Surrogate modeling of beam losses in the LHC collimation hierarchy

- Particle tracking simulations are currently used to determine cleaning performance of LHC collimation system.
- Simulations are computationally demanding, may not be well-suited to study effects of small orbit difts and misalignments of collimators.
- We are training a surrogate model based on:
  - Losses from 260 BLMs
  - Orbit from 30 BPMs
  - Collimator positons (176 jaw corner positions)

- The aim is to infer changes in the loss distribution in IR7 collimation region from orbit / jaw position changes.