

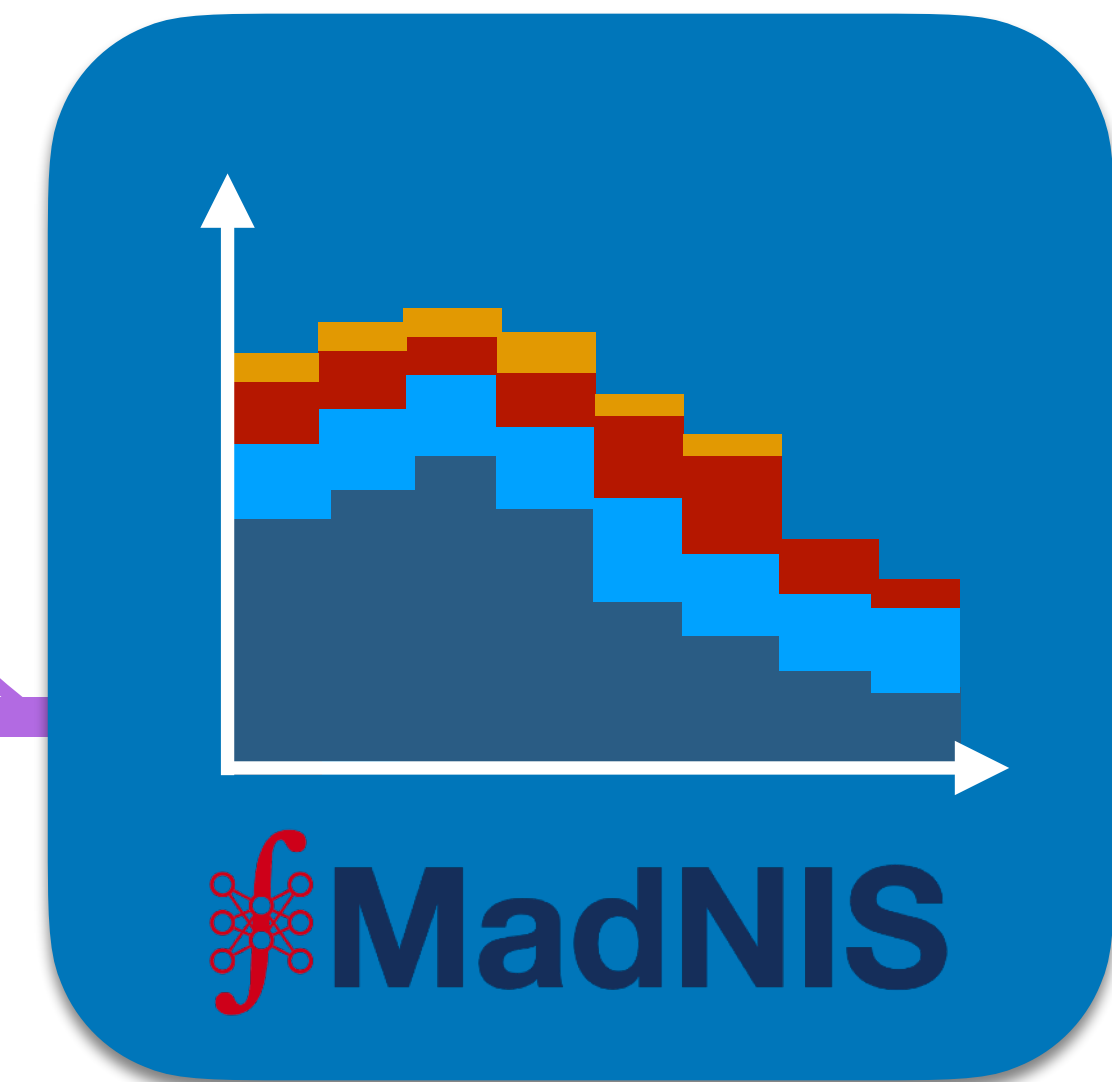
Ultrafast Precision Simulations for HEP

Towards the first ML event generator

Theory

$$\mathcal{L} = -\frac{1}{4}F^{\mu\nu}F_{\mu\nu} + (\dots)$$

MC Samples



ML-accelerated
Event Generation

Precision

Speed

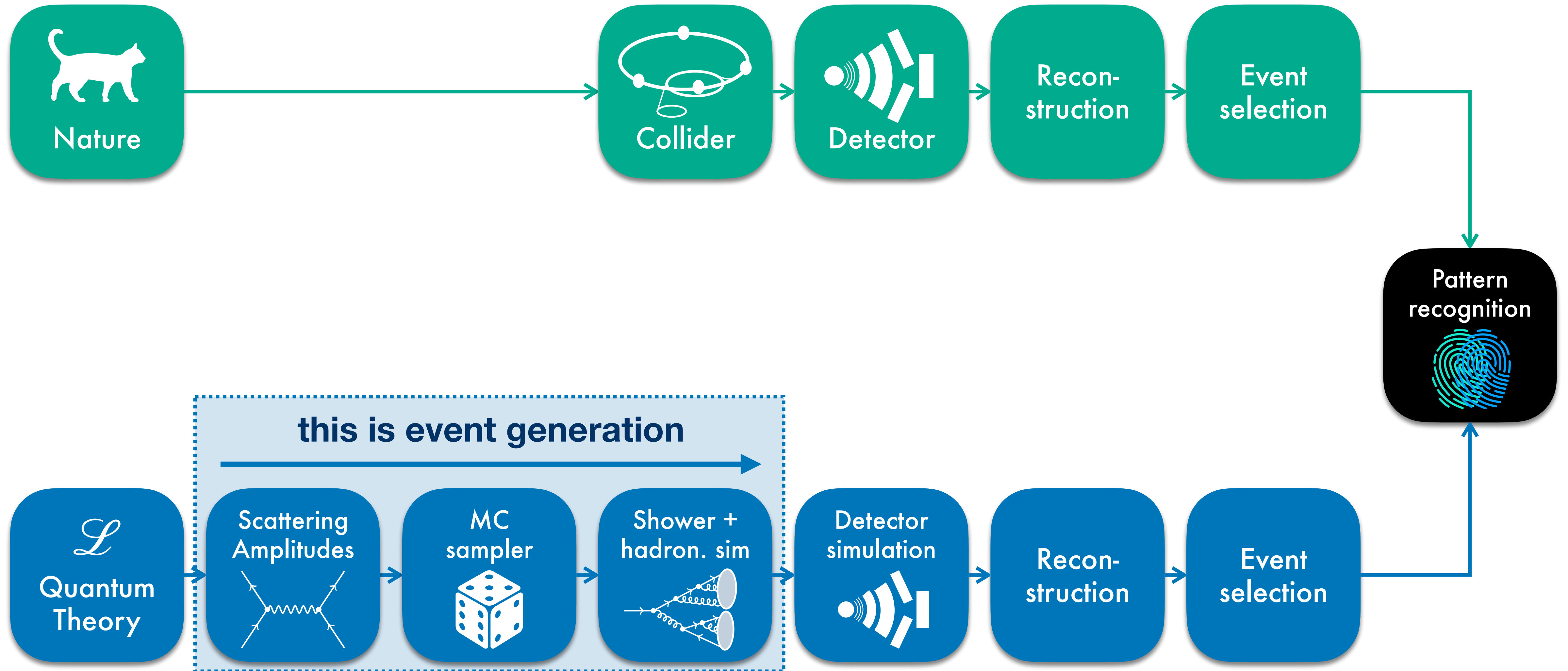


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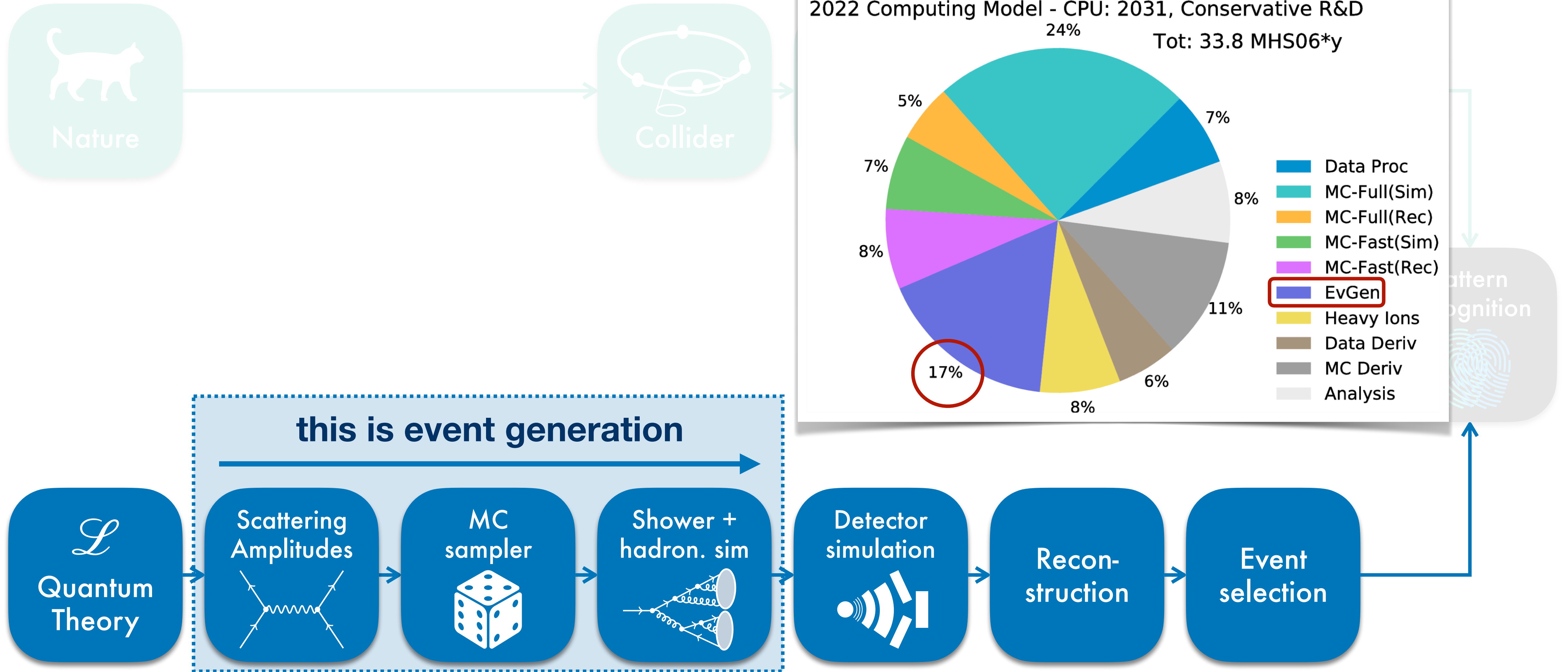


DIG-UM Annual Meeting 2025
Ramon Winterhalder

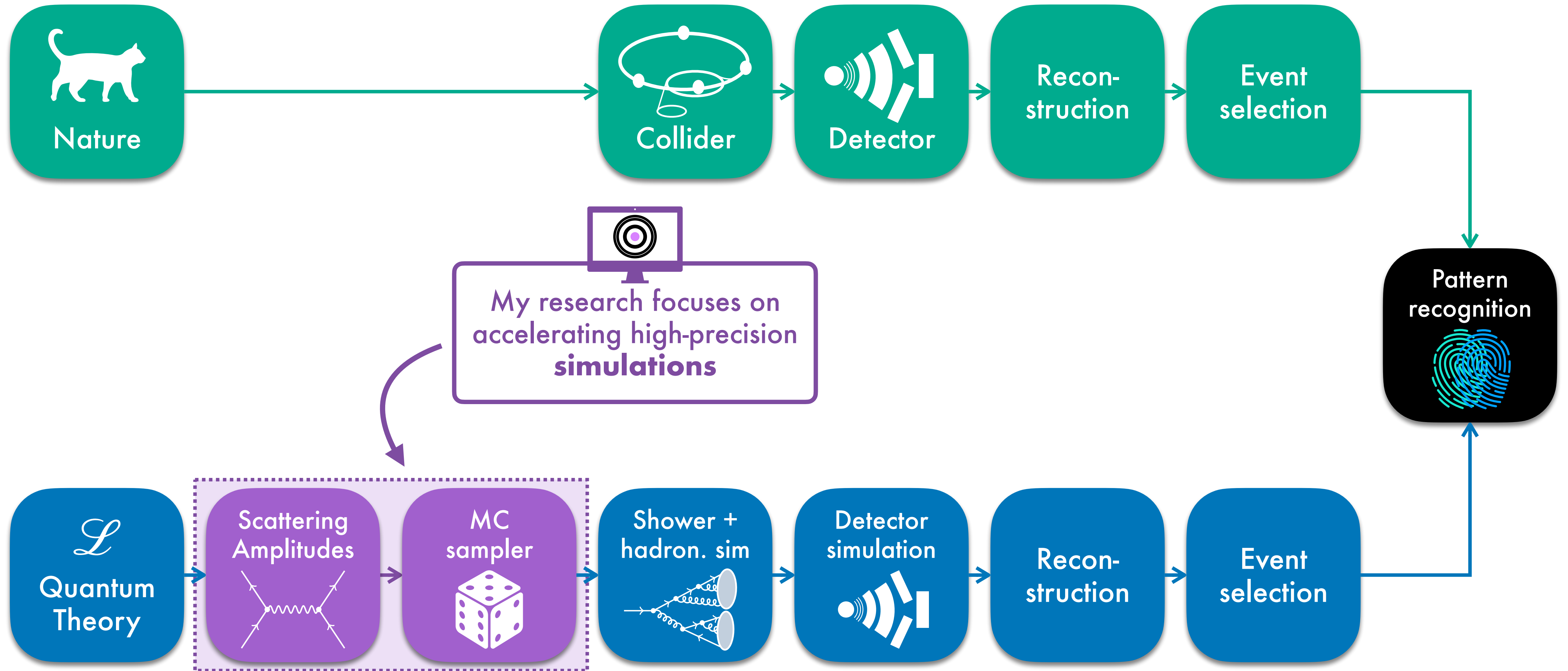
Collider analysis in a nutshell



Collider analysis in a nutshell



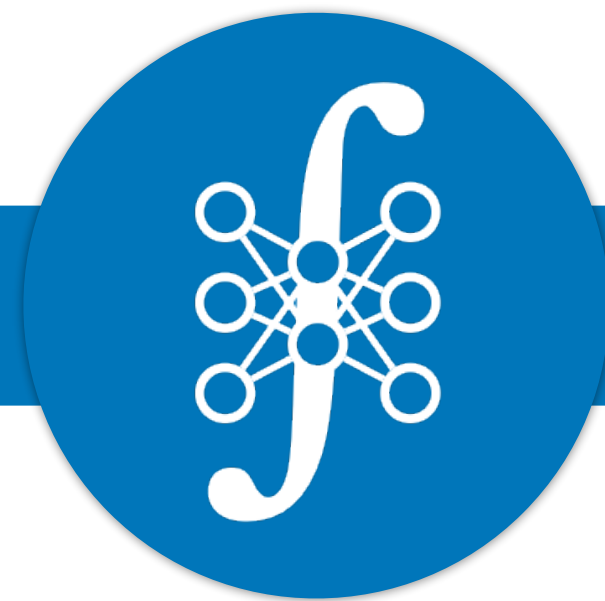
My research in a nutshell



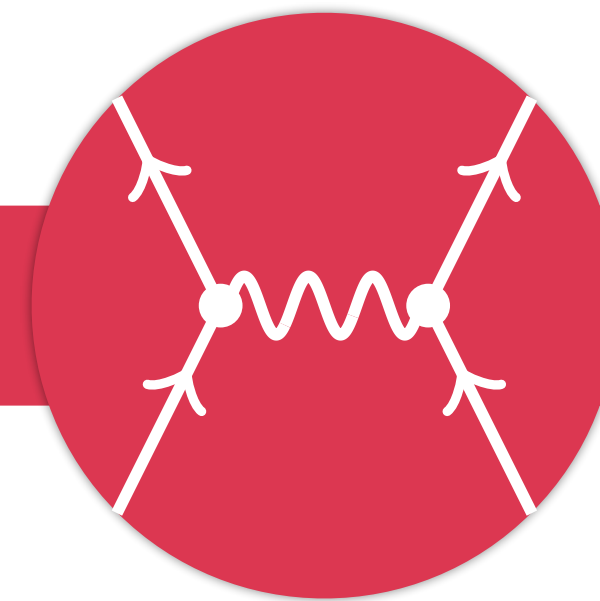
Three steps to happiness



MadEvent7



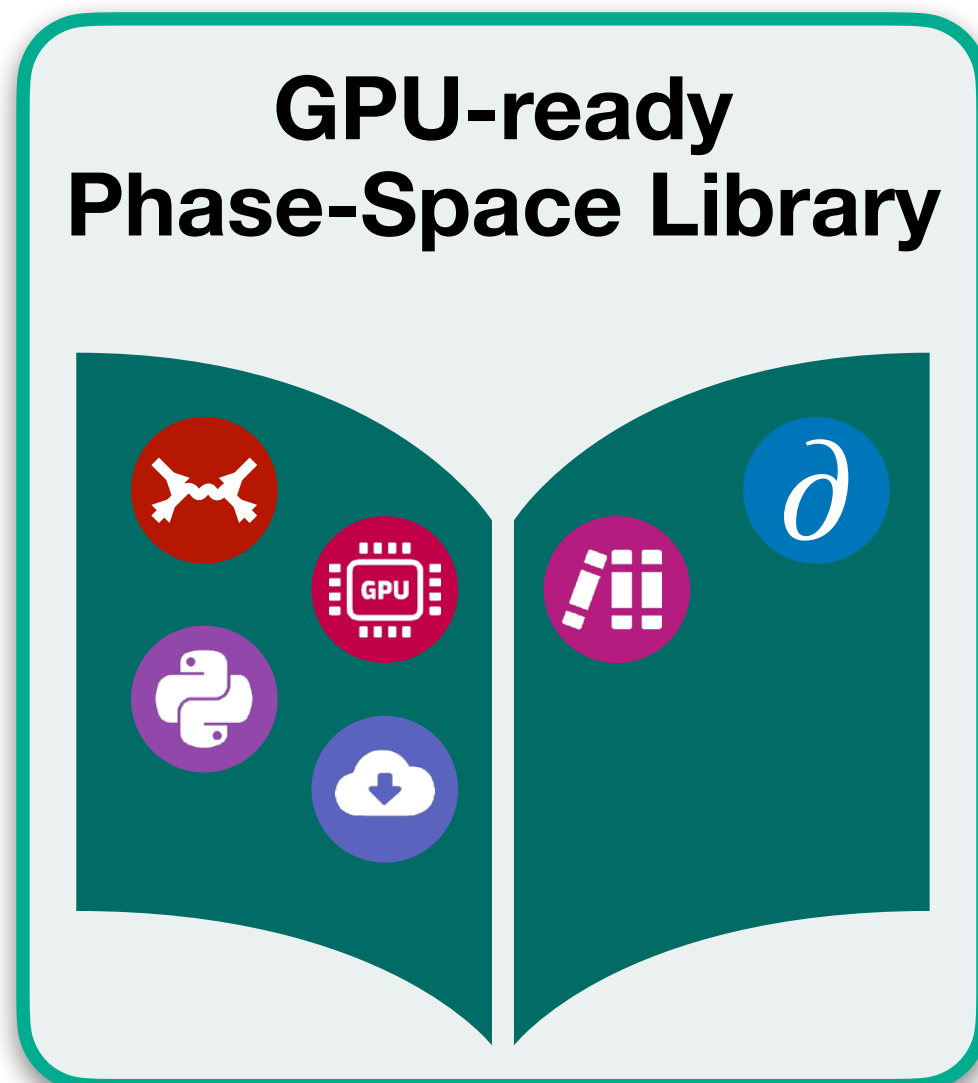
The MadNIS Framework



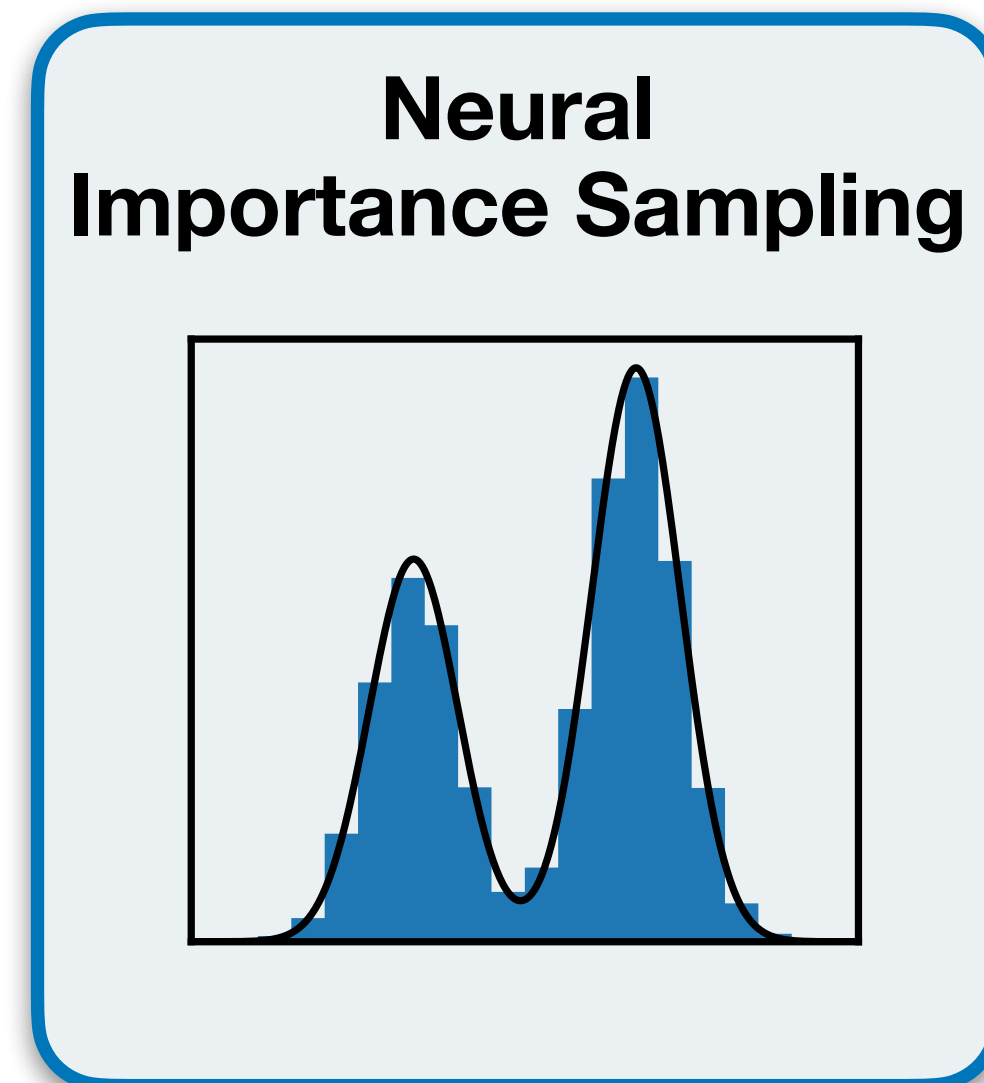
Amplitude Surrogates



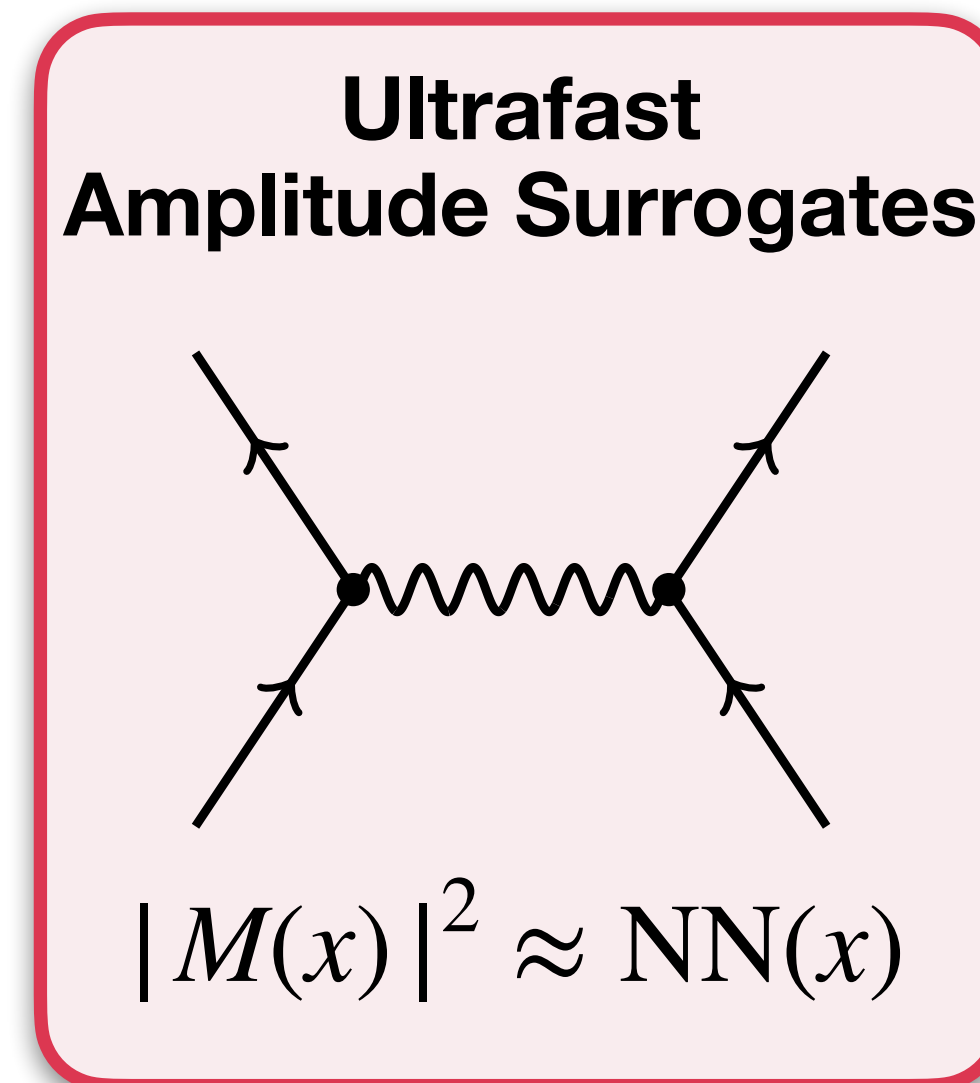
MadGraph7



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Release planned
for 2026!