

Mid-term check meeting with the EU Project Officer



Geneva,
9-10 January 2023



Manchester, November 2022
SMARTHEP Kick-off



Micol Olocco

04/02/1996

Italy



UNIVERSITÀ
DEGLI STUDI
DI TORINO

Graduated in nuclear and sub-nuclear physics at the University of Turin (Italy):



Bachelor - October 2018: “*Study of the (anti-)deuteron production in pp collisions at 5 TeV*” with ALICE (CERN)



Master - April 2021: “*Natural Language Processing techniques for error message analysis in WLCG data transfer*” with Operational Intelligence (CERN)



UNIVERSITÉ
DE GENÈVE

Internship at the University of Geneva (Switzerland) with Prof. Tobias Golling’s group



April-June 2022: *Anomaly Detection in large-radius jets*, ATLAS



From August 2022:

- **ESR8:** Real Time Analysis for global event triggering in LHCb and manufacturing
- **Supervisor:** Johannes Albrecht at the Technische Universität in Dortmund (Germany)



technische universität
dortmund

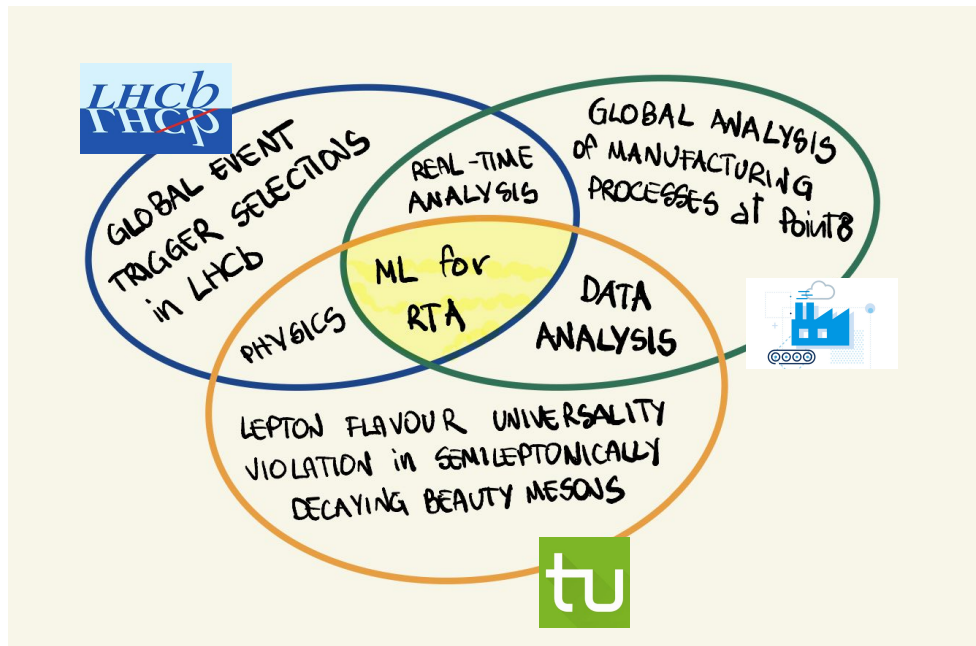


ESR8 is part of smartHEP which received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement n. 956086



ESR 8

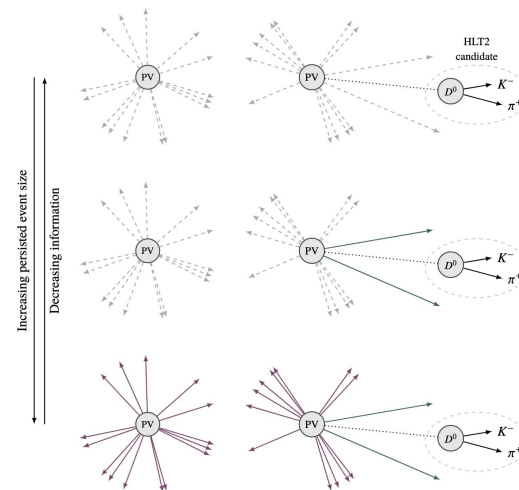
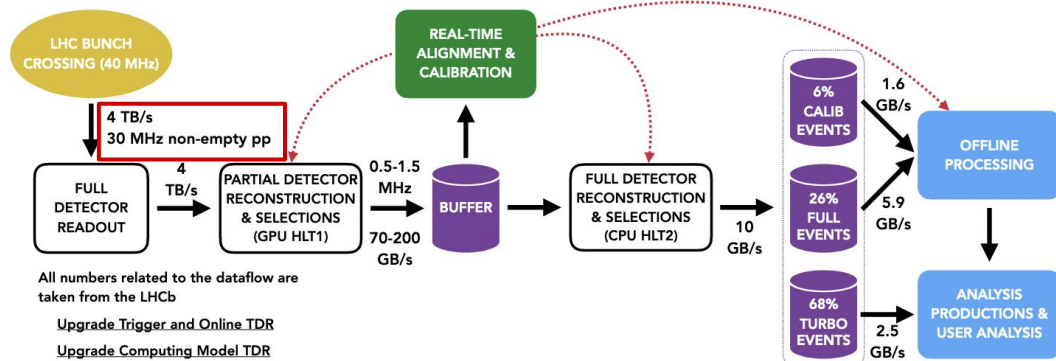
Real Time Analysis for global event triggering in LHCb and manufacturing



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Real Time Analysis at LHCb

Figure 1: LHCb upgrade dataflow focusing on the real-time aspects.



[Image source](#)

$$\text{Bandwidth [MB/s]} \propto \text{Trigger output rate [kHz]} \times \text{Average event size [kB]}$$



Training & Outreach

Training

- **LHCb starterkit**, 28/11/2022 - 02/12/2022, CERN
 - ◆ For early PhD and Master's students who need an introduction to LHCb and its software
- **3rd Terascale school of Machine Learning (Part 2)**, 10/10/2022 - 12/10/2022, DESY:
 - ◆ Network architectures with a focus on Graph networks
 - ◆ Generative Models
 - ◆ Normalising Flows
 - ◆ Weak classification and anomaly detection
 - ◆ Machine learning on FPGAs

Outreach

- Presentation and interaction with students about opportunities in Machine Learning applied to Physics within the Machine Learning Journal Club ([here](#))



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Career expectations and soft skills after the project

- ❖ **Be a versatile (early stage) researcher:**
 - increased independence in managing my work,
 - able to lead other students,
 - able to transfer knowledge and communicate scientific information,
 - able to quickly integrate to new contexts.
- ❖ **Open-doors in both industries and academy**
- ❖ Also thanks to the many partners involved in the project, **find out my preferred area of research in Machine Learning and Physics.**

