Advancements in Computational Genomics: AI and Big Data Synergy

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Abstract. The paper explores the synergy between artificial intelligence and big data in advancing computational genomics. By utilizing machine learning algorithms on genomic datasets, researchers can uncover patterns and relationships previously hidden. This study presents case studies in disease prediction and personalized medicine, showcasing the transformative potential of AI-driven genomic analysis.

Keywords: Computational Genomics, Artificial Intelligence, Big Data, Machine Learning, Personalized Medicine

Introduction

Computational genomics is rapidly evolving, driven by the convergence of artificial intelligence and big data. With the ever-increasing availability of genomic data, traditional analysis methods are becoming inadequate. This paper explores how AI and big data technologies are revolutionizing computational genomics, enabling researchers to uncover complex patterns and relationships within vast datasets. By employing machine learning algorithms, the study demonstrates significant advancements in disease prediction and personalized medicine. The case studies presented highlight the transformative potential of AI-driven genomic analysis, offering new insights into genetic research.

References

1. Рагимов, Э. Р. О. (2010). Механизм верификации безопасности программных средств, функционирующих в системе защиты информации корпоративных сетей. Вопросы защиты информации, (4), 37-40.