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Invited talk: LUMI: Europe's most powerful supercomputer

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LUMI is the first pre-exascale supercomputer of the EuroHPC Joint Undertaking and is now Europe's most powerful supercomputer. Finland, together with 9 other countries from the Nordics and central Europe, collaboratively hosts one of these systems in Kajaani, Finland. The vast consortium of countries with an established tradition in scientific computing and strong national computing centers is a key asset for the successful infrastructure.

The LUMI supercomputer is also one of the most advanced platforms for artificial intelligence. It links together computational capacity, artificial intelligence methods (especially deep learning), traditional wide-scale simulation and the utilization of large masses of data to simultaneously solve a single challenge. LUMI serves as well as a platform for the development of quantum technology. Quantum computers need supercomputers alongside them to harness their capacity to the right targets as a part of the research process. LUMI has so far been linked successfully with two quantum computers: the Swedish QAL 9000 and the Finnish Helmi.

In this talk we will discuss the LUMI infrastructure and its great value and potential for the research community.

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