



Deep learning helps to find new correlations in Data

1

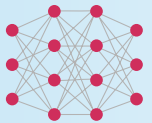


INPUT DATA

The HARMONY Big Data Platform collects anonymous data sets regarding patients with blood cancers:

- hematophysiological variables
- "omics": genomics, transcriptomics, proteomics, or metabolomic
- medical history
- medication
- other parameters

2



TRAINING MODEL

Synchronized and cleaned data is analyzed using Artificial Intelligence neural networks and machine learning:

- supervised algorithms designed to learn by example
- unsupervised algorithms learns patterns from untagged data

3



OUTPUT DATA

Algorithms identify new relations in data that cannot be recognized using classical statistical methods. AI can reveal long-term trends and correlations that are used to:

- calculating trends
- classifying patients with similar characteristics
- making predictions

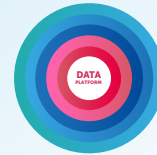
Prof. Gastone Castellani

University of Bologna, HARMONY Partners



"We aim to develop accurate algorithms to make treatment of patients with hematologic malignancies PERSONALIZED."

HARMONY Alliance Big Data Platform



Analyzing the data from more than 60.000 blood cancer patients (Acute Leukemias, Chronic Leukemias, Lymphomas), researchers will obtain new insights for treatments.

THE FUTURE OF RESEARCH

Digital twin & Deep Phenotyping



"Data describing the patient can be used by AI to test and adjust therapy options with no risk for the patient."

Prognosis and Risk Stratification

Personalized prognoses allow measuring the risk of transplantation and drug response. Clinicians can use this insight for decision-making and treatment planning.

Genomics and Response Prediction

Better knowledge about the disease biology and genomic will enable choosing the most suitable chemotherapy for patients with similar biometrics.

Novel therapeutics

Having access to data, researchers can develop and test new drugs in-vitro. It will speed up clinical trials.

Early and precise diagnosis

Researchers are investigating early symptoms of blood cancers to spot disease at the earliest possible stage. It can potentially improve patient outcomes.