

**Avviso Seminario**

**21 October 2020 (2 PM – 5 PM)**

***“Machine Learning over Networks”***

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***Abstract:***

*One of the main characteristics of the Internet of Things (IoT) technological revolution is the generation of huge quantities of data. Such wealth of data and their use in several new IoT technologies is forcefully motivating the development of data analysis methods, namely machine learning. Currently, machine learning needs big datasets and very huge computational and communication resources. However, in IoT, data sets of any size will be distributed among several nodes (people, devices, objects, or machines) that might not be able to perform the computations and to share data.*

*Unfortunately, existing machine learning methods are mostly intended for proprietary or high performing networks such as in data centres. They would greatly stress the public communication networks of IoT, such as 5G wireless networks and beyond. In these networks, machine learning methods will encounter new challenges in terms of computation, bandwidth, scalability, privacy, and security. Machine learning over networks face a lack of understanding of the fundamental methods, and poor performance of their algorithms.*

*In this seminar, we highlight the need of establishing a new fundamental theory for machine learning over networks. We give an overview of the state-of-the-art and some of our recent groundbreaking developments.*

**Bio:**

Dr. Carlo Fischione is full Professor at KTH Royal Institute of Technology, Electrical Engineering and Computer Science, Division of Network and Systems Engineering, Stockholm, Sweden. He is Director of the Data Science Micro Degree Program. He received the Ph.D. degree in Electrical and Information Engineering (3/3 years) in May 2005 and the Laurea degree in Electronic Engineering (Laurea, Summa cum Laude, 5/5 years) in April 2001 from University of L'Aquila, Italy,

He has held research positions at Massachusetts Institute of Technology, Cambridge, MA (2015, Visiting Professor); Harvard University, Cambridge, MA (2015, Associate); and University of California at Berkeley, CA (2004-2005, Visiting Scholar, and 2007-2008, Research Associate).

His research interests include applied optimization, wireless, sensor networks, Internet of things, and machine learning. He has co-authored over 200 publications, including a book, book chapters, international journals and conferences, and international patents. He received a number of awards, such as the "IEEE Communication Society S. O. Rice" award for the best IEEE Transactions on Communications paper of 2018, the best paper award of IEEE Transactions on Industrial Informatics (2007), the best paper awards at the IEEE International Conference on Mobile Ad-hoc and Sensor System 05 and 09 (IEEE MASS 2005 and IEEE MASS 2009), the Best Paper Award of the IEEE Sweden VT-COM-IT Chapter (2014), the Best Business Idea awards from VentureCup East Sweden (2010) and from Stockholm Innovation and Growth (STING) Life Science in Sweden (2014), the "Ferdinando Filaurio" award from University of L'Aquila, Italy (2003), the "Higher Education" award from Abruzzo Region Government, Italy (2004), the Junior Research award from Swedish Research Council (2007), and the "Silver Ear of Wheat" award in history from the Municipality of Tornimparte, Italy (2012).

He is Editor of IEEE Transactions on Communications and IEEE Journal on Selected Areas on Communications - Series on Machine Learning for Communication and Networking, and has been serving as Associated Editor of IFAC Automatica (2014-2019). Meanwhile, he also has offered his advice as a consultant to numerous technology companies such as ABB Corporate Research, Berkeley Wireless Sensor Network Lab, Ericsson Research, Synopsys, and United Technology Research Center. He is co-founder, vice-president and scientific director of ELK.

He is Member of IEEE (the Institute of Electrical and Electronic Engineers), and Ordinary Member of DASP (the Italian academy of history Deputazione Abruzzese di Storia Patria).

## ***Meeting Details***

Topic: *Machine Learning over Networks*

Time: Oct 21, 2020 01:45 PM Stockholm

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