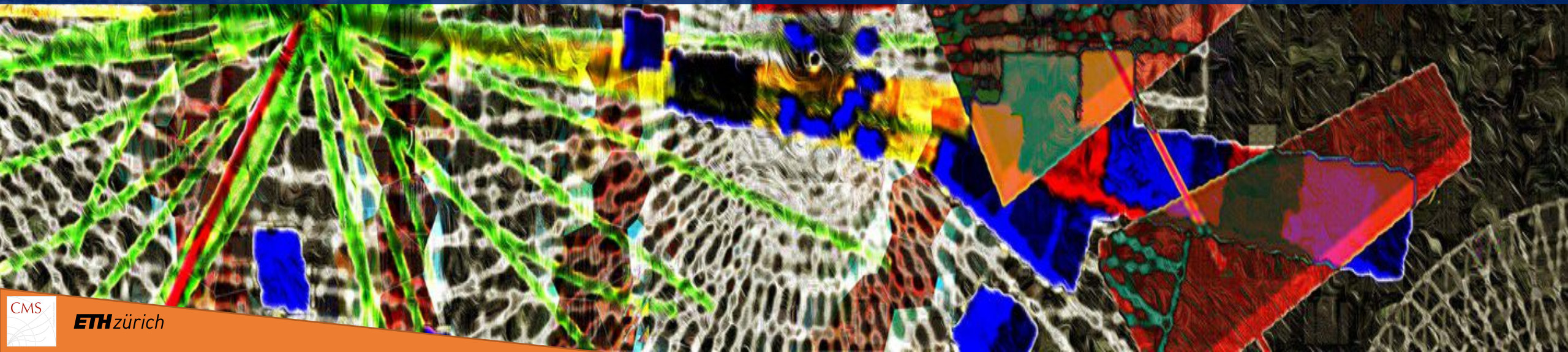# Self Presentation and Goals

Massimiliano Galli

PyHEP.dev workshop

24-28 July 2023
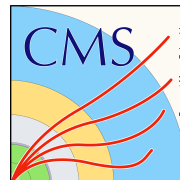
Experience

Technical Student, 2019-2020

- Modern cppyy based PyROOT (default since 6.22)
- Build system (multiple Python versions for CMSSW)
- RDataFrame benchmarks and framework design for $H \rightarrow \tau\tau$@KIT CMS (link)
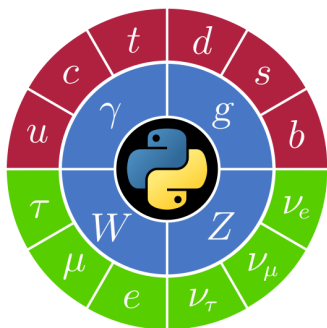
- $H \rightarrow \gamma\gamma$ group: move analyses to nanoAOD and start Run3 framework (HiggsDNA)
- Hcomb group: combination of Run2 Higgs differential cross section measurements and EFT + kappa interpretations
- Exploratory work on Normalizing Flows (use for data-MC corrections in $H \rightarrow \gamma\gamma$, FlashSIM)
- TA of Statistical Methods for HEP

ETH _zürich_

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**Datasets, metadata, workflow, reproducibility**
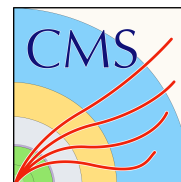
- HiggsDNA is based on coffea and is constantly evolving
- The (mostly) limited complexity of the analysis makes it an ideal playground to experiment with workload distribution backends, tasks management tools, analysis configuration tools, etc.

ETH zürich

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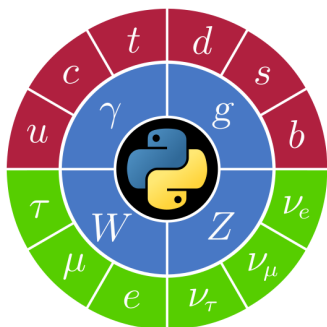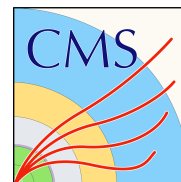- TA of Statistical Methods for HEP
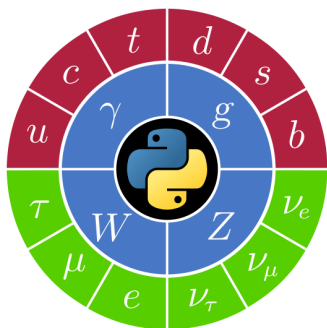
Fitting tools, combined fits
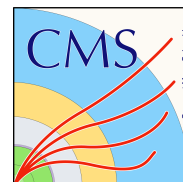
- Been performing combined fits for almost two years, always with Combine
- Despite *questionable* inputs description format (datacard) and UI, it is indispensable for most of CMS (Higgs and not) analyses as it encodes > 10 years of knowledge regarding CMS fits
- **Personal dream**: implement the combination using modern tools → How much work to encode all this knowledge?
- If not that, at least replace the datacards with something more usable… → Looking forward to work on a common serialization and model description standard (HS3)

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PhD Student, ETH, 2020 - today

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Teaching, training, documentation and coordinating documentation

Worked on Jupyter Book for the course with snippets and interactive examples
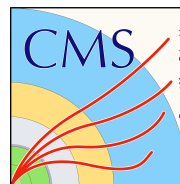
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PyHEP.dev Goals

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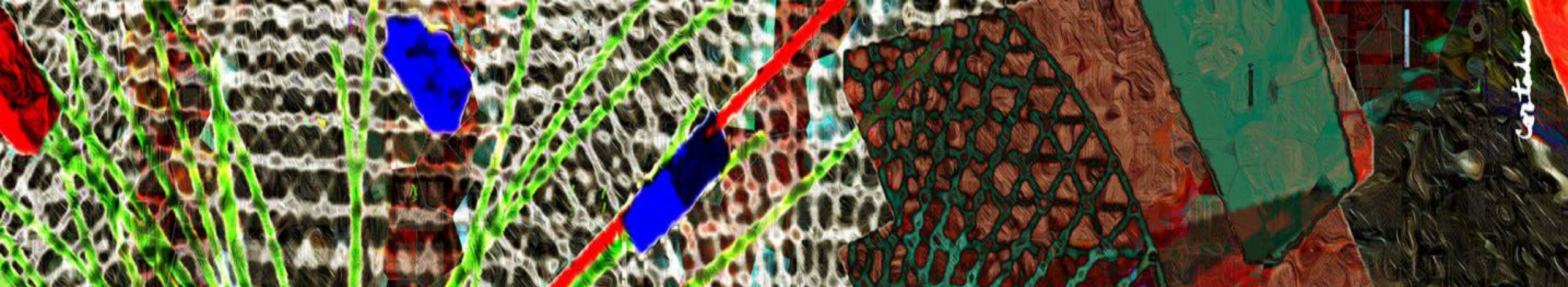- RDataFrame benchmarks and framework design for $H \to \tau\tau$@KIT CMS ([link])
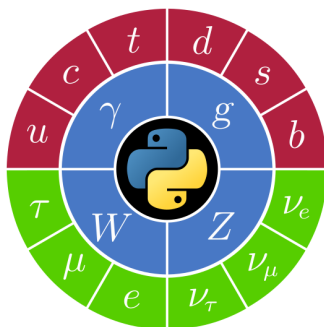
Automatic Interoperability between C++ and Python

PhD Student, ETH, 2020 - today

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To get updates ;)

ETHzürich

Thank you!