

gerIAtrics:

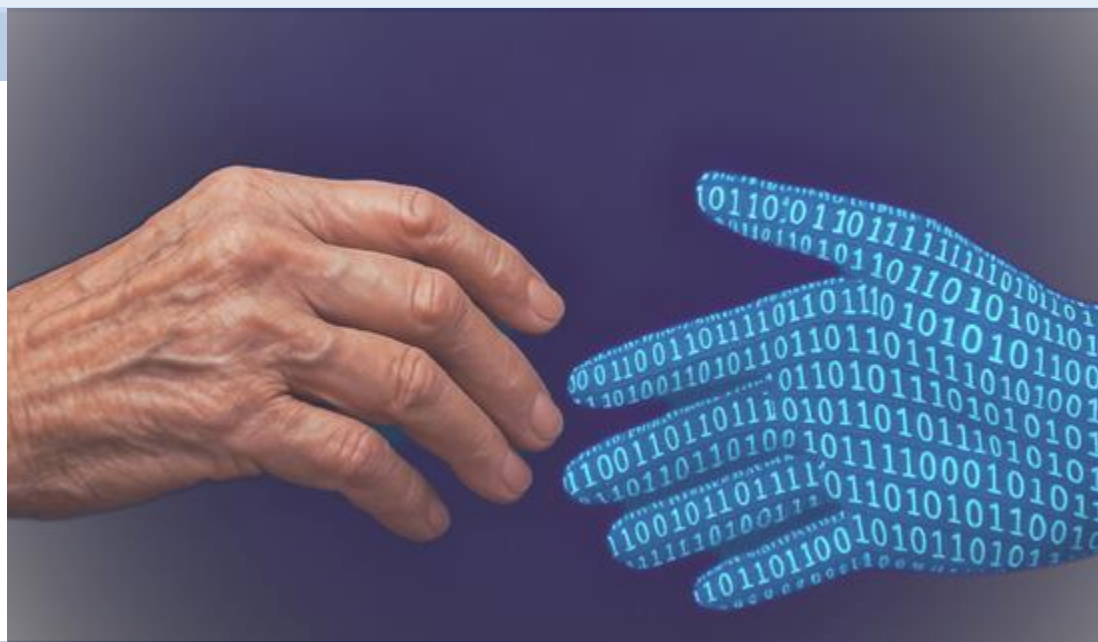
A NOVEL TOOL FOR THE ANALYSIS OF PHYSIOPATHOLOGICAL DATA IN HUMAN AGING

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BACKGROUND

Although lifestyle and nutrition support healthy aging, early identification of individuals at risk of pathological aging remains challenging. Predictive tools to assess aging trajectories and enable timely interventions are still lacking robust scientific validation.

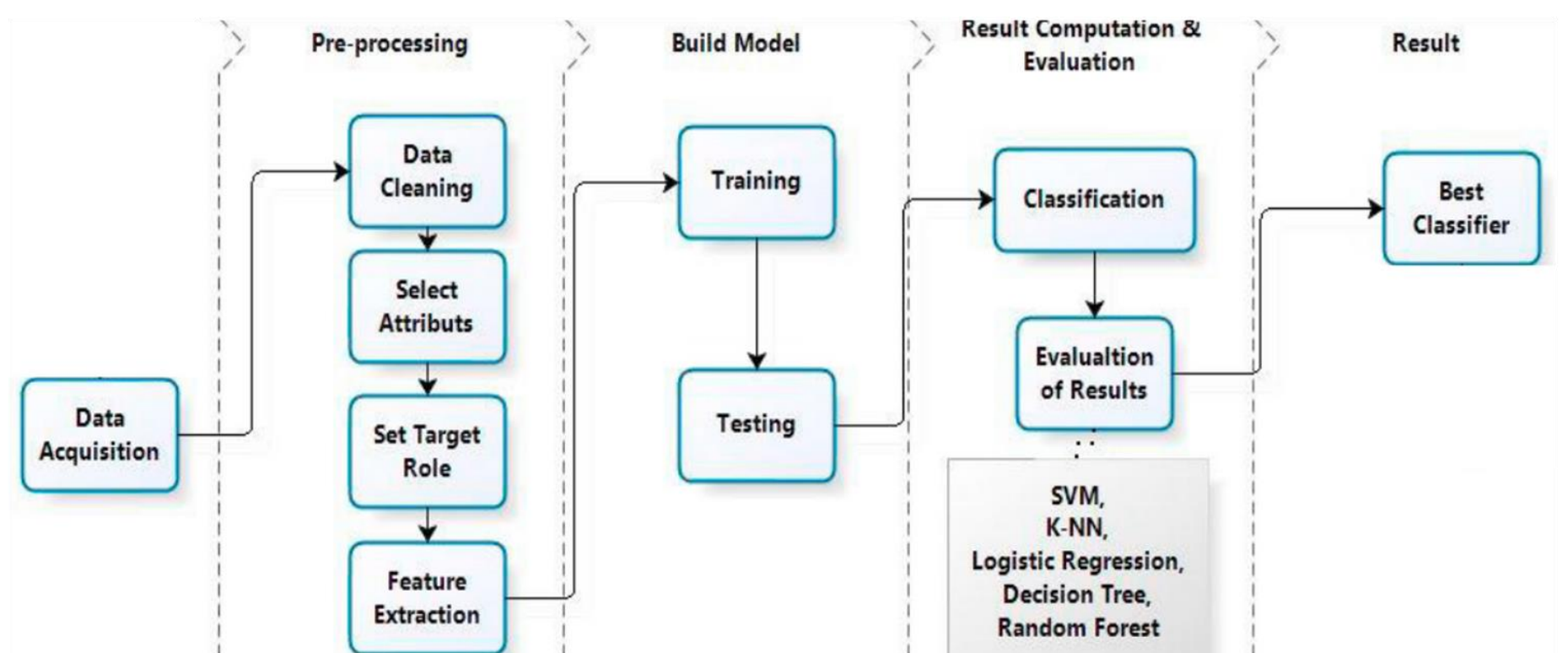


AIM

This project develops a data-driven platform to model disease progression using patient-specific data. In collaboration with AORN 'San Giuseppe Moscati' Hospital, data from 331 patients aged ≥ 60 across 88 clinical and biological variables were collected for analysis.

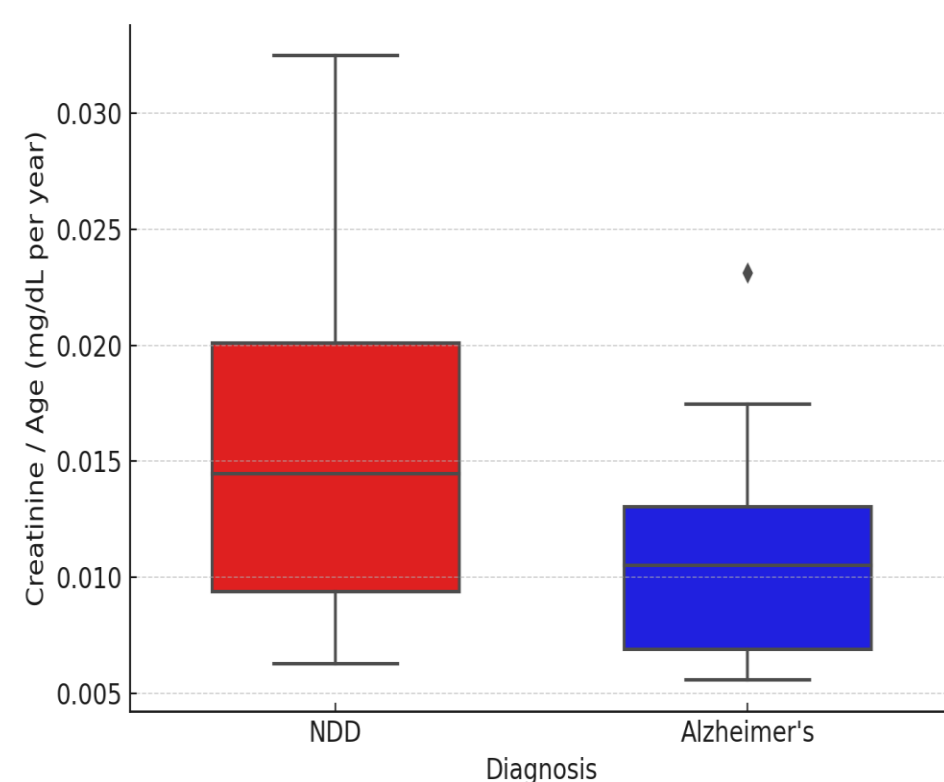
METHODS

As part of the gerIAtrics trial, comprehensive clinical, biochemical, functional, and metabolomic data were collected for each patient. These data were preprocessed and analyzed using advanced supervised machine learning algorithms to develop predictive models for disease progression and to support personalized clinical decision-making.

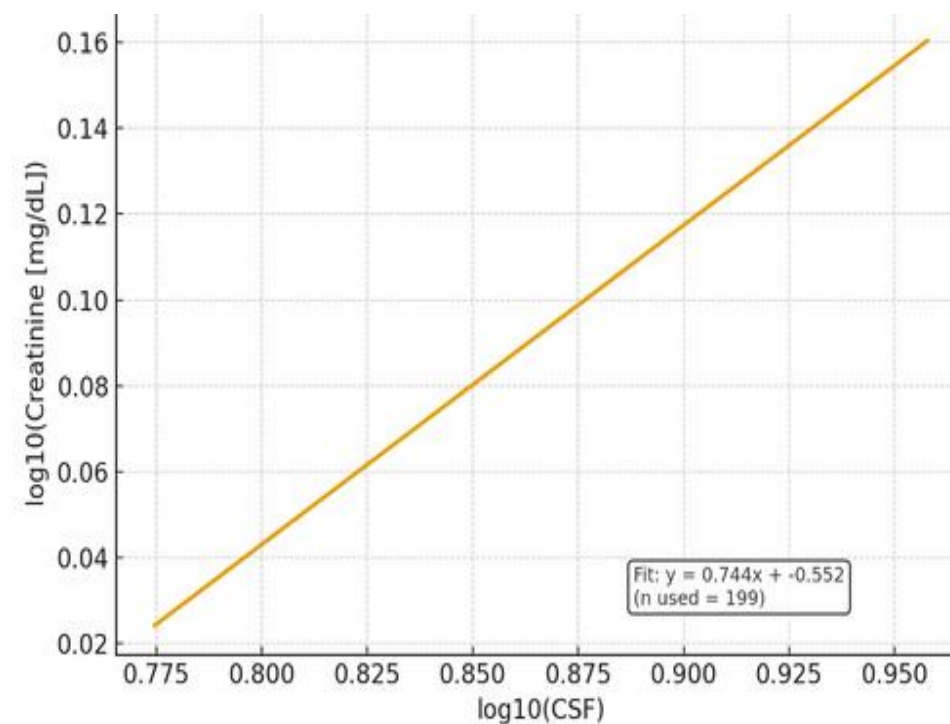


RESULTS

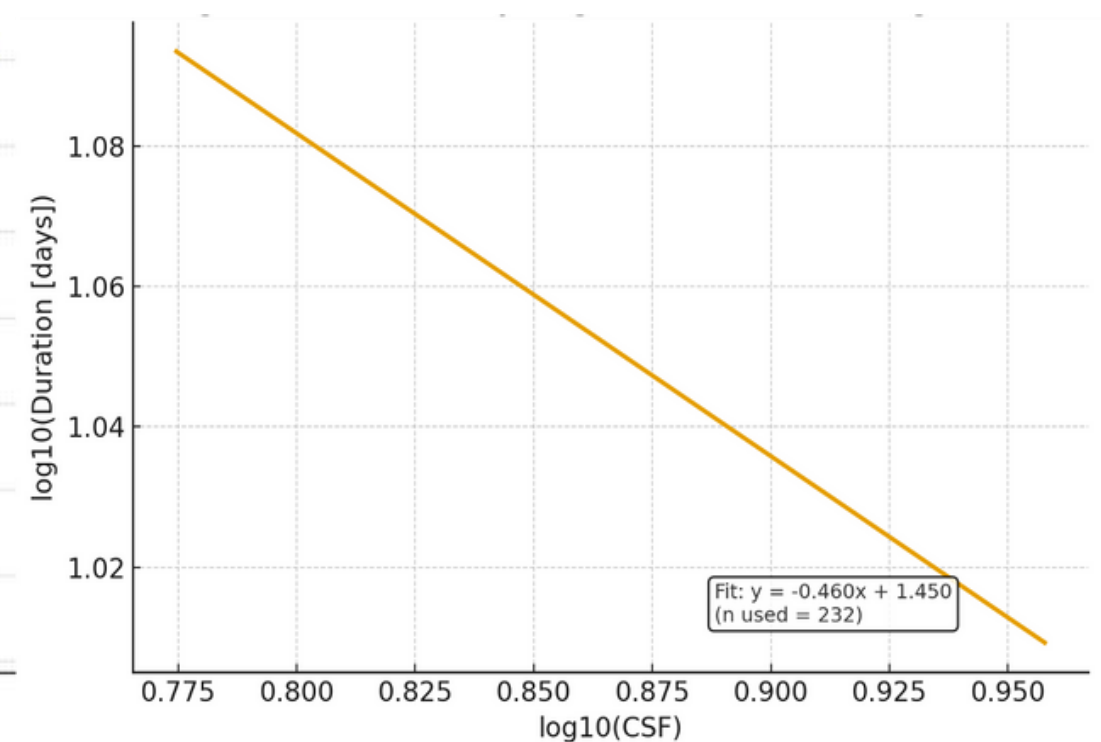
This approach enabled the identification of early biomarkers, clinically relevant patient clusters, and potential pathophysiological mechanisms underlying the aging process, which are often overlooked by conventional analytical methods. This clinical data-driven analysis approach allowed the identification of early indicators of functional decline and disease progression, which are often not detectable through conventional diagnostic methods.



Diagnosis VS Creatinine/Age



CFS VS Creatinine Values



CFS VS Hospital Duration

FUTURE DIRECTIONS

These findings support the development of a user-friendly digital tool to assist healthcare professionals in the early prediction of clinical deterioration. By integrating heterogeneous clinical data, the system aims to personalize patient management, improve outcomes, and promote healthier aging.