

Scalable Deep Learning: application in medicine

In recent years, the convergence of artificial intelligence and healthcare has opened new possibilities in the analysis of medical data, offering unparalleled precision and effectiveness. This presentation will delve into current research focused on scalable deep learning algorithms and their application in the medical field, particularly in analyzing bioimages such as Computed Tomography (CT) and functional Magnetic Resonance Imaging (fMRI).

Our research involves adapting deep learning models to high-performance computing (HPC) infrastructures to optimize their performance on parallel and distributed systems. We are also exploring the potential of edge computing, specifically using Nvidia Jetson devices, to tackle challenges in data privacy, legal compliance, and real-time processing by analyzing data closer to its source.

A key feature of this project is a collaboration with the University of Groningen, where advanced machine learning techniques and graph theory concepts are being utilized to improve the classification of fMRI data. Initial results demonstrate the effectiveness of these approaches in enhancing the accuracy and speed of medical diagnoses.

This presentation will provide insights into the methodologies, experimental setups, and results that underscore the significance of scalable architectures in medical AI applications. Additionally, we will discuss future directions, including the potential of edge computing in sustainable AI and its broader applications in healthcare.