



Cern OpenLab News

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 (<http://openlab.web.cern.ch/feeds/news/rss.xml>)

Press Release: CERN openlab tackles ICT challenges of High-Luminosity LHC (<http://openlab.cern/news/press-release-cern-openlab-tackles-ict-challenges-high-luminosity-lhc>)

Thu, 21/09/2017 - 09:28

Thursday, 21 September, 2017 (http://openlab.cern/sites/openlab.web.cern.ch/files/styles/large/public/news/images/MA1_1024.jpg?itok=OZBhLs9q)

CERN openlab (<http://openlab.cern/>) has published a white paper identifying the major ICT challenges that face [CERN, the European Organization for Nuclear Research](https://home.cern/about), (<https://home.cern/about>) and other 'big science' projects in the coming years.

CERN is home to [the Large Hadron Collider \(LHC\)](https://home.cern/topics/large-hadron-collider) (<https://home.cern/topics/large-hadron-collider>), the world's most powerful particle accelerator. The complexity of the scientific instruments at the laboratory throw up extreme ICT challenges, and make it an ideal environment for carrying out joint R&D projects and testing with industry.

A continuing programme of upgrades to the LHC and the experiments at CERN will result in hugely increased ICT demands in the coming years. The High-Luminosity LHC, the successor to the LHC, is planned to come online in around 2026. By this time, the total computing capacity required by the experiments is expected to be 50-100 times greater than today, with data storage needs expected to be in the order of exabytes.

CERN openlab works to develop and test the new ICT solutions and techniques that help to make the ground-breaking physics discoveries at CERN possible. It is a unique public-private partnership that provides a framework through which CERN can collaborate with leading ICT companies to accelerate the development of these cutting-edge technologies.

With a new three-year phase of CERN openlab set to begin at the start of 2018, work has been carried out throughout the first half of 2017 to identify key areas for future collaboration. A series of workshops and discussions was held to discuss the ICT challenges faced by the LHC research community — and other 'big science' projects over the coming years. This white paper is the culmination of these investigations, and sets out specific challenges that are ripe for tackling through collaborative R&D projects with leading ICT companies.

The white paper identifies 16 ICT 'challenge areas', which have been grouped into four overarching 'R&D topics' (data-centre technologies and infrastructures, computing performance and software, machine learning and data analytics, applications in other disciplines). Challenges identified include ensuring that data centre architectures are flexible and cost effective; using cloud computing resources in a scalable, hybrid manner; fully modernising code, in order to exploit hardware to its maximum potential; making sure large-scale platforms are in place to enable global scientific collaboration; and successfully translating the huge potential of machine learning into concrete solutions.

"Tackling these challenges — through a public-private partnership that brings together leading experts from each of these spheres — has the potential to positively impact on a range of scientific and technological fields, as well as wider society," says Alberto Di Meglio, head of CERN openlab.

"With the LHC and the experiments set to undergo major upgrade work in 2019 and 2020, CERN openlab's sixth phase offers a clear opportunity to develop ICT solutions that will already make a tangible difference for researchers when the upgraded LHC and experiments come back online in 2021," says Maria Girone, CERN openlab CTO.

Follow the launch event for the white paper live via webcast from 09:50 CEST today: <https://webcast.web.cern.ch/event/49> (<https://webcast.web.cern.ch/event/49>)

Attachment(s)

CERN openlab white paper on future IT challenges in scientific research (PDF): <http://openlab.cern/whitepaper> (http://openlab.cern/sites/openlab.web.cern.ch/files/technical_documents/Whitepaper_brochure_ONLINE.pdf)

Further information

CERN openlab website: www.cern.ch/openlab (<http://www.cern.ch/openlab>)

CERN openlab press pack www.cern.ch/openlab/press (<http://openlab.web.cern.ch/sites/openlab.web.cern.ch/files/CERN%20openlab%20press%20pack.pdf>)

Contact

Andrew Purcell

CERN openlab communications officer

andrew.purcell@cern.ch (<mailto:andrew.purcell@cern.ch>)

Tel: +41 22 76 62287

About CERN openlab

CERN openlab was established in 2001. It is a unique public-private partnership that works to accelerate the development of cutting-edge solutions for the worldwide LHC community and wider scientific research. Through CERN openlab, CERN collaborates with leading ICT companies and research institutes.

Within this framework, CERN provides access to its complex ICT infrastructure and its engineering experience — in some cases even extended to collaborating institutes worldwide.

Testing in CERN's demanding environment provides the ICT industry collaborators with valuable feedback on their products, while enabling CERN to assess the merits of new technologies in their early stages of development for possible future use. This framework also offers a neutral ground for carrying out advanced research-and-development activities with more than one company.

Today, the following companies and research institutes are collaborating in CERN openlab:

Partners: *Huawei, Intel, Oracle, Siemens*

Contributors: *Brocade, Cisco, IDT, Rackspace, Seagate*

Associates: *Comtrade, Yandex*

Research members: *EMBL-EBI, GSI, INFN, Innopolis University, Kazan Federal University, King's College London, Newcastle University, SCImpulse Foundation.*

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Tackling tomorrow's ICT challenges today (<http://openlab.cern/news/tackling-tomorrow%E2%80%99s-ict-challenges-today>)

Mon, 14/08/2017 - 16:51

Monday, 14 August, 2017 (<http://openlab.cern/sites/openlab.web.cern.ch/files/styles/large/public/news/images/DSC04540.jpg?itok=lrMPmTJx>)

CERN openlab (https://mmm.cern.ch/owa/redirect.aspx?C=jcizUUWPafsg9wAoFVqeScBi-B6z3kDOgPPpL_G4hNdqHxAdjUCA.&URL=http%3a%2f%2fopenlab.cern%2f) is organising an **open day** (https://mmm.cern.ch/owa/redirect.aspx?C=qSE0AI0IdMqJIP-fIC3ZmC7HPNv9iR3_XioV-NWR-i1qHxAdjUCA.&URL=http%3a%2f%2findico.cern.ch%2fe%2fCOD17%2f) on 21 September 2017 — everyone is welcome! Come and learn about our work: collaborating with leading ICT companies and research institutes to accelerate the development of cutting-edge solutions for the worldwide LHC community — as well as for wider scientific research.

As CERN openlab's current three-year phase comes to a close, discover the technical highlights from our diverse range of projects. And find out more about future ICT challenges we aim to tackle too! The event will see the launch of the new CERN openlab white paper on future ICT challenges: this is the culmination of a process of deep consultation with representatives of the experiments here at CERN.

The event will take place at CERN in the Council Chamber, as well as in the upstairs mezzanine area ("salle des pas perdus") of the Main Building. It will feature hands-on technology demonstrations from companies working with CERN openlab, so that you too can discover the latest ICT innovations.

If you're interested in finding out more about how research and industry can work together in close partnership to drive innovation in support of the scientific community, then this event is for you.

More information: <http://indico.cern.ch/e/COOD17/> (<http://indico.cern.ch/e/COOD17/>).

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CERN openlab students give "lightning talks" on 11 and 15.08 (<http://openlab.cern/news/cern-openlab-students-give-%E2%80%99lightning-talks%E2%80%9D-11-and-1508>)

Wed, 26/07/2017 - 16:14

Wednesday, 26 July, 2017

(<http://openlab.cern/sites/openlab.web.cern.ch/files/styles/large/public/news/images/CERN%20openlab%20Summer%20Students%202017%20Group%20Photo%20%284%29.JPG?itok=ic5taYkm>)

Want to learn about the exciting projects the **CERN openlab** (<http://openlab.cern/>) summer students have been working on? Then come along to the "lightning talk" sessions on Friday, 11 and Tuesday, 15 August. The students will each give five-minute presentations on their projects, explaining the technical challenges they have faced and describing their results so far. Topics covered in the students' projects this summer include machine learning, distributed computing, data analytics, and "the internet of things".

This year, the CERN openlab **Summer Student Programme** (<http://openlab.cern/summer-student-programme>) is hosting 37 **students** (http://openlab.cern/education/summer-student-programme/list-of-summer-students?field_date_value%5Bvalue%5D%5Byear%5D=2017) — representing 22 different nationalities — for nine weeks. Undergraduate and Masters students in computer science, mathematics, engineering and physics have come from all over the world to spend a summer at CERN working on advanced computing projects with applications in high-energy physics.

As part of the CERN openlab Summer Student Programme, the students have also been invited to attend a series of **lectures** (http://openlab.cern/summer-students-lectures?field_event_date_value%5Bvalue%5D%5Byear%5D=2017) given by IT experts on advanced CERN-related topics and had the opportunity to **visit** (<http://openlab.cern/education/summer-student-events>) the CERN facilities and experiments, as well as other organisations.

The lightning talks will take place in the IT Amphitheatre ([31/3-004](https://maps.cern.ch/)) from 1.30 p.m. to 3.30 p.m. on Friday, 11 August and from 3.30 p.m. to 6 p.m. on Tuesday, 15 August. Following the second session, there will be an opportunity to discuss the students' work with them over drinks and snacks. For more information, please visit the Indico pages for the two sessions: [11/08/2016](https://indico.cern.ch/event/635481/) (<https://indico.cern.ch/event/635481/>) and [15/08/2016](https://indico.cern.ch/event/635484/) (<https://indico.cern.ch/event/635484/>).

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CERN Summer Student Webfest: a weekend of science and creativity (<http://openlab.cern/news/cern-summer-student-webfest-weekend-science-and-creativity>)

Fri, 07/07/2017 - 10:12

Friday, 7 July, 2017 (http://openlab.cern/sites/openlab.web.cern.ch/files/styles/large/public/news/images/Poster_Webfest_MASTER-1.png?itok=pvkwHTUq)

Are you passionate about science? Do you like communicating that passion to the general public? Then come along to **the 2017 CERN Summer Student Webfest** (<https://webfest.web.cern.ch/>) on the weekend of 21-23 July! The event is a grassroots initiative, open to all summer students, staff, and users. It aims to spark new ideas and innovation for the future of web-based education about CERN, the LHC, and particle physics, as well as in humanitarian aid, development, and health.

The CERN Summer Student Webfest is a weekend of online web-based creativity, modelled on the gatherings (sometimes called hackfests or [hackathons](http://en.wikipedia.org/wiki/Hackathon)) that energise many open-source communities. You can work with like-minded students and CERN staff, to design and build demos of the web apps you would like to see online. Prizes will be awarded to the best projects.

Participants in the CERN Summer Student Webfest will work in teams to design applications that encourage the public to learn more about science and, in particular, CERN's work. Projects can range from designing online games for kids to creating citizen-science projects and developing low-cost mobile-phone-based cosmic ray detectors. Examples of past projects can be found on [the Webfest website](https://webfest.web.cern.ch/past-projects) (<https://webfest.web.cern.ch/past-projects>).

Although primarily targeted at CERN and [CERN openlab](http://openlab.cern/) summer students, the event is open to people of all ages at CERN with a passion for web-based science outreach and education. You do not have to be a software or hardware expert to contribute: many types of skill sets are needed, from writing and designing to physics and engineering.

So, come along for the weekend and create, innovate, and educate about science on the web!

Kick-off

Project ideas will be presented at a kick-off event on Friday 21st July, from 16:00 to 18:00. Participants will organise themselves into teams to work on the most exciting pitches. The kick-off event will also introduce a range of tools for web development, creating online educational tools, and contributing to science online.

Submitting your ideas

Anyone participating can pitch a project; pitches consist of short (less-than-five-minute) presentations. Participants are encouraged to submit their project ideas to via a tool on the Webfest website in advance, for the best chance forming a well-defined team.

Where will the participants work?

Teams will work on their Webfest projects primarily in CERN Restaurant 1. As the location is an open-space environment, there will be plenty of opportunity for interaction, both between participants and with the various technical experts taking part in the event. CERN openlab will provide meal tickets for participants.

Presentations and winners

The event will wrap up on Sunday 23rd of July at 16:00, with a judging panel reviewing the results (based on five-minute 'lightning talk' presentations by the teams) and awarding prizes.

Many thanks to our sponsors and organisers...

The event is organised by [CERN openlab](http://openlab.cern/). Our event partners also include [Citizen Cyberscience Centre](http://www.citizencyberscience.net/), [crowdAI](https://www.crowdai.org/), [Citizen Cyberlab project](http://citizencyberlab.eu/), [the Port](http://theport.ch/), and the [Mozilla Science Lab](https://science.mozilla.org/).

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[Modular supercomputer enters next round with DEEP-EST project](http://openlab.cern/news/modular-supercomputer-enters-next-round-deep-est-project)

Tue, 04/07/2017 - 16:02

Tuesday, 4 July, 2017

We're very pleased to announce our participation in a new EU project, which officially began on 1 July. The project, called DEEP-EST, aims to develop 'a modular supercomputer tailored to the complexity of state-of-the-art simulation codes and the growing range of tasks at computing centres'. It follows on from the successful DEEP and DEEP-ER projects. Find out more in the press release from Forschungszentrum Jülich: <http://www.fz-juelich.de/SharedDocs/Pressemitteilungen/UK/EN/2017/2017-07-03-deepest.html>.

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[CERN openlab summer students arrive at CERN](http://openlab.cern/news/cern-openlab-summer-students-arrive-cern)

Mon, 19/06/2017 - 17:23

Monday, 19 June, 2017 (http://openlab.cern/sites/openlab.web.cern.ch/files/styles/large/public/news/images/20170619_155839.jpg?itok=KtZl8GYV)

Today, the first students participating in the 2017 CERN openlab Summer Student Programme have arrived at CERN. In total, 37 students were selected from over 1500 applicants to the programme. The remaining students will arrive over the next two weeks.

The students will spend nine weeks at CERN working on a range of exciting projects. They will also attend fascinating lectures, take part in organised visits to other research institutions and companies, and gain hands-on experience with the latest ICT hardware and software.

The lecture series for the summer students includes talks from leading experts in a range of fields related to ICT and high-energy physics. The lectures, [which are listed in our events calendar](http://openlab.cern/calendar-event_date/month), can be followed online via webcast.

CERN openlab has now been running its summer student programme for 15 years, with over 300 students coming to the laboratory as part of the programme. [More information about the CERN openlab Summer Student Programme is available on our dedicated page](http://openlab.cern/summer-student-programme).

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[New design unveiled for our new phase](http://openlab.cern/news/new-design-unveiled-our-new-phase)

Mon, 19/06/2017 - 13:20

Monday, 19 June, 2017 (http://openlab.cern/sites/openlab.web.cern.ch/files/styles/large/public/news/images/LOGO_openlab.png?itok=vmQczyFy)

10/6/2017

Cern OpenLab News | Τμήμα Φυσικής

We're pleased to announce that CERN openlab has officially launched its new logo and design package today! We're working on a whole new array of communications tools for the start of our new three-year phase in 2018, including a brand new website! We'll use these tools in our efforts to further spread the word about the groundbreaking work carried out through our unique public-private partnership. Help us to spread the word about CERN openlab by sharing our new brochure: <http://cern.ch/go/9nJm> (<http://cern.ch/go/9nJm>)

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University of Crete - Department of Physics - P.O Box 2208 - GR-71003 Heraklion, Greece
phone: +30 2810 394300 - fax: +30 2810 394301