Università degli Studi di Messina, Italia
Dipartimento di scienze matematiche e informatiche,
scienze fisiche e scienze della terra

Soggetto: proposta di tirocinio

ID	PTI_IT_Ravì Daniele_15/06/2026 14.43.36
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Supervisore del progetto

Cognome	Ravì
Nome	Daniele
Dipartimento	MIFT
Laboratorio	stanza 511
E-mail	dravi@unime.it
Numero di telefono	3717605146

Co-Supervisore del progetto

Cognome	
Nome	
Posizione	
Dipartimento	

Laboratorio	
E-mail	
Numero di telefono	

Dettagli del progetto

Titolo	AI for Longitudinal Chronic Patient Data Analysis

Descrizione dettagliata: Chronic diseases are among the main challenges faced by modern healthcare systems, as they require continuous monitoring, early risk detection, and personalised care strategies. In this context, longitudinal clinical and operational data can provide valuable insights into patient trajectories, disease progression, and the occurrence of adverse events. However, extracting actionable knowledge from these heterogeneous and time-dependent data remains a significant methodological challenge. This project aims to explore the scientific and technical potential of artificial intelligence methods applied to longitudinal data from chronic patients. The project has an exploratory and research-oriented nature, with a particular focus on descriptive analysis, preliminary patient staging, and proof-of-concept predictive modelling.
This internship is intended for students interested in artificial intelligence for healthcare, data science, and clinical data analysis. The work will contribute to the methodological development of the pilot study, helping to assess how machine learning and longitudinal modelling approaches may support risk stratification, early detection of adverse outcomes, and improved chronic care management.

2. Internship Objectives
The main objective of this internship is to support the development and evaluation of artificial intelligence methods for the analysis of anonymised longitudinal data from chronic patients. The internship may include one or more of the following activities:
- Literature review on AI methods for longitudinal healthcare data analysis, patient stratification, risk prediction, and chronic disease modelling.
- Dataset understanding and documentation, including variable mapping and exploratory data analysis.
- Exploration and preprocessing of anonymised datasets, with particular attention to data structure, completeness, temporal consistency, and variable quality.
- Development of baseline and advanced models for patient stratification, classification, clustering, or early prediction of clinically relevant outcomes.

• Comparative evaluation of methods in terms of feasibility, robustness, interpretability, and potential relevance for chronic care applications. • Preparation of visual summaries, tables, and concise technical documentation of the obtained results. • Participation in discussions with academic supervisors to refine methodology and support interpretation of findings.

Durata (mesi – max 12)	6
Durata (ore)	150
Numero di posizioni aperte	2

Competenze richieste dal tirocinio

Requisiti tecnici: The ideal candidate should have a strong interest in applied artificial intelligence and biomedical or health-related data analysis. Useful skills include: • Python programming. • Familiarity with machine learning libraries such as scikit-learn, PyTorch, or TensorFlow. • Basic knowledge of data preprocessing and statistical analysis. • Experience with tabular or time-series data analysis. • Interest in healthcare applications, digital health, or clinical decision-support research. • Ability to document experiments clearly and work effectively within a supervised research environment.

Altri requisiti	