

Deep Layers

WORKSHOP / ARTIFICIAL INTELLIGENCE

Registration link:



4. - 5. 11. 2025

Institute of Scientific Instruments of the Czech Academy of Sciences
Kralovopolska 147, Brno, Czech Republic



Průlomové
technologie
budoucnosti



PROGRAM / Tuesday / 4. 11. 2025 - Tutorials for AI beginners

09:30 - 9:35

Foreword by **DeepLayers 2025** organizers

09:35 - 10:30

Machine-learning Elements I: Data treatment

by F. Plesinger (ISI of the CAS - AIMT, Brno, CZ)

- What is AI (today)
- Approaches to explore tabular data
- Cleaning and understanding data
- Hidden risks in untouched data

10:30 - 10:45

Coffee break

10:45 - 11:45

Machine-learning Elements II: Modelling tutorial

by B. Matouskova (ISI of the CAS - CN, Brno, CZ)

- Experiments with easy-to-use models
- Performance matrix
- Insight into features effect

11:45 - 12:45

Lunch (provided)

13:00 - 13:45

Deep-learning (DL) Elements I

by F. Lux (Thermo Fischer Scientific, Brno, CZ)

- Building blocks of DL networks
- Data Preprocessing for DL
- Training DL networks

13:45 - 14:00

Coffee break

14:00 - 15:15

Deep-learning Elements II

by J. Pavlus (ISI of the CAS, Brno, CZ)

- Augmentation techniques
- Transfer learning
- Common DL architectures

PROGRAM / Wednesday / 5. 11. 2025 - AI applications & news

- 09:00 - 09:30** **AI 2025: How Far We've Come and Where We're Headed** by P. Nejedly (ISI of the CAS - CN, CZ)
- 09:30 - 10:00** **Beyond the Model: Understanding Data Quality in the Development of Software Medical Devices**
by D. Schwarz and M. Svoboda (IBA, Brno,CZ)
- 10:00 - 10:15** **Coffee break**
- 10:15 - 10:45** **Artificial Intelligence in Digital Pathology: From Concept to Clinical Practice** by T. Brazdil (FI MUNI, Brno, CZ)
- 10:45 - 11:15** **Discovering Quantum Computing through VLQ: From Principles to Applications**
by M. Lampart (IT4Innovations, Ostrava, CZ)
- 11:15 - 11:45** **The World of Foundation models**
by J. Pavlus (ISI of the CAS, Brno, CZ)
- 11:45 - 12:45** **Lunch (provided)**
- 12:45 - 13:15** **Crop & weed detection using drone image data**
by D. Kovac (Scicake, Brno, CZ)
- 13:15 - 13:45** **Prediction of Ventricular Arrhythmias from Implantable Cardioverter Devices**
by Z. Koscova (Emory University, GA, US)
- 13:45 - 14:00** **Coffee break**
- 14:00 - 14:30** **Building a small cluster: caveats and lessons learned**
by J. Pavlus (ISI of the CAS, Brno, CZ)
- 14:30 - 15:00** **Securing Digital Onboarding: The Role of Natural Language in Machine Learning for Identity Verification**
by J. Spanhel (Innovatrics, Brno, CZ)

THE PROGRAMME MIGHT CHANGE



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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