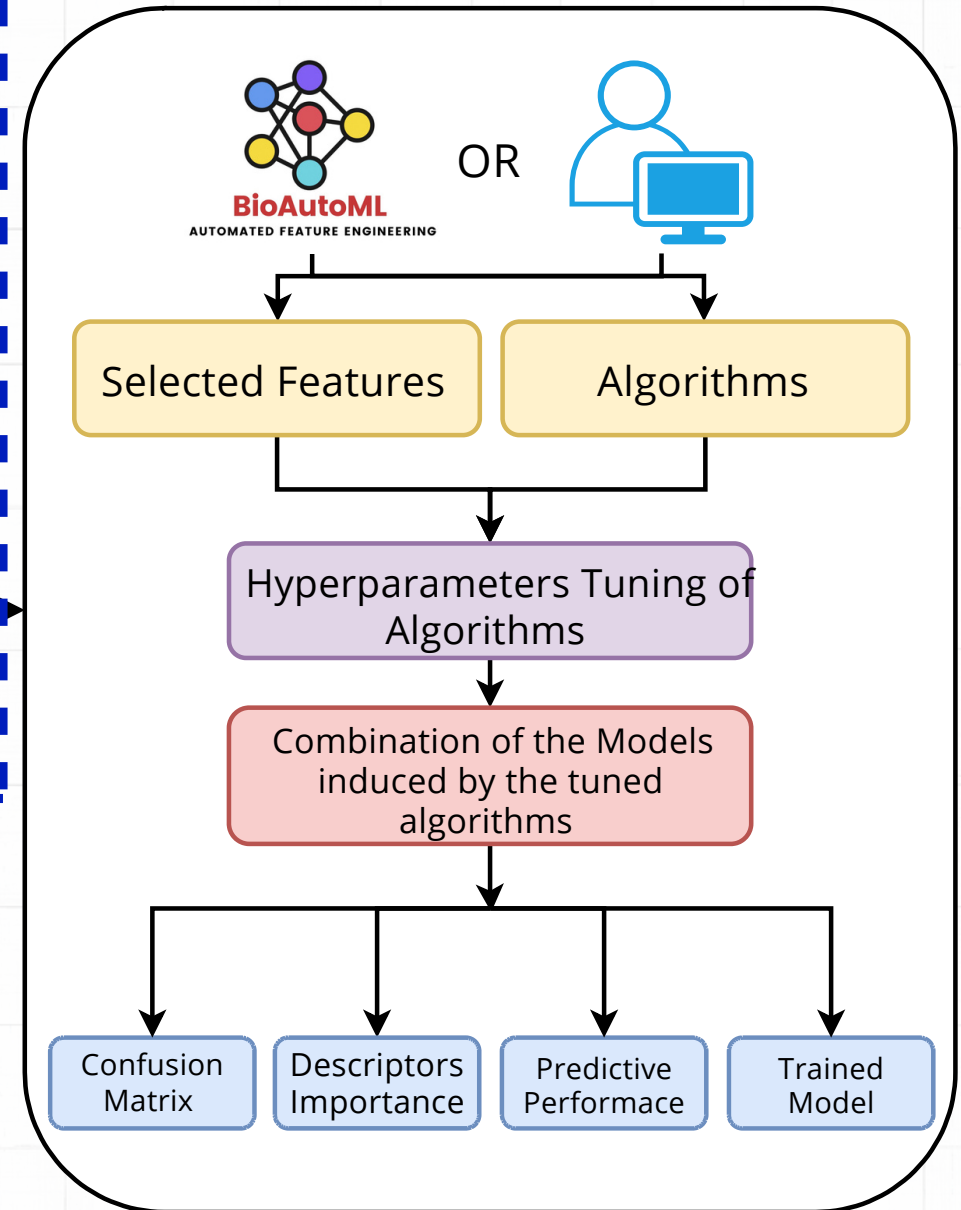
Feature Engineering



Selection and Recommendation



ML - Algorithm Tuning



WORKFLOW

Metalearning

CONTRIBUTIONS

1.

To democratize access to Machine Learning (ML) techniques, allowing non-specialists to use them without the need for knowledge of programming, artificial intelligence, and other disciplines.

2.

Computational tools (AutoAI-Pandemics); (ii) data analyses and syntheses; (iii) data reconciliation or integration of public datasets

3.

High potential to significantly reduce the experience needed to use ML pipelines

AWARD

AutoAI-Pandemics was selected as one of the most promising proposals (out of 221 submissions) in a global competition, held by the Global South Artificial Intelligence for Pandemic and Epidemic Preparedness and Response Network (AI4PEP).



THANKS



[WebPage: http://autoaipandemics.icmc.usp.br/](http://autoaipandemics.icmc.usp.br/)