

The importance of Artificial intelligence for applications in high energy and other Scientific Disciplines

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Artificial Intelligence (AI) is an essential tool for a good decision making model and has been used in a wide variety of scientific disciplines from bioinformatics to aeronautical engineering to image processing. Computational intelligence has also found its way to detector physics, especially for high-energy physics experiments, and has been used to determine detector performances, as well as extract physical information of interacting particles. In high-energy physics experiments, one of the essential steps in the extraction of physical information from particle detectors is to reconstruct the characteristics of the particles produced in the accelerators. Through the use of statistical methods, algorithms are trained to make classifications or predictions, uncovering key insights within data mining projects. These insights subsequently drive decision making within HEP applications, ideally impacting key growth metrics. AI technologies are playing, and will play for sure, a key role in LHC Run-3 and beyond (ie. HL-LHC). They are not only expected to be more accurate and need less developer time, but in principle could be faster. The demand for HEP data scientists will increase requiring the assessment in the identification of the most relevant questions to faster decision making across more complex data sets. In this letter we will address and discuss how to strengthen the collaboration between IFIC and Mohammed V University in Rabat, including the African institutions whom are interested to learn and use the Artificial Intelligence for the applications in other scientific disciplines. A global effort for transferring this technology is needed to speed the participation of the African physicist in this revolution.