



RESEARCH TOPIC DASMEN7

METHODS AND TOOLS FOR THE INTEGRATION OF CLINICAL/EPIDEMIOLOGICAL DATA AND MULTI-OMICS DATA

Datascience Unit name and address

Interdepartmental research centre B4: Bicocca Bioinformatics, Biostatistics and Bioimaging
Università degli studi Bicocca, Milano

Laboratory name and address

Interdepartmental research centre B4: Bicocca Bioinformatics, Biostatistics and Bioimaging
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Datascience Supervisor

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Abstract

The project is aimed to develop methods and tools for the integration of clinical/epidemiological data with genomic, transcriptomic, proteomic, radiomic, metabolomic, and microbiome data (i.e. multi-omics data).

In particular, the following topics will be considered.

- (i) Integration of genomic and phylogenetic data.
- (ii) Application of machine-learning and deep-learning methods for the development of prognostic and predictive clinical models, based on the integration of multi-omics data.
- (iii) Design and analysis of epidemiological studies integrating clinical or population registers and multi-omics data.

A candidate could choose one of the proposed topics, though it is desirable to have candidates whose interests overlap on more than one.

Main technical approaches

Machine learning – Deep learning – Statistical methods for prognostic and predictive modeling in precision medicine – Survival analysis – Record linkage – Computer science algorithms – Epidemiology – Meta-analysis



Type of contract

PhD scholarship of € 18.000 gross per year or equivalent contract.

Borsa di dottorato di € 18.000 annui lordi o forme di sostegno finanziario equivalenti.