

Preface

Vladimir Korenkov^a and Alexander Kryukov^b

^a*Joint Institute of Nuclear Research, Meshcheryakov Laboratory of Information Technologies,
Joliot-Curie 6, Dubna, Russia*

^b*Lomonosov Moscow State University, Skobeltsyn Institute of Nuclear Physics,
Leninskie gory 1, Moscow, Russia*

E-mail: korenkov@jinr.ru, kryukov@theory.sinp.msu.ru

Preface to the 6th International Workshop on Deep Learning in Computational Physics (DLCP-2021), which was held in face to face and online on July 6-8, 2022 in Dubna, Russia.



*The 6th International Workshop on Deep Learning in Computational Physics (DLCP2022)
6-8 July 2022
JINR, Dubna, Russia*

Currently, data processing and data analysis methods based on machine learning are actively developing in various fields of science and technology. Machine learning methods are increasingly being used in natural sciences such as physics, chemistry, medicine, climate modeling or engineering. These methods have shown outstanding results in natural language text analysis, face recognition, social network analysis, and so on. Many modern mega-science experiments generate huge amounts of data, measured in petabytes. The processing and analysis of scientific data is an extremely urgent problem. In this context, the development of new and effective methods for their analysis based on machine learning is very important and relevant.

The international Workshop DLCP2022, which was held on July 6-8, 2022, was organized jointly by the Lomonosov Moscow State University (Moscow) and the Joint Institute for Nuclear Research (Dubna). The co-chairs of the workshop are Director of MLIT JINR Professor V.V. Korenkov and Head of the Laboratory of SINP MSU A.P. Kryukov. The workshop was held face to face. However, given the epidemiological situation on COVID-19, it was possible to participate remotely too. This workshop is a continuation of a series of workshops started in 2018 [1, 2, 3].

The workshop primarily focused on the use of machine learning in cosmic-ray astrophysics and high energy physics. However the workshop was not limited to this area. Topics of interest were various applications of artificial neural networks to other physical problems, as well as the development of new modern machine learning methods for analyzing various scientific data in meteorology, climate, biology and so on.

All reports were divided into 4 tracks and poster section

Track 1. Machine Learning in Particle Astrophysics and High Energy Physics

Track 2. Modern Machine Learning Methods

Track 3. Machine Learning in Natural Sciences

Track 4. Machine Learning in Education

The workshop was attended by 132 scientists from 10 countries. 7 invited reports, 34 regular reports and 7 posters were presented, which covered almost all areas of science.

Program committee

A. Kryukov (SINP MSU, Moscow) — Co-Chair

V. Korenkov, professor (MLIT JINR, Dubna) — Co-Chair

E. Boos, corresponding member of the RAS (SINP MSU, Moscow)

A. Demichev (SINP MSU, Moscow)

V. Ilyin (NIC “Kurchatov Institute”, Moscow)

G. Ososkov, professor (MLIT JINR, Dubna)

O. Streltsova (MLIT JINR, Dubna)

P. Zrelov (MLIT JINR, Dubna)

Local organizing Committee

A. Kryukov (SINP MSU, Moscow) — Co-Chair

V. Korenkov (MLIT JINR, Dubna) — Co-Chair

D. Priakhina (MLIT JINR, Dubna) — Scientific Secretary

M. Plyashkevich (MLIT JINR, Dubna)

O. Rumyantseva (MLIT JINR, Dubna)

I. Sokolov (MLIT JINR, Dubna)
D. Stankus (MLIT JINR, Dubna)
O. Streltsova (MLIT JINR, Dubna)
T. Strizh (MLIT JINR, Dubna)
A. Vorontsov (MLIT JINR, Dubna)
T. Zaikina (MLIT JINR, Dubna)

Sponsors of the workshop

ITCost (<https://itcost.ru/>)
RSC Group (<https://rscgroup.ru/en/>)
Softline (<https://softline.ru/about>)



Fig. 1: Workshop photo.

References

- [1] Proceedings of the 3rd International Workshop on Data Life Cycle in Physics (DLCP-2019), Irkutsk, Russia, April 2-7, 2019. Edited by: Alexander Kryukov, Andreas Haungs; CEUR-WS: 12 Jul 2019, <http://ceur-ws.org/Vol-2406/>
- [2] Proceedings of the 4th International Workshop on Data Life Cycle in Physics (DLCP-2020), Moscow, Russia, June 8-10, 2020. Edited by: Alexander Kryukov, Andreas Haungs; CEUR-WS: 21 Sep 2020, <http://ceur-ws.org/Vol-2679/>
- [3] Proceedings of the 5th International Workshop on Deep Learning in Computational Physics (DLCP-2021), Moscow, Russia, June 28-29, 2021. Edited by: Alexander Kryukov, Andreas Haungs; Proceedings of Science, vol.410, <https://pos.sissa.it/410/>