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The ML/DL/HPC Ecosystem of the HybriLIT Heterogeneous Platform (MLIT JINR) for Applied Research

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The ML/DL/HPC ecosystem deployed on the HybriLIT Heterogeneous Computing Platform (Meshcheryakov Laboratory of Information Technologies JINR) on top of JupyterHub, allows you to conduct research not only in the field of machine learning and deep learning, but also allows you to develop and implement program modules in Python, as well as to carry out methodical computations. Using the example of solving a problem to study the processes occurring in Josephson junctions, a methodology for developing software modules is presented; it enables not only to carry out calculations, but also to visualize the results of the study and accompany them with the necessary formulas and explanations. In addition, the possibility of parallel implementation of the algorithms for performing computations for various values of parameters of the model based on the Python libraries are shown, and the results of computational experiments demonstrating the efficiency of parallel data processing are presented.
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