GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES
Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia
AGENCIA ESTATAL DE INVESTIGACIÓN

TileCal/TDAQ End of Year Meeting

Héctor Gutiérrez

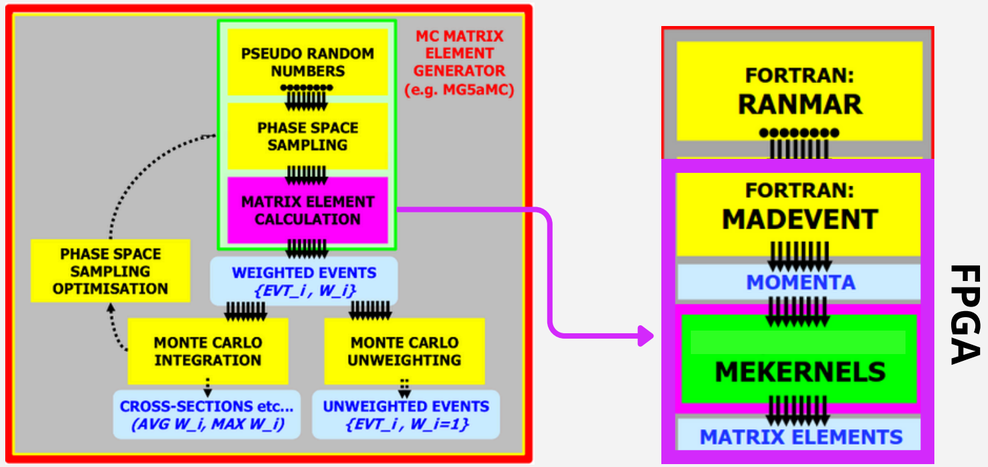
Instituto de Física Corpuscular (CSIC-UV)

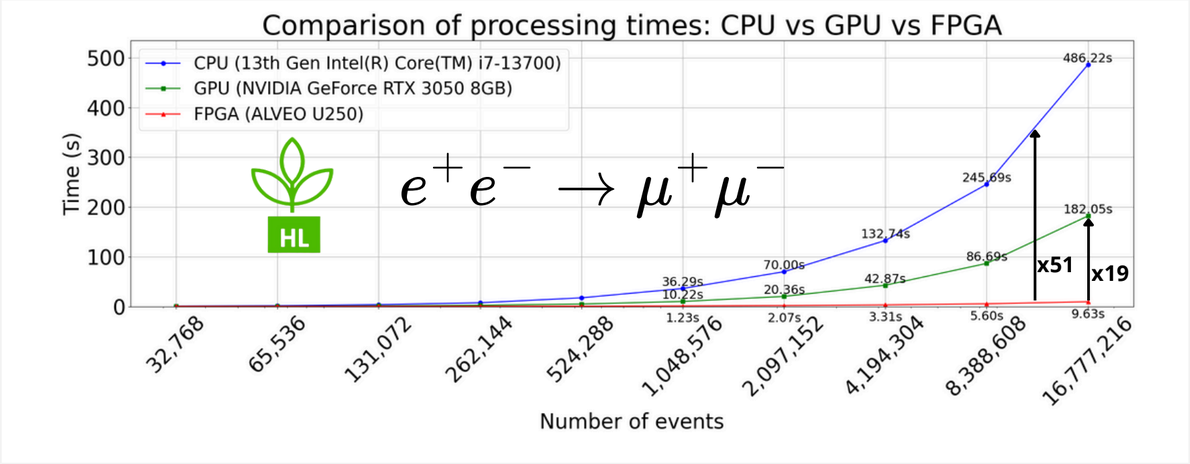
16th July

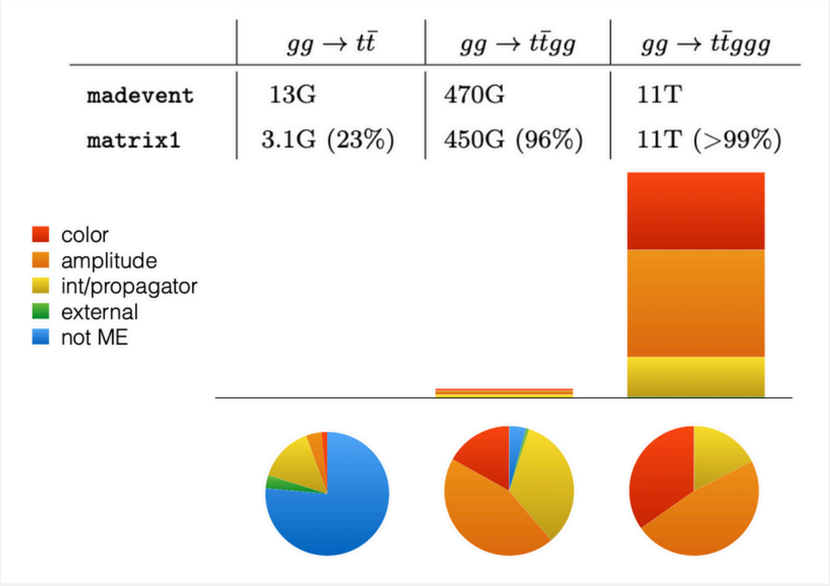
Contact:

Hector.Gutierrez@ific.uv.es

MADGRAPH FPGA

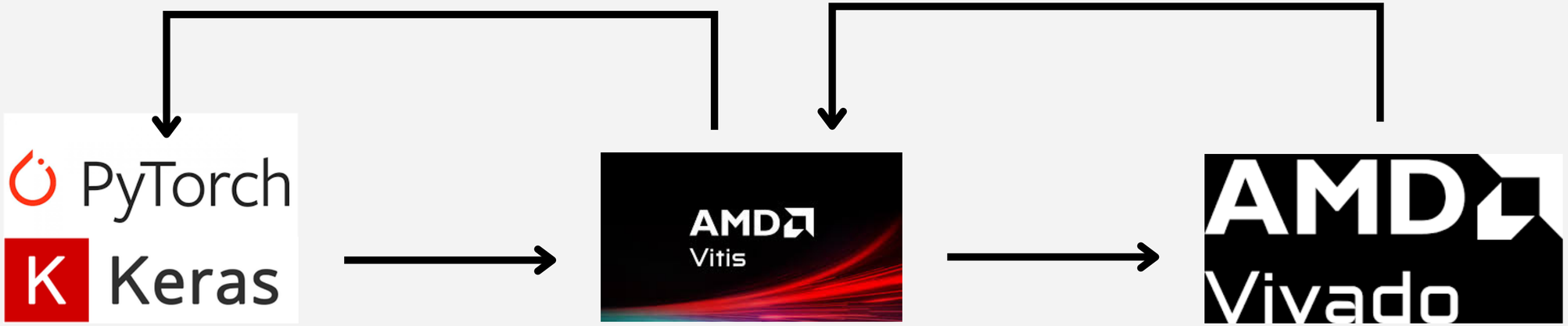






Process	tCPU/evt (ns)	tFPGA/evt (ns)	tFPGA_ideal (ns)
gg → tt~g	24	13	10
gg → tt~gg	120	16	10
gg → tt~ggg	4400	2500	10

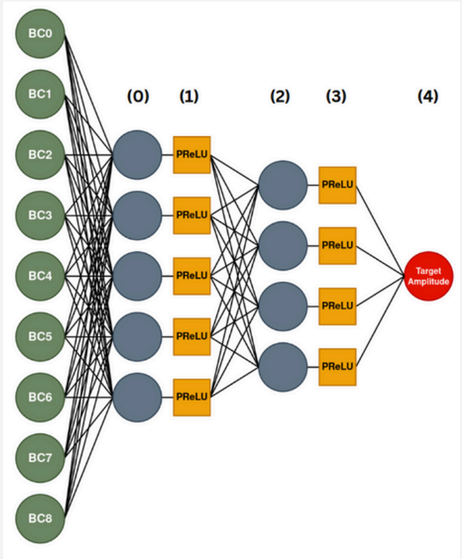
SIGNAL RECO FPGA



SW Dev & Train | **HLS Implementation & Optimization** | **Validation**

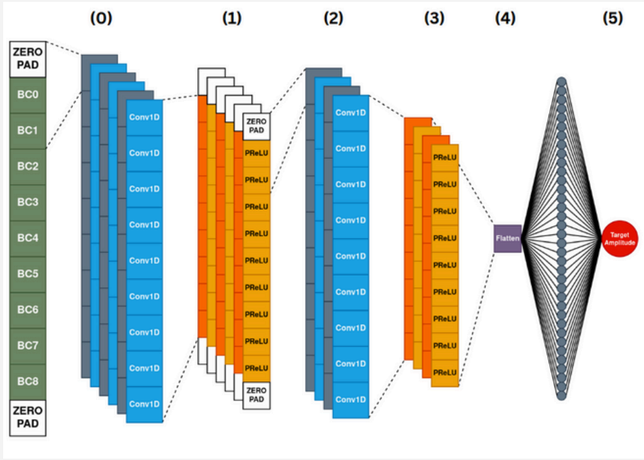
++++++++++++++++++++
Model type: MLP
Cells: A1
Window size: 9
Loss: hybrid
Date: 2025-05-27
Time: 11:03:55
Parameters: 148
++++++++++++++++++++

Sequential(
(0): Linear(in_features=9, out_features=9, bias=True)
(1): PReLU(num_parameters=9)
(2): Linear(in_features=9, out_features=4, bias=True)
(3): PReLU(num_parameters=4)
(4): Linear(in_features=4, out_features=1, bias=True)
)



++++++++++++++++++++
Model type: CNN
Cells: A1
Window size: 9
Loss: hybrid
Date: 2025-05-29
Time: 15:45:56
Parameters: 147
++++++++++++++++++++

Sequential(
(0): Conv1d(1, 6, kernel_size=(3,), stride=(1,), padding=(1,))
(1): PReLU(num_parameters=6)
(2): Conv1d(6, 4, kernel_size=(3,), stride=(1,), padding=(1,))
(3): PReLU(num_parameters=4)
(4): Flatten(start_dim=1, end_dim=-1)
(5): Linear(in_features=36, out_features=1, bias=True)
)



Conferences & Paper

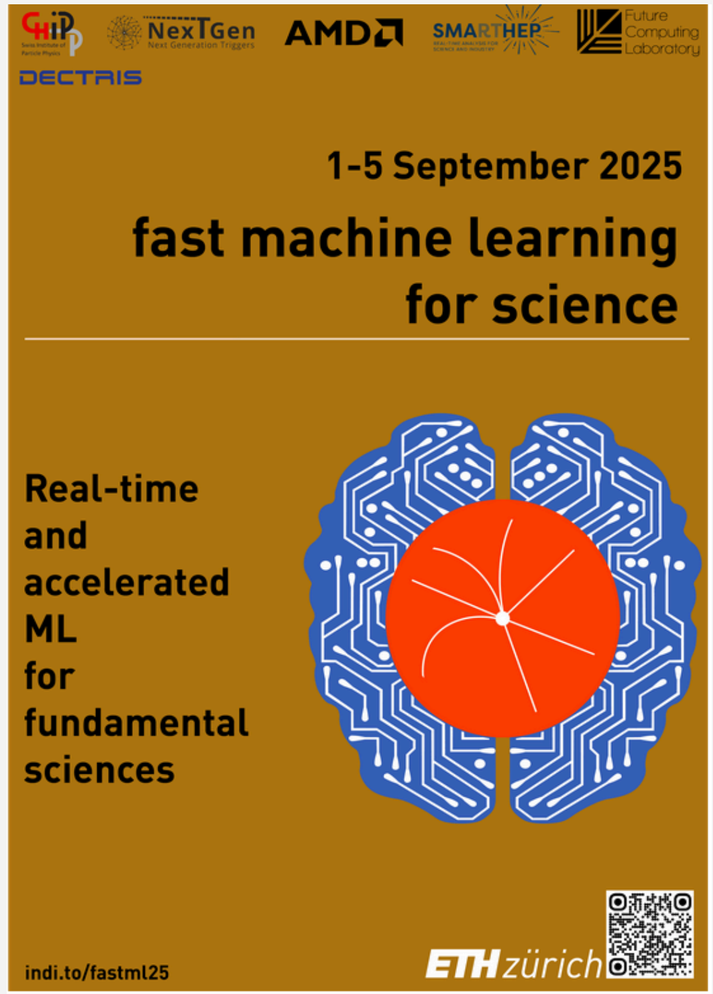
particles

an Open Access Journal by MDPI

Porting MADGRAPH to FPGA Using High-Level Synthesis (HLS)

Héctor Gutiérrez Arance; Luca Fiorini; Alberto Valero Biot; Francisco Hervás Álvarez; Santiago Folgueras; Carlos Vico Villalba; Pelayo Leguina López; Arantza Oyanguren Campos; Valerii Kholoimov; Volodymyr Svintozelskyi; Jiahui Zhuo

Particles **2025**, Volume 8, Issue 3, 63




MERRY
CHRISTMAS
EVERYONE !!

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