Autoencoders (reminder)

What if simulations are not reliable?

\[ \text{loss} = \sum_{i \in \text{data}} \text{MSE}(x_i, \hat{x}_i) \]

- Train an ML algorithm to map \( x \) back to itself.
- Train on background only (or data which is mostly background).
- Then loss will be small for background.
- When AE sees an "anomaly" \( \rightarrow \) large MSE, poor rec. perf.

Counts \( \downarrow \) \( \rightarrow \) anomaly \( \rightarrow \) use MSE as anomaly score!

"Out of sample"