The Large Hadron Collider at CERN is producing 600 million collisions every second. Only 1 in a million collisions is interesting. It requires a fast programming language to analyze and filter this amount of data.

Is Python such a language? No, it’s not. Does it mean there is no place for Python in one of the largest scientific facilities in the world? Quite the contrary. The ease of use and a very low learning curve makes Python a perfect programming language for many physicists and other people without the computer science background.

CERN does not only produce large amounts of data. The interesting bits of data have to be stored, analyzed, shared and published. Work of many scientists across various research facilities around the world has to be synchronized. This is the area where Python flourishes. And with CERN’s pursuit to create and use open source software, many interesting projects were born.

To facilitate the analysis of data, ROOT framework [https://root.cern.ch/] was created. It’s a C++ framework focused on big data processing, statistical analysis, visualization and storage. It has been around for more than 20 years, but since nowadays more and more scientists have at least basic Python knowledge, the PyROOT project [https://root.cern.ch/pyroot] was born. PyROOT is a Python extension module that allows users to interact with ROOT from Python interpreter. It combines the ease of use of Python with the powerful capabilities of the ROOT framework.

All the discoveries, small and big ones, results in thousands of publications that has to go through the whole publication workflow. For that purpose, a digital library framework called Invenio was created [http://invenio-software.org/]. It can be used to easily build your own fully customized digital library, institutional repository, multimedia archive, or research data repository on the web. Some examples of websites build with Invenio are: <https://zenodo.org/>, <https://cds.cern.ch/> or https://analysispreservation.cern.ch/.

Another of CERN’s missions is to share the knowledge, and that can be done through various lectures, workshops and conferences. All those events can easily be organized with the help of Indico [<http://indico-software.org/>]. Indico comes also with a room booking module and can be easily integrated with various collaborative tools.

I hope this poster will spark your interest in open source projects that are being developed at CERN and lead to some interesting discussions.

there are many great, open source projects developed at CERN that I would like to present on this poster.

The increase in popularity of Python combined with CERN’s pursuit to use and create the open source software resulted in some interesting projects that I would like to present in this poster.

projects is increasing and CERN is Python is becoming more and more popular at CERN and there are many interesting projects that I would like to present in this poster.

CERN does not only produce large amount of data. The interesting bits of data have to be stored, analyzed, shared and published. Work of many physicists has to be synchronized. This is the area where Python flourishes - there are many great, open source projects developed at CERN that I would like to present on this poster.

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Poster about open source projects Python that are being developed at CERN, for example: PyROOT

During the day, I'm just a software developer. During the night, well, I'm still a software developer, but it's just darker outside :)

Since 5 years I've been working at CERN. Officially - as a software developer, but as many of us - software developers - I ended up being someone you could call a full-stack DevOps. I have helped launching the e-publishing platform at CERN as a lead developer. Now, I'm working on the biggest digital library at CERN - CERN Document Server.

I'm using Python for most of my work, but I also enjoy learning new programming languages. Except Java. No, just kidding, I'm open minded about all the programming languages. Except Java.

Supervising other people is part of my job, so I realize how important is to learn and teach new stuff. I'm trying to share my knowledge and love of Python with others at various conference.

The Large Hadron Collider at CERN is producing 600 million collisions every second. Only 1 in a million collisions is interesting. It requires a fast programming language to analyze and filter this amount of data.

Is Python such a language? No. Does it mean there is no place for Python at CERN? Quite the contrary. The ease of use makes Python a very popular programming language among scientists.

The interesting bits of data from the LHC have to be analyzed, shared and published. This is the area where Python is involved. And with CERN’s pursuit to create and use open source software, many interesting projects were born.

For big data processing, analysis and visualization, the [ROOT framework][1] has been used for over 20 years. Nowadays, more scientists know Python, so the [PyROOT ][2]was born – a Python extension module that allows to interact with ROOT from Python interpreter. It combines Python’s ease of use with the powerful capabilities of the ROOT.

Many scientific documents are published at CERN and to manage those, a digital library framework [Invenio][3] was created. It can be used to easily build a fully customized digital library, institutional repository or a multimedia archive. It powers websites like: [Zenodo][4], [CDS][5] or [CERN Analysis Preservation][6].

Sharing knowledge – one of CERN’s core values – can be achieved through various lectures, workshops and conferences. All these events can easily be organized with the help of [Indico][7].

I hope this poster will spark your interest in open source projects that are being developed at CERN and lead to some interesting discussions.

[1]: https://root.cern.ch/

[2]: https://root.cern.ch/pyroot

[3]: http://invenio-software.org/

[4]: https://zenodo.org/

[5]: https://cds.cern.ch/

[6]: https://analysispreservation.cern.ch/

[7]: <http://indico-software.org>

Poster about open source projects Python that are being developed at CERN, for example: [PyROOT ][1], [Invenio][2], [Indico][3] and more.

[1]: https://root.cern.ch/pyroot

[2]: http://invenio-software.org/

[3]: http://indico-software.org