

7th Advanced Course on Data science & machine Learning – ACDL 2024

from Deep Learning to Generative Artificial Intelligence

Riva del Sole Resort & SPA – Castiglione della Pescaia (Grosseto) Tuscany, Italy

10 – 14 June 2024

<https://acdl2024.icas.events/>

lod@icas.cc

Schedule Ver. 2.0 (3 pages) – May 13, 2024

	Mon, 10 June	Tue, 11 June	Wed, 12 June	Thu, 13 June	Fri, 14 June
09:00 – 09:50	Lecture	Lecture	Lecture	Lecture	Lecture
09:50 – 10:40	Lecture	Lecture	Lecture	Lecture	Lecture
10:40 – 11:20	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
11:20 – 12:10	Lecture	Lecture	Lecture	Lecture	Lecture
12:10 – 13:00	Lecture	Lecture	Lecture	Lecture	Lecture
13:00 – 15:00	Lunch	Lunch	Lunch	Lunch	Lunch
15:00 – 15:50	Lecture	Lecture	Lecture	Lecture	Lecture
15:50 – 16:40	Lecture	Free time	Lecture	Free time	Lecture
16:40 – 17:20	Coffee break		Coffee break		Lecture
17:20 – 18:10	Lecture		Lecture		Lecture
18:10 – 19:00	Lecture		Lecture		Lecture
19:00 – 19:50	Lecture		Lecture		Free time
20:00	Dinner	Dinner	Dinner	Dinner	Social Dinner*
		21:30 Participant talks*		21:30 Participant talks*	

Conference Room: *The Crown* (in the conference centre of the Riva del Sole Resort & SPA)

Registration: June 9 @ 15:00 – 19:50 (in the foyer of the conference centre near The Crown conference room)

Inside the Riva del Sole it is mandatory to wear the badge.

Group Photo: June 10 @ 10:40 Meeting point: terrace adjacent to the restaurant.

* Each attendant talk must compulsorily last no longer than 10 minutes (8 min talk + 2 min Q&A).

* For the social dinner on the 14th, if possible, we advise everyone **to dress up** (jacket and tie, suit, etc.).

LECTURERS:

Joseph Sifakis, Verimag Laboratory, Grenoble, France **Turing Award**

Gabriel Barth-Maroon, DeepMind, London, UK

Sergiy Butenko, Texas A&M University, USA

Sven Giesselbach, Fraunhofer Institute - IAIS, Germany

Ramin Hasani, MIT, USA

Chin-Wei Huang, Microsoft Research Amsterdam, The Netherlands

Nora Kassner, DeepMind, London, UK

Petros Koumoutsakos, Harvard University, USA

Maria Liakata, The Alan Turing Institute, UK

Panos Pardalos, University of Florida, USA

Raniero Romagnoli, Almawave Spa, Italy

Pascal Van Hentenryck, Georgia Institute of Technology, USA

Max Welling, University of Amsterdam, The Netherlands

DIRECTORS:

Giuseppe Nicosia, University of Catania, Italy

Panos Pardalos, University of Florida, USA

“Those who have an eye find what they are looking for even with their eyes closed”

“Chi ha occhio trova quel che cerca anche a occhi chiusi”

Italo Calvino

ACDL 2024 Lecturers

Joseph Sifakis, Verimag Laboratory, Grenoble, France **Turing Award**
Lecture “**Artificial Intelligence: Where We Are, Where We Are Going?**”

Gabriel Barth-Maroon, DeepMind, London, UK
4 Lectures on “**Multimodal Foundation Models**”

Sergiy Butenko, Texas A&M University, USA
Lecture “**Cluster-detection Methods in Network-based Data Analysis**”
Lecture “**Continuous Approaches to Cluster-Detection Problems in Networks**”

Sven Giesselbach, Fraunhofer Institute - IAIS, Germany
5 Lectures on “**Introduction on Foundation Models**”

Ramin Hasani, MIT, USA
4 Lectures on “**Continuous Neural Networks / Liquid Neural Networks**”

Chin-Wei Huang, Microsoft Research Amsterdam, The Netherlands
3 Lectures on “**Diffusion Models**”

Nora Kassner, DeepMind, London, UK
Lecture “**Large Language Models: Life after Pre-training**” 1/4
Lecture “**Large Language Models: Evaluation**” 2/4
Lecture “**Large Language Models: Reasoning and Factuality**” 3/4
Lecture “**Large Language Models: Retrieval augmentation and Tool-use**” 4/4

Petros Koumoutsakos, Harvard University, USA
Lecture “**Machine Learning for Modeling and Control of Complex Systems**” 1/2
Lecture “**Machine Learning for Modeling and Control of Complex Systems**” 2/2
Lecture “**Solving forward and inverse problems with and without neural networks**”
Lecture “**Bayesian Uncertainty Quantification**”

Maria Liakata, The Alan Turing Institute, UK
4 Lectures on “**Longitudinal Language Processing with User Generated Content**”

Panos Pardalos, University of Florida, USA
Lecture “TBA”

Raniero Romagnoli, Almwave Spa, Italy
Lecture “TBA”

Pascal Van Hentenryck, Georgia Institute of Technology, USA
3 Lectures on “**Fusing Machine Learning and Optimization for Engineering**”

Max Welling, University of Amsterdam, The Netherlands
Lecture “**Generalized Belief Propagation Algorithms for Tensor Network Contractions**”

Useful Information

1. Conference Room: **The Crown**. Number 7 on the resort map.
2. **Registration:** *June 9 @ 15:00 – 19:50* (in the foyer of the conference centre near The Crown conference room). Inside the Riva del Sole it is mandatory to wear the badge.
3. **Group Photo:** *June 10 @ 10:40 Meeting point: terrace adjacent to the restaurant.*
4. **Resort Map, Castiglione delle Pescaia Map,** and **ACDL 2024 Poster.**
5. In the program you will find the list of **accepted oral talks (TBA)**.
Oral talks will be held on June 14 at 17:20.
 - a. Each talk must compulsorily last **no longer than 10 minutes (8 min talk + 2 min Q&A)**.
 - b. *Those who have problems and cannot make the talk, please send us an email now, deadline by tomorrow.*
 - c. To do the talk, each speaker must necessarily use their own laptop/tablet.
6. Participants who need to take an **exam/project/oral to have the 8 ECTS** credited are asked to email acdl@icas.cc and Prof. Nicosia giuseppe.nicosia.1@gmail.com
7. Inside Riva del Sole, **badges must be worn at all times**.
8. For dinner on the 14th, if possible, we advise everyone **to dress up** (jacket and tie, suit, etc.).
9. **Certificates** will be given out on the last day of the course.
To receive the certificate you must have at least 85% of class attendance (we have CNNs/Transformers to compute and infer attendance ;-).
10. *One last thing, do not forget bathing suits, sunscreen, and stay hydrated.*

“But don't you see that the whole trouble lies here? In words, words. Each one of us has within him a whole world of things, each man of us his own special world. And how can we ever come to an understanding if I put in the words I utter the sense and value of things as I see them; while you who listen to me must inevitably translate them according to the conception of things each one of you has within himself. We think we understand each other, but we never really do.”

Luigi Pirandello, Six Characters in Search of an Author.

ACDL 2024 Accepted Talks

Each talk must compulsorily last no longer than 10 minutes (8 min talk + 2 min Q&A).
To do the talk, each speaker must necessarily use their own laptop/tablet.

Tue, 11 June @ 21:30

TBA

Thu, 13 June @ 21:30

TBA