Welcome to the 12th Patatrack Hackathon!

Felice Pantaleo

Why are we here?

CMS needs innovation to squeeze every single drop of performance from its current and future detector:
- New algorithms
- Faster algorithms
- Smarter frameworks
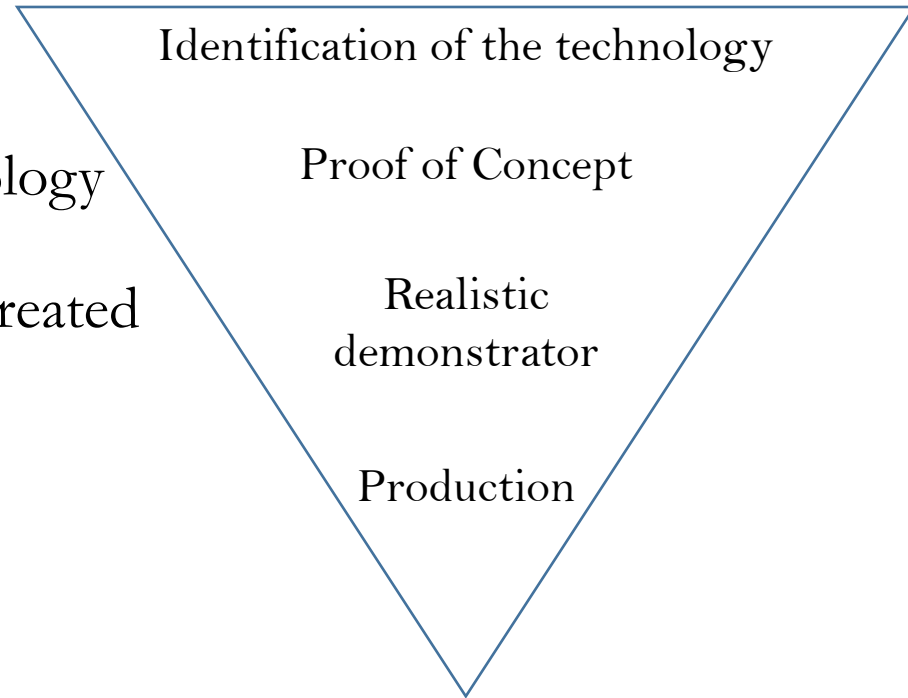- Exploiting more efficient hardware

Innovation:
- requires non-negligible consecutive amount of time and focus
- can benefit from discussion with other experts
- you're lacking knowledge and a kickstart would help
- the latency of the answer by an expert is the bottleneck

Software innovation

1. Problem statement
2. Identify the appropriate theme, a game-changing, disruptive technology
3. Proof of concept
4. Execution: a realistic prototype is created
   a. Functionality
   b. Feasibility
   c. Alignment to strategic goals
5. Production
6. Repeat

Identification of the technology

Proof of Concept

Realistic demonstrator

Production

Patatrack

- Patatrack is a software R&D incubator
- Born in 2016 by a very small group of passionate people
- Interests: algorithms, HPC, heterogeneous computing, machine learning, software engineering
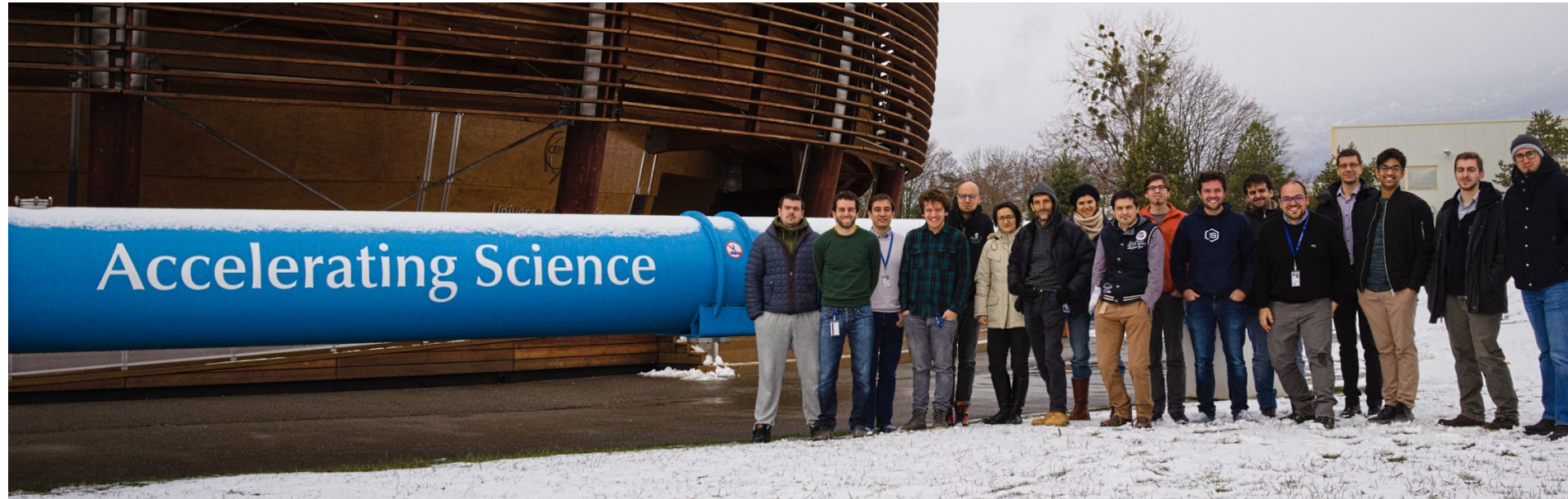- Lay the foundations of the online/offline reconstruction starting from 2020s

Incubate how?

- By creating a safe place where developers can stay and focus and finally get some work done uninterrupted for few days
- Allowing people to learn from experts what they are interested in and apply it on a problem by joining new projects
- By seeding new ideas and creating new working groups that can survive after the hackathon week
- By promoting knowledge transfer hence speeding up development process
- By helping from the PoC to the execution

Patatrack Hackathons

Fed ~30 participants per hackathon from 35 institutes with a total of 150kg of pasta

Groups

- LST
- Phase-2 Patatrack track reconstruction
- TICL linking
- egamma electron seeding on GPUs
- ECAL local reco with Alpaka
- PF on GPU
- Optimization and Energy efficiency with ARM+GPU
- SOA

Format - Scrums

Every day at 17:00 a different member of each group will present exactly two slides:

- description of previous problem and how your team solved it
- description of the next problem and how you'll try to solve it

Idea Square

- Thanks to Markus Nordberg for making this possible!
- Different rooms to discuss/work in groups
- Main area also available to work
- Safety first of all!
- Lunches prepared here @12h00/12h30 (announced via mattermost)
- Free Coffee and snacks
- **Let's be polite guests** and clean, fill/empty dishwasher, don't leave anything in/on the sink.
- After each lunch, need different volunteers to help cleaning the kitchen

Social Events

On Wednesday/Thursday… more news later today

Friday @lunch
What's your best recipe?
Can it be cooked in a reasonable time for 30 people?
Can ingredients be found easily here in Migros?

Let's talk about it during lunch time today