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**6th INTERNATIONAL GRAN CANARIA SCHOOL ON DEEP LEARNING**

**DeepLearn 2022 Summer**

**Las Palmas de Gran Canaria, Spain**

**July 25-29, 2022**

https://irdta.eu/deeplearn/2022su/

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Co-organized by:

University of Las Palmas de Gran Canaria

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

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On-site registration: July 29, 2022

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**SCOPE:**

DeepLearn 2022 Summer 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, Bournemouth, and Guimarães.

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, biometrics, communications, climate sciences, 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 21 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 Summer 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 Summer will take place in Las Palmas de Gran Canaria, on the Atlantic Ocean, with a mild climate throughout the year, sandy beaches and a renowned carnival. The venue will be:

Institución Ferial de Canarias
Avenida de la Feria, 1
35012 Las Palmas de Gran Canaria

https://www.infecar.es/index.php?option=com_k2&view=item&layout=item&id=360&Itemid=896

**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 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:**

Wahid Bhimji (Lawrence Berkeley National Laboratory), Deep Learning on Supercomputers for Fundamental Science [*virtual*]

Joachim M. Buhmann (Swiss Federal Institute of Technology Zurich), Machine Learning -- A Paradigm Shift in Human Thought!?

Kate Saenko (Boston University), Overcoming Dataset Bias in Deep Learning [*virtual*]

**PROFESSORS AND COURSES:**

Pierre Baldi (University of California Irvine), [intermediate/advanced] Deep Learning: From Theory to Applications in the Natural Sciences

Arindam Banerjee (University of Illinois Urbana-Champaign), [intermediate/advanced] Deep Generative and Dynamical Models

Mikhail Belkin (University of California San Diego), [intermediate/advanced] Modern Machine Learning and Deep Learning through the Prism of Interpolation

Arthur Gretton (University College London), [intermediate/advanced] Probability Divergences and Generative Models

Phillip Isola (Massachusetts Institute of Technology), [intermediate] Deep Generative Models

Mohit Iyyer (University of Massachusetts Amherst), [intermediate/advanced] Natural Language Generation

Irwin King (Chinese University of Hong Kong), [intermediate/advanced] Deep Learning on Graphs

Tor Lattimore (DeepMind), [intermediate/advanced] Tools and Techniques of Reinforcement Learning to Overcome Bellman's Curse of Dimensionality

Vincent Lepetit (Paris Institute of Technology), [intermediate] Deep Learning and 3D Reasoning for 3D Scene Understanding

Dimitris N. Metaxas (Rutgers, The State University of New Jersey), [intermediate/advanced] Model-based, Explainable, Semisupervised and Unsupervised Machine Learning for Dynamic Analytics in Computer Vision and Medical Image Analysis

Sean Meyn (University of Florida), [introductory/intermediate] Reinforcement Learning: Fundamentals, and Roadmaps for Successful Design

Louis-Philippe Morency (Carnegie Mellon University), [intermediate/advanced] Multimodal Machine Learning

Wojciech Samek (Fraunhofer Heinrich Hertz Institute), [introductory/intermediate] Explainable AI: Concepts, Methods and Applications

Clarisa Sánchez (University of Amsterdam), [introductory/intermediate] Mechanisms for Trustworthy AI in Medical Image Analysis and Healthcare

Björn W. Schuller (Imperial College London), [introductory/intermediate] Deep Multimedia Processing

Jonathon Shlens (Apple), [introductory/intermediate] Learning a Representation of the Visual World with Neural Networks [*virtual*]

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

A. Murat Tekalp (Koç University), [intermediate/advanced] Deep Learning for Image/Video Restoration and Compression

Alexandre Tkatchenko (University of Luxembourg), [introductory/intermediate] Machine Learning for Physics and Chemistry

Li Xiong (Emory University), [introductory/intermediate] Differential Privacy and Certified Robustness for Deep Learning

Ming Yuan (Columbia University), [intermediate/advanced] Low Rank Tensor Methods in High Dimensional Data Analysis

**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 July 17, 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 July 17, 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 July 17, 2022.

**ORGANIZING COMMITTEE:**

Marisol Izquierdo (Las Palmas de Gran Canaria, local chair)
Carlos Martín-Vide (Tarragona, program chair)
Sara Morales (Brussels)
David Silva (London, organization chair)

**REGISTRATION:**

It has to be done at

https://irdta.eu/deeplearn/2022su/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://irdta.eu/deeplearn/2022su/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:**

Cabildo de Gran Canaria

Universidad de Las Palmas de Gran Canaria - Fundación Parque Científico Tecnológico

Universitat Rovira i Virgili

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