****

9th INTERNATIONAL SCHOOL ON DEEP LEARNING

DeepLearn 2023 Spring

Bari, Italy

April 3-7, 2023

https://deeplearn.irdta.eu/2023sp/

****

Co-organized by:

Department of Computer Science
University of Bari "Aldo Moro"

Institute for Research Development, Training and Advice – IRDTA
Brussels/London

****

On-site registration

****

SCOPE:

DeepLearn 2023 Spring will be a research training event with a global scope aiming at updating participants on the most recent advances in the critical and fast developing area of deep learning. Previous events were held in Bilbao, Genova, Warsaw, Las Palmas de Gran Canaria, Guimarães, Las Palmas de Gran Canaria, Luleå and Bournemouth.

Deep learning is a branch of artificial intelligence covering a spectrum of current exciting research and industrial innovation that provides more efficient algorithms to deal with large-scale data in a huge variety of environments: computer vision, neurosciences, speech recognition, language processing, human-computer interaction, drug discovery, health informatics, medical image analysis, recommender systems, advertising, fraud detection, robotics, games, finance, biotechnology, physics experiments, biometrics, communications, climate sciences, bioinformatics, geographic information systems, etc. etc. Renowned academics and industry pioneers will lecture and share their views with the audience.

Most deep learning subareas will be displayed, and main challenges identified through 19 four-hour and a half courses and 3 keynote lectures, which will tackle the most active and promising topics. The organizers are convinced that outstanding speakers

will attract the brightest and most motivated students. Face to face interaction and networking will be main ingredients of the event. It will be also possible to fully participate in vivo remotely.

An open session will give participants the opportunity to present their own work in progress in 5 minutes. Moreover, there will be two special sessions with industrial and recruitment profiles.

ADDRESSED TO:

Graduate students, postgraduate students and industry practitioners will be typical profiles of participants. However, there are no formal pre-requisites for attendance in terms of academic degrees, so people less or more advanced in their career will be welcome as well. Since there will be a variety of levels, specific knowledge background may be assumed for some of the courses. Overall, DeepLearn 2023 Spring is addressed to students, researchers and practitioners who want to keep themselves updated about recent developments and future trends. All will surely find it fruitful to listen to and discuss with major researchers, industry leaders and innovators.

VENUE:

DeepLearn 2023 Spring will take place in Bari, an important economic centre on the Adriatic Sea. The venue will be:

Department of Computer Science
University of Bari “Aldo Moro”
via Edoardo Orabona, 4
70125 Bari

STRUCTURE:

2 or 3 courses will run in parallel during the whole event. Participants will be able to freely choose the courses they wish to attend as well as to move from one to another.

Full live online participation will be possible. However, the organizers highlight the importance of face to face interaction and networking in this kind of research training event.

KEYNOTE SPEAKERS:

Vipin Kumar (University of Minnesota), Knowledge-Guided Deep Learning: A Framework for Accelerating Scientific Discovery

William S. Noble (University of Washington), Deep Learning Applications in Mass Spectrometry Proteomics and Single-Cell Genomics

Emma Tolley (Swiss Federal Institute of Technology Lausanne), Physics-Informed Deep Learning

PROFESSORS AND COURSES:

Babak Ehteshami Bejnordi (Qualcomm AI Research), [intermediate/advanced] Conditional Computation for Efficient Deep Learning with Applications to Computer Vision, Multi-Task Learning, and Continual Learning

Sergei V. Gleyzer (University of Alabama), [introductory/intermediate] Machine Learning Fundamentals and Their Applications to Very Large Scientific Data: Rare Signal and Feature Extraction, End-to-End Deep Learning, Uncertainty Estimation and Realtime Machine Learning Applications in Software and Hardware

Jacob Goldberger (Bar-Ilan University), [introductory/intermediate] Calibration Methods for Neural Networks

Christoph Lampert (Institute of Science and Technology Austria), [intermediate] Training with Fairness and Robustness Guarantees

Yingbin Liang (Ohio State University), [intermediate/advanced] Bilevel Optimization and Applications in Deep Learning

Xiaoming Liu (Michigan State University), [intermediate] Deep Learning for Trustworthy Biometrics

Michael Mahoney (University of California Berkeley), [intermediate] Practical Neural Network Theory: From Statistical Mechanics Basics to Working with State of the Art Models

Liza Mijovic (University of Edinburgh), [introductory/intermediate] Deep Learning & the Higgs Boson: Classification with Fully Connected and Adversarial Networks

Bhiksha Raj (Carnegie Mellon University), [introductory] An Introduction to Quantum Neural Networks [with Rita Singh, Daniel Justice and Prabh Baweja]

Holger Rauhut (RWTH Aachen University), [intermediate] Gradient Descent Methods for Learning Neural Networks: Convergence and Implicit Bias

Bart ter Haar Romeny (Eindhoven University of Technology), [intermediate/advanced] Explainable Deep Learning from First Principles

Tara Sainath (Google), [advanced] E2E Speech Recognition [*virtual*]

Martin Schultz (Research Centre Jülich), [intermediate] Deep Learning for Air Quality, Weather and Climate

Adi Laurentiu Tarca (Wayne State University), [intermediate] Machine Learning for Cross-Sectional and Longitudinal Omics Studies

Michalis Vazirgiannis (Polytechnic Institute of Paris), [intermediate/advanced] Graph Machine Learning with GNNs and Applications

Atlas Wang (University of Texas Austin), [intermediate] Sparse Neural Networks: From Practice to Theory

Guo-Wei Wei (Michigan State University), [introductory/advanced] Discovering the Mechanisms of SARS-CoV-2 Evolution and Transmission [*virtual*]

Lei Xing (Stanford University), [intermediate] Deep Learning for Medical Imaging and Genomic Data Processing: from Data Acquisition, Analysis, to Biomedical Applications

Xiaowei Xu (University of Arkansas Little Rock), [intermediate/advanced] From Transformer to ChatGPT and beyond: How Large Language Models Revolutionize AI?

OPEN SESSION:

An open session will collect 5-minute voluntary presentations of work in progress by participants. They should submit a half-page abstract containing the title, authors, and summary of the research to david@irdta.eu by March 26, 2023.

INDUSTRIAL SESSION:

A session will be devoted to 10-minute demonstrations of practical applications of deep learning in industry. Companies interested in contributing are welcome to submit a 1-page abstract containing the program of the demonstration and the logistics needed. People in charge of the demonstration must register for the event. Expressions of interest have to be submitted to david@irdta.eu by March 26, 2023.

EMPLOYER SESSION:

Organizations searching for personnel well skilled in deep learning will have a space reserved for one-to-one contacts. It is recommended to produce a 1-page .pdf leaflet with a brief description of the company and the profiles looked for to be circulated among the participants prior to the event. People in charge of the search must register for the event. Expressions of interest have to be submitted to david@irdta.eu by March 26, 2023.

ORGANIZING COMMITTEE:

Giuseppina Andresini (Bari, local co-chair)
Graziella De Martino (Bari, local co-chair)
Corrado Loglisci (Bari, local co-chair)
Donato Malerba (Bari, local chair)
Carlos Martín-Vide (Tarragona, program chair)
Paolo Mignone (Bari, local co-chair)
Sara Morales (Brussels)
Gianvito Pio (Bari, local co-chair)
Francesca Prisciandaro (Bari, local co-chair)
David Silva (London, organization chair)
Gennaro Vessio (Bari, local co-chair)

REGISTRATION:

It has to be done at

https://deeplearn.irdta.eu/2023sp/registration/

The selection of 8 courses requested in the registration template is only tentative and non-binding. For the sake of organization, it will be helpful to have an estimation of the respective demand for each course. During the event, participants will be free to attend the courses they wish.

Since the capacity of the venue is limited, registration requests will be processed on a first come first served basis. The registration period will be closed and the on-line registration tool disabled when the capacity of the venue will have got exhausted. It is highly recommended to register prior to the event.

FEES:

Fees comprise access to all courses and lunches. There are several early registration deadlines. Fees depend on the registration deadline. The fees for on site and for online participation are the same.

ACCOMMODATION:

Accommodation suggestions are available at

https://deeplearn.irdta.eu/2023sp/accommodation/

CERTIFICATE:

A certificate of successful participation in the event will be delivered indicating the number of hours of lectures.

QUESTIONS AND FURTHER INFORMATION:

david@irdta.eu

ACKNOWLEDGMENTS:

University of Bari “Aldo Moro”

Rovira i Virgili University

Institute for Research Development, Training and Advice – IRDTA, Brussels/London