

Mathematics for Data Science

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Abstract

Mathematics is a fundamental science of all natural sciences, in a great part for social sciences and everything that exist in the world and is connected with some research. Today, we are aware of the increased usage of Mathematics and Statistics in the Computer science especially in the area of Data science, tackled with Machine-learning methods and Artificial intelligence used everywhere, from social sciences, as Medicine, Education, and Business to the usage in the particular research in Natural Sciences. This huge development of these new methods is helped in the wide scale by Mathematics as a base for all created algorithms and methods who use mathematical expressions in the programs that are responsible for running all software tools and their usage in the different area of research to provide appropriate functioning. In this presentation, we will try to explain the *mathematical aspects of our research connected with Data Science as a part of Information and communication technology* and their usage in the wide area of society for different information systems (IS), Decision support systems (DSS), Business Intelligence (BI), Visual Data Analysis (VDA) and other Data science research. Our intention is to clarify the necessity of mathematics as a fundamental science in all types of research that we have conducted through many years of research in the field of Informatics, Computer science, especially nowadays for Data science. The used methods and techniques in research are closely connected and explained with a wide area of mathematical techniques and methods.