PUBBLICAZIONE, AI SENSI DELL’ART. 19 DEL D.LGS N. 33 DEL 14 MARZO 2013, MODIFICATO DALL’ART. 18 DEL D.LGS N. 97 DEL 25 MAGGIO 2016 COME INTEGRATO DALL’ART.1 C. 145 DELLA LEGGE 27 DICEMBRE 2019 N. 160,

DELLE TRACCE D’ESAME

STABILITI DALLA COMMISSIONE ESAMINATRICE

DELLA SELEZIONE DI SEGUITO INDICATA

NELLA RIUNIONE IN DATA 06/07/2023

TRACCE DELLE PROVE D’ESAME – PROVA ORALE

BANDO N. 400.11 ISTI PNRR


BUSTA n. 1

Prima domanda
Il candidato esponga la sua attività di ricerca nell’ambito dell’Artificial Intelligence.

Seconda domanda
Il candidato parli di una potenziale attività relativa all’applicazione del Deep Learning nell’ambito health (as es.: e-health, m-health, telemedicina).

Terza domanda
Lettura e traduzione dalla lingua inglese del seguente testo tratto dall’articolo:

https://www.nature.com/articles/s41591-018-0300-7
"The use of artificial intelligence, and the deep-learning subtype in particular, has been enabled by the use of labeled big data, along with markedly enhanced computing power and cloud storage, across all sectors. In medicine, this is beginning to have an impact at three levels: for clinicians, predominantly via rapid, accurate image interpretation; for health systems, by improving workflow and the potential for reducing medical errors; and for patients, by enabling them to process their own data to promote health. The current limitations, including bias, privacy and security, and lack of transparency, along with the future directions of these applications will be discussed in this article. Over time, marked improvements in accuracy, productivity, and workflow will likely be actualized, but whether that will be used to improve the patient–doctor relationship or facilitate its erosion remains to be seen."

Busta n. 2

Prima domanda
Il candidato esponga la sua attività di ricerca nell'ambito del Deep Learning.

Seconda domanda
Il candidato parli di una potenziale attività relativa all’applicazione dell’Artificial Intelligence nell’ambito health (as es.: e-health, m-health, telemedicina).

Terza domanda
Lettura e traduzione dalla lingua inglese del seguente testo tratto dall’articolo:

https://www.nature.com/articles/s41591-018-0300-7

“One field that has attracted particular attention for application of AI is radiology. Chest X-rays are the most common type of medical scan, with more than 2 billion performed worldwide per year. In one study, the accuracy of one algorithm, based on a 121-layer convolutional neural network, in detecting pneumonia in over 112,000 labeled frontal chest X-ray images was compared with that of four radiologists, and the conclusion was that the algorithm outperformed the radiologists. However, the algorithm’s AUC of 0.76, although somewhat better than that for two previously tested DNN (Deep Neural Network) algorithms for chest X-ray interpretation, is far from optimal. In addition, the test used in this study is not necessarily comparable with the daily tasks of a radiologist, who will diagnose much more than pneumonia in any given scan. To further validate the conclusions of this study, a comparison with results from more than four radiologists should be made.”

Busta n. 3

Prima domanda
Il candidato esponga la sua attività di ricerca nell’ambito delle Artificial Neural Networks.

Seconda domanda
Il candidato parli di una potenziale attività relativa all’applicazione delle Artificial Neural Networks nell’ambito health (as es.: e-health, m-health, telemedicina).
Terza domanda
Letterra e traduzione dalla lingua inglese del seguente testo tratto dall’articolo:

https://www.nature.com/articles/s41591-018-0300-7

“Medicine is at the crossroad of two major trends. The first is a failed business model, with increasing expenditures and jobs allocated to healthcare, but with deteriorating key outcomes, including reduced life expectancy and high infant, childhood, and maternal mortality in the United States. This exemplifies a paradox that is not at all confined to American medicine: investment of more human capital with worse human health outcomes. The second is the generation of data in massive quantities, from sources such as high-resolution medical imaging, biosensors with continuous output of physiologic metrics, genome sequencing, and electronic medical records. The limits on analysis of such data by humans alone have clearly been exceeded, necessitating an increased reliance on machines. Accordingly, at the same time that there is more dependence than ever on humans to provide healthcare, algorithms are desperately needed to help. Yet the integration of human and artificial intelligence (AI) for medicine has barely begun.”