

Invertible Networks or Partons to Detector and Back Again

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For simulations where the forward and the inverse directions have a physics meaning, invertible neural networks are especially useful. A conditional INN can invert a detector simulation in terms of high-level observables, specifically for ZW production at the LHC. It allows for a per-event statistical interpretation. Next, we allow for a variable number of QCD jets. We unfold detector effects and QCD radiation to a pre-defined hard process, again with a per-event probabilistic interpretation over parton-level phase space.

Primary authors: BELLAGENTE, Marco (Universität Heidelberg); BUTTER, Anja; KASIECZKA, Gregor (Hamburg University (DE)); PLEHN, Tilman; ROUSSELOT, Armand; WINTERHALDER, Ramon (Universität Heidelberg); ARDIZZONE, Lynton; KÖTHE, Ullrich

Presenter: BUTTER, Anja

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