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## 6<sup>th</sup> INTERNATIONAL SCHOOL ON DEEP LEARNING

**DeepLearn 2022 Spring**

**Guimarães, Portugal**

**April 18-22, 2022**

<https://irdta.eu/deeplearn2022sp/>

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Co-organized by:

Algoritmi Center  
University of Minho, Guimarães

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

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Early registration: October 15, 2021

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### **SCOPE:**

DeepLearn 2022 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, and Bournemouth.

Deep learning is a branch of artificial intelligence covering a spectrum of current frontier 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, biomedical informatics, image analysis, recommender systems, advertising, fraud detection, robotics, games, finance, biotechnology, physics experiments, 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 24 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 2022 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 2022 Spring will take place in Guimarães, in the north of Portugal, listed as UNESCO World Heritage Site and often referred to as the birthplace of the country. The venue will be:

TBA

#### **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.

Full in vivo 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:**

Christopher Manning (Stanford University), Self-supervised and Naturally Supervised Learning Using Language

Kate Smith-Miles (University of Melbourne), Stress-testing Optimisation Algorithms via Instance Space Analysis

Zhongming Zhao (University of Texas, Houston), Deep Learning Approaches for Predicting Virus-Host Interactions and Drug Response

## **PROFESSORS AND COURSES:**

Eneko Agirre (University of the Basque Country), [intermediate] Deep Learning for Natural Language Processing

Mohammed Bennamoun (University of Western Australia), [intermediate/advanced] Deep Learning for 3D Vision

Altan Çakır (Istanbul Technical University), [introductory] Introduction to Deep Learning with Apache Spark

Rylan Conway (Amazon), [introductory/intermediate] Deep Learning for Digital Assistants

Jifeng Dai (SenseTime Research), [intermediate] AutoML for Generic Computer Vision Tasks

Jianfeng Gao (Microsoft Research), [introductory/intermediate] An Introduction to Conversational Information Retrieval

Daniel George (JPMorgan Chase), [introductory] An Introductory Course on Machine Learning and Deep Learning with Mathematica/Wolfram Language

Bohyung Han (Seoul National University), [introductory/intermediate] Robust Deep Learning

Lina J. Karam (Lebanese American University), [introductory/intermediate] Deep Learning for Quality Robust Visual Recognition

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

Jennifer Ngadiuba (Fermi National Accelerator Laboratory), [intermediate] Ultra Low-latency and Low-area Machine Learning Inference at the Edge

Lucila Ohno-Machado (University of California, San Diego), [introductory] Use of Predictive Models in Medicine and Biomedical Research

Bhiksha Raj (Carnegie Mellon University), [introductory] An Introduction to Quantum Neural Networks

Bart ter Haar Romenij (Eindhoven University of Technology), [intermediate] Deep Learning and Perceptual Grouping

Kaushik Roy (Purdue University), [intermediate] Re-engineering Computing with Neuro-inspired Learning: Algorithms, Architecture, and Devices

Walid Saad (Virginia Polytechnic Institute and State University), [intermediate/advanced] Machine Learning for Wireless Communications: Challenges and Opportunities

Yvan Saeys (Ghent University), [introductory/intermediate] Interpreting Machine Learning Models

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

Richa Singh (Indian Institute of Technology, Jodhpur), [introductory/intermediate] Trusted AI

Sofia Vallecorsa (European Organization for Nuclear Research), [introductory/intermediate] Generative Model Applications in the Context of Experimental Physics

Michalis Vazirgiannis (École Polytechnique), [intermediate/advanced] Graph Neural Networks with Applications

Guowei Wei (Michigan State University), [introductory/advanced] Integrating AI and Advanced Mathematics with Experimental Data for Forecasting Emerging SARS-CoV-2 Variants

Xiaowei Xu (University of Arkansas, Little Rock), [intermediate/advanced] Deep Learning for NLP and Causal Inference

Guoying Zhao (University of Oulu), [introductory/intermediate] Vision-based Emotion 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 April 10, 2022.

#### **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 April 10, 2022.

#### **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. People in charge of the search must register for the event. Expressions of interest have to be submitted to david@irdta.eu by April 10, 2022.

### **ORGANIZING COMMITTEE:**

Dalila Durães (Braga, co-chair)  
José Machado (Braga, co-chair)  
Carlos Martín-Vide (Tarragona, program chair)  
Sara Morales (Brussels)  
Paulo Novais (Braga, co-chair)  
David Silva (London, co-chair)

### **REGISTRATION:**

It has to be done at

<https://irdta.eu/deeplearn2022sp/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 get 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 suggestions will be available in due time at

<https://irdta.eu/deeplearn2022sp/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:**

Centro Algoritmi, Universidade do Minho, Guimarães

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