



# CERN openlab Summer Student Programme 2015

## Open up your mind and apply!

CERN is the birthplace of the World Wide Web and where the Higgs particle was discovered by two of the major LHC experiments, the ATLAS and CMS collaborations. The laboratory hosts groundbreaking experiments and is at the heart of the Worldwide LHC Computing Grid (WLCG). This is a place like no other where dizzying IT challenges abound!

Located just outside Geneva, straddling the border between Switzerland and France, CERN explores what matter is made of and what holds it together by accelerating particles to a fraction under the speed of light and then smashing them together. The Large Hadron Collider (LHC), a 27 km circumference accelerator buried 50-175 m below ground, generated more than 25 petabytes of data in 2012. In early 2013, at the end of the first three-year LHC running period, the remarkable figure of 100 petabytes of data stored in the CERN mass-storage systems was surpassed. Major consolidation and upgrade work has been performed during the LHC long shutdown in 2013 and 2014 and data taking will restart in spring 2015 with a new LHC run.

CERN openlab was created in 2001 to tackle the LHC computing, data and infrastructure challenges. This is a unique public-private partnership between CERN and leading ICT companies. Its mission is to accelerate the development of leading-

edge solutions to be used by the worldwide LHC community.

In 2015 a new three-year CERN openlab phase will start with leading ICT companies to tackle ambitious challenges covering the most critical needs of IT infrastructures in domains such as:

- Data Acquisition
- Computing Platforms
- Data Storage Architectures
- Compute Provisioning and Management
- Networks and Communication
- Data Analytics

By joining the CERN openlab Summer Student Programme, you will work with some of the latest hardware and software technologies and see how advanced IT solutions are used in high energy physics. You will have the opportunity to attend a series of lectures developed for the CERN openlab Summer Students, given by IT experts on advanced CERN-related topics. Included in the programme are also visits at the CERN facilities and experiments as well as other research laboratories and companies.

The CERN openlab Summer Student Programme is much more than just a summer at CERN. It can lead to follow-on projects in your home institute at master's or PhD level. It may even inspire you to become an entrepreneur in cutting-edge computing technologies!

### Who should apply?

Bachelor or master students having completed (by the summer of attending) at least three years of full-time studies at university level in Computer Science, Engineering, Mathematics or Physics, interested in working on advanced IT projects for two full months (nine weeks) during the period June-September 2015 are welcome to apply.

For more information: [www.cern.ch/openlab](http://www.cern.ch/openlab)

### How to apply?

The application must be submitted to [www.cern.ch/jobs/join-us/cern-openlab-student-programme](http://www.cern.ch/jobs/join-us/cern-openlab-student-programme) by 28 February 2015 with the following documents attached to it: the applicant's CV, recommendation letter(s) by university supervisor(s), a motivation letter with an indication of the preferred area of work, and the university declaration for the current year. Incomplete applications will not be considered. Replies to applicants will be sent out by the end of April 2015.

### Stipend

A stipend of 90 CHF per day during contractual dates (generally 61 days) is sponsored by CERN and the CERN openlab industrial members and should cover accommodation and living costs during the nine-week stay. Students are covered by the CERN health and accident insurance scheme, and are offered a travel allowance on a lump sum basis.

### Student's projects

Several projects and groups at CERN will host CERN openlab Summer Students. Examples of projects that students undertook in the past years include:

- Investigation on Oracle GoldenGate Veridata for data consistency in WLCG distributed database environment
- Development of monitoring and analysis tools for the Huawei cloud storage system
- Log analysis of WinCC OA projects
- Vectorization and study of random number generators on modern Intel architectures
- Federation of OpenStack clouds

A report on the work carried out is to be handed in at the end of your stay. The CERN openlab Summer Students are also given the opportunity to present their work at dedicated lightning talks' events.