DeepLayers

WORKSHOP / ARTIFICIAL INTELLIGENCE

11. - 12. 10. 2023

Institute of Scientific Instruments of the Czech Academy of Sciences

Kralovopolska 147, Brno, Czech Republic

PROGRAM / Wednesday / 11. 10. 2023 - Tutorials

09:00 - 09:10 Foreword by **DeepLayers 2023** organizers

09:10 - 09:30 **What is the AI (today)**
by F. Plesinger (ISI of the CAS, CZ)

09:30 - 10:15 **Machine-learning Elements I: Data treatment**
set of apporaches to explore, understand and clean
your data by F. Plesinger (ISI of the CAS, CZ)

10:15 - 10:30 **Coffee break**

10:30 - 11:45 **Machine-learning Elements II: Modelling tutorial**
by E. Vargova and M. Kolajova (ISI of the CAS, CZ)
- Experiments with easy-to-use models
- How to understand model outputs

11:45 - 12:00 **AI digital Avatar Terminal**
by M. Pachl (aReception, CZ)

12:00 - 13:00 **Lunch (provided)**

13:00 - 13:45 **Deep-learning (DL) Elements I**
by P. Nejedly (ISI of the CAS, CZ)
- Building blocks of DL networks
- Data Preprocessing for DL

13:45 - 14:00 **Coffee break**

14:00 - 15:00 **Deep-learning Elements II**
by K. Pijackova (ISI of the CAS, CZ)
- Common DL architectures

PROGRAM / Thursday / 12. 10. 2023 - Applications

09:00 - 09:30 **Pushing the limits of light microscopy with GANs**
by J. Materna (ML College, CZ)

09:30 - 10:00 **Practical implementation AIT in CT and MRI**
visualization by P. Ourednicek (FNUSA/Phillips, CZ)

10:00 - 10:15 **Coffee break**

10:15 - 10:45 **Unsupervised and semisupervised DL methods**
by P. Nejedly (ISI of the CAS, CZ)

10:45 - 11:15 **Can a single ML pipeline detect seizures in**
different datasets?
by B. Chybowski (University of Edinburgh, UK)

11:15 - 11:45 **DeepPlayer - AI plugin for SignalPlant software**
by F. Plesinger (ISI of the CAS, CZ)

11:45 - 12:45 **Lunch (provided)**

12:45 - 13:15 **Tracking by 3D Model Estimation of Unknown**
Objects in Videos by D.Rozumnyi (ETH Zurich, SW)

13:15 - 13:45 **Optimizing neural networks with genetic**
algorithm by K. Pijackova (ISI of the CAS, CZ)

13:45 - 14:00 **Coffee break**

14:00 - 14:30 **Keep attention, you will get better results**
by J. Pavlus (ISI of the CAS, CZ)

14:30 - 15:00 **From machine translation to solving all the**
world's problems by O. Bojar (FMP-CU, CZ)

Deep Layers
a machine-learning forum

Deep Layers forum will serve as a place to connect people, share knowledge, compare approaches and see how specific model architectures can help to solve particular tasks. The meeting is organized by a scientific group of Artificial Intelligence and Medical Technologies with the support of the Brno.AI cluster and financial support of Czech Academy of Sciences - Strategie AV21.

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