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**3<sup>rd</sup> INTERNATIONAL SUMMER SCHOOL ON DEEP LEARNING**

**DeepLearn 2019**

**Warsaw, Poland**

**July 22-26, 2019**

Co-organized by:

Institute of Computer Science, Polish Academy of Sciences

IRDTA – Brussels/London

<http://deeplearn2019.irdta.eu/>

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--- Regular registration deadline: July 19, 2019 ---

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**SCOPE:**

DeepLearn 2019 will be a research training event with a global scope aiming at updating participants about the most recent advances in the critical and fast developing area of deep learning. This is a branch of artificial intelligence covering a spectrum of current exciting machine learning research and industrial innovation that provides more efficient algorithms to deal with large-scale data in neurosciences, computer vision, speech recognition, language processing, human-computer interaction, drug discovery, biomedical informatics, healthcare, recommender systems, learning theory, robotics, games, 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 3 keynote lectures and 23 four-hour and a half courses, which will tackle the most active and promising topics. The organizers are convinced that outstanding speakers will attract the brightest and most motivated students. Interaction will be a main component of the event.

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:**

Master's students, PhD students, postdocs, and industry practitioners will be typical profiles of participants. However, there are no formal pre-requisites for attendance in terms of academic degrees. Since there will be a variety of levels, specific knowledge background may be assumed for some of the courses. Overall, DeepLearn 2019 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 and discuss with major researchers, industry leaders and innovators.

### **STRUCTURE:**

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.

### **VENUE:**

DeepLearn 2019 will take place in Warsaw, whose historical Old Town was designated a UNESCO World Heritage Site. The venue will be:

Global Expo  
Modlinska 6D  
03-216 Warsaw

### **KEYNOTE SPEAKERS:**

Maria-Florina Balcan (Carnegie Mellon University), Data Driven Clustering

Mark Gales (University of Cambridge), Use of Deep Learning in Non-native Spoken English Assessment

Mihaela van der Schaar (University of Cambridge), Learning Engines for Healthcare: Using Machine Learning to Transform Clinical Practice and Discovery

### **PROFESSORS AND COURSES:**

Aaron Courville (University of Montréal), [introductory/intermediate] Deep Generative Models

Issam El Naqa (University of Michigan), [introductory/intermediate] Deep Learning for Biomedicine

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

Vasant Honavar (Pennsylvania State University), [introductory/intermediate] Causal Models for Making Sense of Data

Qiang Ji (Rensselaer Polytechnic Institute), [introductory/intermediate] Probabilistic Deep Learning for Computer Vision

James Kwok (Hong Kong University of Science and Technology), [introductory/intermediate] Compressing Neural Networks

Tomas Mikolov (Facebook), [introductory] Using Neural Networks for Modeling and Representing Natural Languages (with Piotr Bojanowski and Armand Joulin)

Hermann Ney (RWTH Aachen University), [intermediate/advanced] Speech Recognition and Machine Translation: From Statistical Decision Theory to Machine Learning and Deep Neural Networks

Jose C. Principe (University of Florida), [intermediate/advanced] Cognitive Architectures for Object Recognition in Video

Fabio Roli (University of Cagliari), [introductory/intermediate] Adversarial Machine Learning

Björn Schuller (Imperial College London), [introductory/intermediate] Deep Learning for Intelligent Signal Processing

Alex Smola (Amazon), [introductory] Dive into Deep Learning

Sargur Srihari (University at Buffalo), [intermediate/advanced] Explainable Artificial Intelligence

Ponnuthurai N Suganthan (Nanyang Technological University), [introductory/intermediate] Learning Algorithms for Classification, Forecasting and Visual Tracking

Johan Suykens (KU Leuven), [introductory/intermediate] Deep Learning, Neural Networks and Kernel Machines

Bertrand Thirion (INRIA), [introductory] Understanding the Brain with Machine Learning

Gaël Varoquaux (INRIA), [intermediate] Representation Learning in Limited Data Settings

René Vidal (Johns Hopkins University), [intermediate/advanced] Mathematics of Deep Learning

Haixun Wang (WeWork), [intermediate] Abstractions, Concepts, and Machine Learning

Xiaowei Xu (University of Arkansas, Little Rock), [introductory/advanced] Multi-resolution Models for Learning Multilevel Abstract Representations of Text

Ming-Hsuan Yang (University of California, Merced), [intermediate/advanced]  
Learning to Track Objects

Zhongfei Zhang (Binghamton University), [introductory/advanced] Knowledge  
Discovery from Complex Data with Deep Learning

#### **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 title, authors, and summary of the research to david@irdta.eu by July 14, 2019.

#### **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. At least one of the people participating in the demonstration must register for the event. Expressions of interest have to be submitted to david@irdta.eu by July 14, 2019.

#### **EMPLOYER SESSION:**

Firms 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. At least one of the people in charge of the search must register for the event. Expressions of interest have to be submitted to david@irdta.eu by July 14, 2019.

#### **ORGANIZING COMMITTEE:**

Łukasz Kobyliński (Warsaw, co-chair)  
Sara Morales (Brussels)  
Manuel J. Parra-Royón (Granada)  
David Silva (London, co-chair)

#### **REGISTRATION:**

It has to be done at

<http://deeplearn2019.irdta.eu/registration/>

The selection of up to 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 facility disabled when the capacity of the venue is 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.

**ACCOMMODATION:**

Accommodation can be booked at

<http://www.deeplearn2019.promoest.com/hp.aspx?s=0>

**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:**

Institute of Computer Science, Polish Academy of Sciences

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