BLENDED INTENSIVE PROGRAMME:

Discovering the Unknown: AI in Healthcare

DURATION AND VENUE OF THE PROGRAMME	
Duration of the Physical mobility	December 16-20, 2024
Duration of the virtual mobility	N. of hours: 15
Venue of the physical mobility	Università degli Studi di Pavia

Objectives and description of the programme
The aim of the program, open to anyone interested in understanding the needs and the possibilities of AI and, more specifically, explainable AI in healthcare, is to provide a preliminary knowledge about the use of AI in healthcare, to support the training of people able to advance the deployment of AI throughout the economy. While extant programs mainly focused either on AI or on healthcare, the Winter School aims at jointly providing knowledge in these two highly developing fields. Indeed, the relevance of AI is increasingly evident in the advancement of several fields, including highly developing sciences like healthcare and biomedicine, characterized by changing demographics, increasing chronicity and morbidity, workforce shortages and technological expectations. However, if on the one hand, AI represents a "huge potential for cost-saving as well as service quality improvement" (Reddy et al., 2019, p. 25), on the other, it is associated with "significant challenges and raises important, multifaceted questions"(Racine et al., 2019, p. 274). Then, new competencies are required for professionals and all the related stakeholders. Indeed, modern healthcare and clinical data science is an interdisciplinary field, encompassing statistics, mathematical optimization, classical and deep machine learning, and data visualization. Also, ethical AI strategies and, in particular, trustworthy AI, should be pursued to foster literacy and legitimacy around AI, especially in the medical field. However, training in this field is difficult. At this purpose, the objectives of this Winter School are the following: - to learn the opportunities deriving from the applications of AI in healthcare; - to analyze opportunities and risks associated with the use of AI in healthcare; - to learn the ethical implications of the use of AI and other digital technologies, encompassing the individual and social consequences, fostering decision making. Consequently, it is expected to stimulate participants' capabilities in making judgments in real life and a new management mindset, eventually promoting skill advancement and careers.

Learning and teaching methods and expected learning/teaching outcomes

The BIP will be organized with a series of lectures held by professors coming from different Universities, departments and countries. This heterogeneity allows the achievement of a wider representation and understanding of the topics, as well as comparisons and integration of different perspectives. All teachers involved in the programme are supposed to organize lectures, but they will be left a degree of freedom in deciding the best and most suitable format. To facilitate discussions, between experts and/or participants roundtables and workshops will be held as well, in order to allow attendants to contribute and interact one with another. Activities will be held in English, in order to allow international participation. Relevant competences around the use of AI and its application in the context of healthcare management will be provided by different speakers, especially in the area of healthcare management, in the ethics in AI, in the field of Technology Enhanced Learning, in the context of leadership in healthcare and in the field of data mining. Different teaching materials are planned to be used, such as streaming lectures, reading materials (slides, web links and open sources), learning activities (discussions, assessments and live sessions), hands-on interviews, case studies, and best practices.

The contribution of each and all speakers will be pivotal for the success of the BIP since it will exploit their prior assets and knowledge to contribute to its effective implementation. Both AI and healthcare management experts will be involved and, thus, relevant competences around the use of AI and its application in the context of healthcare management will be provided taking into consideration international perspectives and various backgrounds. The BIP is characterized by a high level of multidisciplinary.

Virtual component description

As part of the virtual component of the program, two different activities are foreseen.

First, recorded lectures will be shared with students and live lectures will be scheduled before the physical mobility in order to allow students to have a common understanding of the topics that will be discussed during their stay in Pavia. In particular, relevant expertise of the speakers and related topics expected to be discussed in the BIP cover, but are not limited to the following research areas:

● computer science, search and information retrieval, data mining, Database and Information Systems (DBIS) and machine learning;
● application of intelligent solutions for personalized medicine;
● ethics and AI, explainable AI and trust in AI;
● digital healthcare leadership and management;
● the use of scientific evidence in the implementation of innovative technologies, particularly Information and Communication Technologies (ICT) in healthcare;
● Health Technology Assessment (HTA) and Multi-criteria Decision Analysis (MCDA);
● the role of technology based interventions to improve physical activity.

Second, assignments to be performed in groups will be required to validate the participants' learning outcomes. The content and the organization of the assignments will be described in the section below.

Validation of participants' learning outcomes and type of recognition in the plan of study of the participants

The validation of participants' learning outcomes will be assessed through the completion of assignments to be performed in groups. The assignment will cover both the modules delivered online and the modules delivered in presence. In particular, after the programme, the students are required to have the adequate competences:
- to learn the opportunities deriving from the applications of AI in healthcare;
- to analyze opportunities and risks associated with the use of AI in healthcare;
- to learn the ethical implications of the use of AI and other digital technologies, encompassing the individual and social consequences, fostering decision making. Consequently, it is expected to stimulate participants' capabilities in making judgments in real life and a new management mindset, eventually promoting skill advancement and careers.
Certificates of participation will be provided at the end of the programme.
Successful completion of the BIP will guarantee 3 ECTS credits.