Preface of the 2nd edition of the Special Track about Big Data and High-Performance

Abstract

This volume contains the proceedings of the 2nd edition of BigHPC, the Special Track about Big Data and High-Performance, held in conjunction with the 3rd Italian Conference on Big Data and Data Science (ITADATA), 17-19 September 2024, Pisa, Italy.

Preface

The 2nd edition of the Special Track on Big Data and High-Performance Computing (BigHPC), held in conjunction with the 3rd Italian Conference on Big Data and Data Science (ITADATA), took place in Pisa, Italy, from September 17 to 19, 2024. This volume collects full-length papers selected for presentation at the track. BigHPC aims to establish itself as the premier annual event for the Italian Big Data and HPC communities, serving as a vital forum for academics and industry professionals interested in cutting-edge advancements in high-performance computing, large-scale data processing, and innovative solutions for managing and analyzing vast datasets across a range of applications.

BigHPC 2024 covered a wide range of topics related to Big Data, HPC, and data processing, including advanced parallel and high-performance computing algorithms, computational models and architectures designed for large-scale data processing, and quantum-based algorithms. Additionally, discussions included performance optimization, scalability challenges in HPC systems, and the integration of AI techniques to enhance big data processing and analytics in scientific and industrial applications.

The scientific program of BigHPC 2024 was organized into four talk sessions, including the presentation of six full-length articles and fourteen extended abstracts. Massimo Torquati, associate professor at the University of Pisa and vice-director of the CINI National Laboratory, gave an invited introductory talk on HPC: Key Technologies and Tools (HPC-KTT). The talk covered the pivotal role of the HPC-KTT laboratory in the modernization of high-performance computing and its applications. HPC-KTT greatly supported BigHPC and its cutting-edge research on various scientific and industrial topics, such as programming and execution models and tools, system software, software engineering for high performance, energy consumption reduction, and cloud-based access systems for computing.

Finally, we would like to extend our thanks to all the contributing speakers for making BigHPC 2024 a great event. We are also grateful to our Steering and Program committee members and the ITADATA organizers for their invaluable support with the website and all organizational and technical aspects.

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