SEMINAR ANNOUNCEMENT

Tuesday December 19th, 2023
at 14:30 am
Room "Sala Seminari" - Abacus Building (U14)

Experimenting with Systems for Decentralized Machine Learning

Speaker
Prof. Marco Aldinucci
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- CINI, HPC Key Technology and Tools national lab
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Abstract
Decentralized machine learning (DML) enables collaborative machine learning without centralized input data. Federated learning (FL) and edge inference (EI) are examples of DML. Collaboration naturally happens at the edge of a distributed system with inherently distributed data. While tools for DML are starting to flourish, much needs to be done to get more flexible and portable tools to experiment with novel techniques, non-fully connected topologies, multiple data domains, and asynchronous collaboration schemes. We'll present recent advances in DML, aiming to improve usability in data centers and, at the edge, to widen the class of models extending FL to non-DDN paradigms, to improve the accuracy of models controlling normalization and frequency of communications, and to boost data privacy through generative adversarial networks.

Short Bio:
Marco Aldinucci is a full professor and P.I. of the Parallel Computing research group at the University of Torino. He received the HPC Advisory Council University Award 2011, the NVidia Research Award 2013, the IBM Faculty Award 2015, and the Autodesk Award 2021. He has participated in over 20 EU-funded research projects on parallel, cloud, and high-performance computing, attracting over 10M€ of research funds to the University of Torino. He has been the Italian delegate on the EuroHPC JU Governing Board (2018-2021). He has led the design of the HPC4AI laboratory and is the founding director of the CINI HPC Key Technologies and Tools national laboratory, gathering researchers from 38 Italian Universities. He is co-leading FureHPC, the technological spoke of the Italian National Centre on HPC (ICSC). He co-designed over ten programming frameworks for parallel and distributed computing..

contact person for this Seminar: prof. Elisabetta Fersini