IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 2, September 2024

The Role of Persistent Homology in Big Data Analytics

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Abstract: *In some areas of computer science, computational topology analyzes data and resolves issues by fusing effective algorithms with theoretical topological techniques. With reference to the domains of artificial intelligence, robotics, machine learning, and computer graphics or image processing, we examine the many applications of computational or applied topology in computer science in this article. We discovered that the use of topological data analysis has rapidly increased in the aforementioned fields. The goal of this article is to compile and synthesize the most current research relating to the usage of topological data analysis in computer science as well as the many approaches used to integrate topological data analysis tools into different computer science applications..*

Keywords: Persistent homology, robotics, artificial intelligence, machine learning, and topological data analysis

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DOI: 10.48175/568