



Neuromorphic Photonics as an enabling platform for AI applications

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Lectures timetable:

Day 1. 7th June 2021, 10am - 12 pm (UK time);

Day 2. 8th June 2021, 10am - 12 pm (UK time);

Day 3. 9th June 2021, 10am - 12 pm (UK time);

Day 4. 10th June 2021, 10am - 12 pm (UK time)

Abstract:

During the last years, Neuromorphic Photonics has attracted the spotlight of attention, due to unique advantages that emerge when combining the merits of integrated photonics such as: high wall-plug efficiency, inherent parallelism and bio-isomorphism of their dynamics with neuro-computational concepts. In particular, biological system's attributes such as spiking, excitability and plasticity unlock unique computational features that allow a new generation of unconventional photonic "processors" based on concepts such as reservoir computing, liquid state machines and spiking neural networks. These optical concepts are currently implemented using state-of-the-art of photonic technology and aim at addressing high-end machine learning related applications such as: high speed image processing (industry 4.0, machine vision, aerospace etc.), next generation plastic optical networks and high-speed low-power processing in general.

Short Bio:

Prof Charis Mesaritakis acquired his diploma, MSc and PhD from National and Kapodistrian University of Athens, Greece. He has been awarded a postdoctoral EU Marie-Curie Fellowship, involving high precision laser telemetry in III-V Labs, France; Followed by two competitive national research grants, PROMITHEAS from the G. Latsis foundation and HFRI-GSRT NEBULA, both focusing on the investigation of photonic neuromorphic technologies and photonic machine learning.

Since 2019, he is an Associate Professor at the department of Information and Communication Systems Engineering at the University of the Aegean. Currently he is a manager of the EU H2020 NEoteRIC project also focusing on photonic neuromorphic paradigms. Prof Charis Mesaritakis is author and co-author of more than 80 publications in highly cited journals and international conferences focusing on quantum-dot laser dynamics, neuromorphic systems and physical layer security, whereas he is a patent holder for photonic-physical unclonable functions modules for implementing physical layer security.



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