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7th INTERNATIONAL SCHOOL ON DEEP LEARNING

DeepLearn 2022 Autumn

Luleå, Sweden

October 17-21, 2022

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

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Co-organized by:

Luleå University of Technology
EISLAB Machine Learning

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

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Early registration: May 17, 2022

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SCOPE:

DeepLearn 2022 Autumn 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 and Las Palmas de Gran Canaria.

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, health informatics, medical image analysis, recommender systems, advertising, fraud detection, robotics, games, finance, biotechnology, physics experiments, biometrics, communications, climate sciences, bioinformatics, 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 Autumn 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 Autumn will take place in Luleå, on the coast of northern Sweden, hosting a large steel industry and the northernmost university in the country. The venue will be:

Luleå University of Technology

https://www.ltu.se/?l=en

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:

Wolfram Burgard (University of Freiburg), Probabilistic and Deep Learning Techniques for Robot Navigation and Automated Driving

Tommaso Dorigo (Italian National Institute for Nuclear Physics), Deep-Learning-Optimized Design of Experiments: Challenges and Opportunities

Elaine O. Nsoesie (Boston University), AI and Health Equity

PROFESSORS AND COURSES:

Sean Benson (Netherlands Cancer Institute), [intermediate] Deep Learning for a Better Understanding of Cancer

Daniele Bonacorsi (University of Bologna), [intermediate/advanced] Applied ML for High-Energy Physics

Thomas Breuel (Nvidia), [intermediate/advanced] Large Scale Deep Learning and Self-Supervision in Vision and NLP

Hao Chen (Hong Kong University of Science and Technology), [introductory/intermediate] Label-Efficient Deep Learning for Medical Image Analysis

Jianlin Cheng (University of Missouri), [introductory/intermediate] Deep Learning for Bioinformatics

Nadya Chernyavskaya (European Organization for Nuclear Research), [intermediate] Graph Networks for Scientific Applications with Examples from Particle Physics

Peng Cui (Tsinghua University), [introductory/advanced] Towards Out-Of-Distribution Generalization: Causality, Stability and Invariance

Sébastien Fabbro (University of Victoria), [introductory/intermediate] Learning with Astronomical Data

Quanquan Gu (University of California Los Angeles), [intermediate/advanced] Benign Overfitting in Machine Learning: From Linear Models to Neural Networks

Jiawei Han (University of Illinois Urbana-Champaign), [advanced] Text Mining and Deep Learning: Exploring the Power of Pretrained Language Models

Awni Hannun (Zoom), [intermediate] An Introduction to Weighted Finite-State Automata in Machine Learning

Shirley Ho (Flatiron Institute), [intermediate] Structured Machine Learning for Simulations

Tin Kam Ho (IBM Thomas J. Watson Research Center), [introductory/intermediate] Deep Learning Applications in Natural Language Understanding

Timothy Hospedales (University of Edinburgh), [intermediate/advanced] Deep Meta-Learning

Shih-Chieh Hsu (University of Washington), [intermediate/advanced] Real-Time Artificial Intelligence for Science and Engineering

Andrew Laine (Columbia University), [introductory/intermediate] Applications of AI in Medical Imaging

Tatiana Likhomanenko (Apple), [intermediate/advanced] Self-, Weakly-, Semi-Supervised Learning in Speech Recognition

Peter Richtárik (King Abdullah University of Science and Technology), [intermediate/advanced] Introduction to Federated Learning

Othmane Rifki (Spectrum Labs), [introductory/advanced] Speech and Language Processing in Modern Applications

Mayank Vatsa (Indian Institute of Technology Jodhpur), [introductory/intermediate] Small Sample Size Deep Learning

Yao Wang (New York University), [introductory/intermediate] Deep Learning for Computer Vision

Zichen Wang (Amazon Web Services), [introductory/intermediate] Graph Machine Learning for Healthcare and Life Sciences

Alper Yilmaz (Ohio State University), [introductory/intermediate] Deep Learning and Deep Reinforcement Learning for Geospatial Localization

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 October 9, 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 October 9, 2022.

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 organization 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 October 9, 2022.

ORGANIZING COMMITTEE:

Nosheen Abid (Luleå)
Sana Sabah Al-Azzawi (Luleå)
Lama Alkhaled (Luleå)

Prakash Chandra Chhipa (Luleå)
Saleha Javed (Luleå)
Marcus Liwicki (Luleå, local chair)
Carlos Martín-Vide (Tarragona, program chair)
Hamam Mokayed (Luleå)
Sara Morales (Brussels)
Mia Oldenburg (Luleå)
Maryam Pahlavan (Luleå)
David Silva (London, organization chair)
Richa Upadhyay (Luleå)

REGISTRATION:

It has to be done at

https://irdta.eu/deeplearn/2022au/registration/

The selection of 8 courses requested in the registration template is only tentative and non-binding. For logistical reasons, 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 participants are the same.

ACCOMMODATION:

Accommodation suggestions will be available in due time at

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

Luleå University of Technology, EISLAB Machine Learning

Rovira i Virgili University

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