THEORY

DLCP-2023. Scientific program

June 21-23, 2023

Moscow time (MSK)
On site and ZOOM
** - on-line report*

Download the Program.

June 21, 2023

11:15-11:45	**Welcome coffee**	
11:45-12:00	**Opening of the conference**	
12:00-12:30	**L.Dudko** MSU, Moscow	**Methodology for the use of neural networks in the data analysis of the collider experiments**
12:30-12:45	Ju.Dubenskaya SINP MSU, Moscow	Generating Synthetic Images of Gamma-Ray Events for Imaging Atmospheric Cherenkov Telescopes Using Conditional Generative Adversarial Networks
12:45-13:00	R.Fitagdinov MIPT, Moscow region; INR RAS, Moscow	Generation of the ground detector readings of the Telescope Array experiment and the search for anomalies using neural networks
13:00-13:15	K.Galaktionov SPbSU, St.Petersburg	Neural network approach to impact parameter estimation in high-energy collisions using the microchannel plate detector data
13:15-13:30	E.Gres IGU, Irkutsk	* The selection of rare gamma event from IACT images with deep learning methods
13:30-14:30	**LUNCH**	
14:30-15:00	**A.Kryukov** MSU, Moscow	**Machine Learning in Gamma Astronomy**

15:00-15:15	A.Kryukov SINP MSU, Moscow	Preliminary results of convolutional neural network models in HiSCORE experiment
15:15-15:30	S.Pavlov SPbSU, St.Petersburg	Application of machine learning methods to numerical simulation of hypersonic flow
16:00-16:30	**Coffee Break**	
16:30-16:45	A.Leonov MIPT, Moscow region	Using Neural Networks for Reconstructing Particle Arrival Angles in the Baikal-GVD Neutrino Telescope
16:45-17:00	A.Matseiko MIPT, Moscow region; INR RAS, Moscow	Application of machine learning methods in Baikal-GVD: background noise rejection and selection of neutrino-induced events
17:00-17:15	A.Zaborenko MSU, Moscow	Novelty Detection Neural Networks for Model-Independent New Physics Search
17:15-17:30	A.Kryukov SINP MSU, Moscow	The use of conditional variational autoencoders for simulation of EASs images from IACTs
17:30-17:45	M.Borisov MIPT, Moscow region	Estimating cloud base height from all-sky imagery using artificial neural networks

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10:00-10:30	**A.Boukhanovsly** ITMO University, St.Petersburg	**Generative AI for large models and digital twins** dlcp2023-boukhanovsky.pptx
10:30-10:45	S.Dolenko SINP MSU, Moscow	Decomposition of Spectral Contour into Gaussian Bands using Improved Modification of Gender Genetic Algorithm
10:45-11:00	A.Hvatov ITMO University, St.Petersburg	* Robust equation discovery as a machine learning method dlcp2023-hvatov.pdf
11:00-11:15	N.Bykov ITMO University, St.Petersburg	Reconstruction Methods for a Partial Differential Equation: Application to Physical and Engineering Problems
11:15-11:45	**Coffee Break**	
11:45-12:00	A.Shevchenko Samara State Technical University, Samara	Determination of the charge of molecular fragments by machine learning methods

12:00-12:15	D.Poliakov SPbSU, St.Petersburg	Hyper-parameter tuning of neural network for high-dimensional problems in the case of Helmholtz equation
12:15-12:30	M.Krinitsky Shirshov Institute of Oceanology, RAS, Moscow	Estimating significant wave height from X-band navigation radar using convolutional neural networks krinitskiyetal-dlcp2023.pptx
12:30-12:45	V.Golikov MIPT, Moscow region	* Client-server application for automated estimation of the material composition of bottom sediments in the >0.1 mm fraction from microphotography using modern deep learning methods
12:45-13:00	S.Dolenko SINP MSU, Moscow	Transfer Learning for Neural Network Solution of an Inverse Problem in Optical Spectroscopy
13:00-13:15	I.Isaev SINP MSU, KIRE RAS, Moscow	The study of the integration of physical methods in the neural network solution of the inverse problem of exploration geophysics with variable physical properties of the medium
13:15-13:30	A.Polyakov SPbSU, St.Petersburg	A technique for the total ozone columns retrieval using spectral measurements of the IKFS-2 instrument
13:30-14:30	**LUNCH**	
14:30-15:00	**A.Moskovsky** RSC	**High-performance computer systems for machine learning problems**
15:00-15:15	M.Ledovskikh SPbSU, St.Petersburg	* Recognition of skin lesions by images
15:15	**Social event**	See details here

June 23, 2023

10:00-10:30	**M.Petrovsky** MSU, Moscow	**Deep learning methods for the tasks of creating “digital twins” for technological processes**
10:30-10:45	A.Savin MIPT, Moscow region; Shirshov Institute of Oceanology, RAS,	SMAP sea surface salinity improvement in the Arctic region using machine learning approaches

	Moscow	
10:45-11:00	A.Orekhov SPbSU, St.Petersburg	Unsupervised machine learning methods for determination of critical points of the fluorescence accumulation curve for real-time polymerase chain reaction
11:00-11:15	A.Vasiliev MSU, AI, Moscow	* The role of artificial intelligence in the preparation of modern scientific and pedagogical staff. The experience of the course “Neural networks and their application in scientific research” of Moscow State University named after M. V. Lomonosov
11:15-11:30	Z.Kurdoshev Tomsk State University, Tomsk	* The importance of the number of overfits in time series forecasting by some optimizers and loss functions in neural networks
11:30-11:45	A.Tyshko Shirshov Institute of Oceanology, RAS, Moscow	* Automatic detection of acoustic signals from white whales and bottle-nosed dolphins
11:45-12:15	**Coffee Break**	
12:15-12:30	I.Khabutdinov Shirshov Institute of Oceanology, RAS, Moscow	* Identifying cetacean mammals in high-resolution optical imagery using anomaly detection approach employing Machine Learning models
12:30-12:45	M.Zotov SINP MSU, Moscow	* Search for Meteors in the Mini-EUSO Orbital Telescope Data with Neural Networks
12:45-13:00	A.Vorobev Geophysical Center RAS, Moscow	* Machine learning for diagnostics of space weather effects in the Arctic region
13:00-13:15	V.Rezvov Shirshov Institute of Oceanology, RAS, Moscow	* Improving the accuracy of the neural network estimation of meaningful height of wind waves based on ship navigation radar data by means of preliminary training on synthetic data
13:15-13:30	A.Kasatkin Shirshov Institute of Oceanology, RAS, Moscow	* Machine learning techniques for anomaly detection in high-frequency time series of wind speed and greenhouse gas concentration measurements
13:30-13:45	V.Latypova SINP MSU, Moscow	A universal method for separating extensive air showers by primary mass using machine learning for a Cherenkov telescope of the SPHERE type

13:45-14:00	I.Gadzhiev SINP MSU, Moscow	Classification Approach to Prediction of Geomagnetic Disturbances
14:00-14:15	**Closing of the conference**	

Poster section

- V.Kalninsky, SPbSU, St.-Petersburg
  Modification of soft connectives in machine learning models
- O.Sarmanova (SINP MSU)
  Decoding fluorescence excitation-emission matrices of carbon dots aqueous solutions with convolutional neural networks to create multimodal nanosensor of metal ions.
