Machine learning-researcher becomes OSA Ambassador

Hardware and components   Computer calculations

Telecommunication   Mathematical modelling

THURSDAY 06 MAY 21 | By Tobias Sydradal Lund

Francesco Da Ros, Senior researcher at DTU Fotonik, has been selected by the Optical Society (OSA) to mentor and inspire the next generation of students and early career professionals in the global optics and photonics community. In this article, he answers four questions about his research and what he is going to do as an OSA Ambassador.

Contact

Francesco Da Ros
Senior Researcher
DTU Fotonik

+45 45 25 32 77

What does it mean to you, to have been elected as OSA Ambassador?

I am thrilled to join the amazing team of the Optical Society (OSA) ambassadors. I have been volunteering within the OSA for nearly 10 years, starting with joining the local OSA student chapter (now DTU-LYS) during my master's studies, so being an OSA ambassador gives me the tools to continue my efforts on mentoring young researchers, providing invited lectures and organize outreach activities.

What is an OSA Ambassador?

OSA identifies an annual class of ambassadors as part of a program to elevate leaders in the years following their degree. The title of OSA Ambassador is more than a designation from the OSA. Ambassadors are empowered with resources from the OSA Foundation to support students and early-career professionals worldwide. As volunteers this year, the ambassadors will provide virtual programming, networking, and mentoring opportunities, mainly through the 400+ OSA Student Chapters worldwide.

Source: OSA

What research are you passionate about?

I have been working on applying advanced techniques from the machine learning toolbox to specific problems in photonics for a few years now. However, the powerful machine learning algorithms that are becoming so fundamental for advancing our society and improving our quality of life require an enormous amount of computing power resulting in unsustainable energy requirements. To address this challenge, I have shifted my focus to understand how photonics can help with this issue by providing an effective hardware platform for implementing the specific computing operation required by machine learning. This is the topic of my Villum Young Investigator project that gives me the freedom to explore such still blue-sky research.

How is photonics for machine learning going to benefit society?

In recent years, machine learning algorithms have become key enablers to advance the state-of-the-art in countless research disciplines and have profound applications within our daily life, e.g. from improving medical diagnosis to facilitating human interaction through speech recognition and language translation, up to more recent applications such as the advent of self-driving cars. All these amazing new technologies are based on having sufficient computing power for running machine learning algorithms. Unfortunately, current computing hardware is struggling to keep up with the demand in an energy-efficient way. New photonic-based hardware has the potential to push further developments in computing and thus yielding breakthroughs in countless research disciplines.

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>
> Francesco Da Ros

What are you going to do as an OSA ambassador?

As an OSA ambassador, I plan to focus on outreach and mentorship programs for researchers at different stages of their careers, i.e. not only young PhD students. Furthermore, I hope that my experience with outreach and teaching in Europe may provide some different perspectives to further increase diversity and inclusion within the photonics community.

From: https://www.healthtech.dtu.dk