CERN openlab Hosts 2020 Technical Workshop

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Feb. 10, 2020 — On 22 and 23 January, CERN openlab held its annual technical workshop. CERN openlab is a unique public-private partnership, through which CERN collaborates with leading ICT companies to accelerate the development of cutting-edge computing technologies for the LHC research community. The workshop saw representatives of these companies gather at CERN, along with representatives of several research organizations collaborating in CERN openlab. The technical discussions covered various ICT topics such as machine learning, data-center technologies, data analysis, heterogeneous architectures, high-performance computing, unified programming models and more.

During the workshop, over 20 ongoing R&D projects that are being carried out through CERN openlab were presented. A poster competition was also held, with fellows sponsored by CERN openlab presenting their latest work. Cenk Tuysuz, of the Middle East Technical University, was declared the winner.

Participants of the CERN openlab Technical Workshop 2020 (Image courtesy of Hans Baechle/CERN)

“The strong collaboration between Patatrack and CERN openlab has been key to the success of the heterogeneous-computing revolution at CMS,” says Felice Pantaleo, applied physicist in CERN’s Experimental Physics (EP) department. Patatrack is a software R&D incubator project at CMS and the EP department. “Successful software R&D incubation relies on tight connections with industry,” continues Pantaleo. “This enables technologies to be improved based on expert feedback we provide and helps us to fully exploit cutting-edge breakthroughs on the way to the exascale era.”

CERN openlab’s successful workshop on quantum computing in late 2018 marked the beginning of a range of new investigations into quantum computing at CERN; these were expanded during 2019. At this year’s technical workshop, the first projects in this promising field of research were presented. Quantum technologies could play an important role in helping to tackle the LHC’s exponentially increasing computing demands, resulting in particular from the planned upgrade to the High-Luminosity LHC in the second half of this decade. Having big players like Google, Intel and IBM at its side, CERN openlab will help drive investigations into how quantum technologies can support the LHC research community.

In collaboration with CERN’s Knowledge Transfer group, CERN openlab intensified its investigations into how medical application can benefit from ICT innovations from particle physics. Currently, CERN openlab is running four projects on medical applications, which were all presented during the workshop.

“It was great to meet with representatives from the companies and research institutions collaborating in CERN openlab to discuss the progress made in our many ongoing projects,” says Maria Girone, CERN openlab CTO. “The event also provided an excellent opportunity to discuss – both with our external collaborators and representatives of the LHC experiments – emerging new ICT challenges to be tackled in the coming years.”

About CERN

Physicists and engineers at CERN use the world’s largest and most complex scientific instruments to study the basic constituents of matter – fundamental particles. Subatomic particles are made to collide together at close to the speed of light. The process gives us clues about how the particles interact, and provides insights into the fundamental laws of nature. We want to advance the boundaries of human knowledge by delving into the smallest building blocks of our universe. The instruments used at CERN are purpose-built particle accelerators and detectors. Accelerators boost beams of particles to high energies before the beams are made to collide with each other or

with stationary targets. Detectors observe and record the results of these collisions. Founded in 1954, the CERN laboratory sits astride the Franco-Swiss border near Geneva. It was one of Europe's first joint ventures and now has 23 member states.

Source: Hans Baechle, CERN openlab