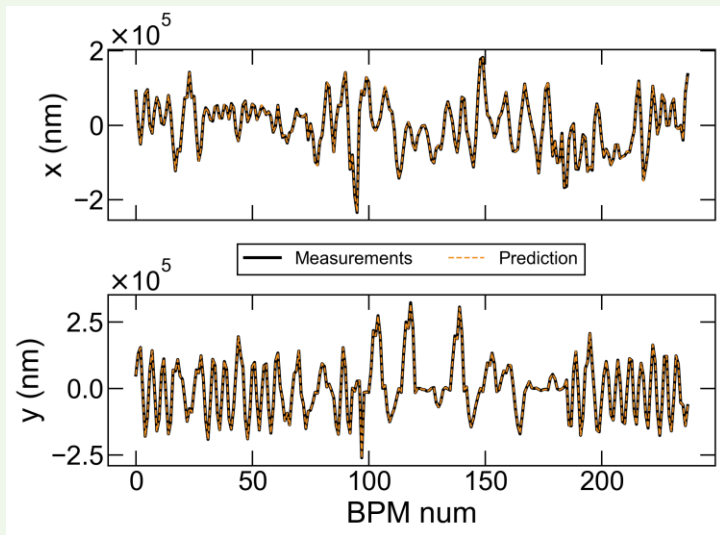




Experience with ML-driven applications at PETRA III

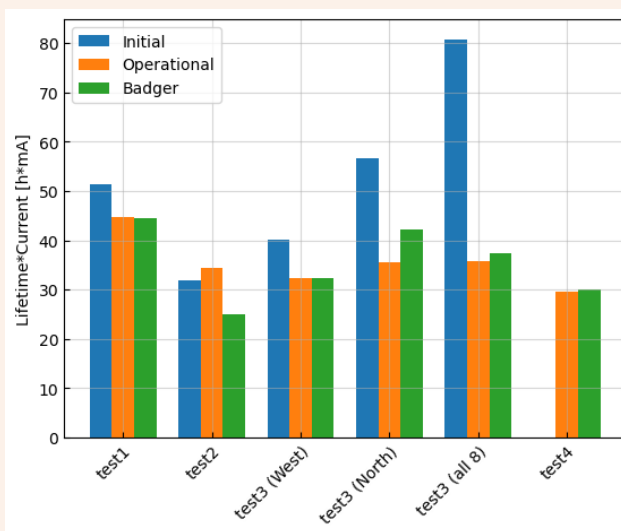
NNs for ID orbit distortion



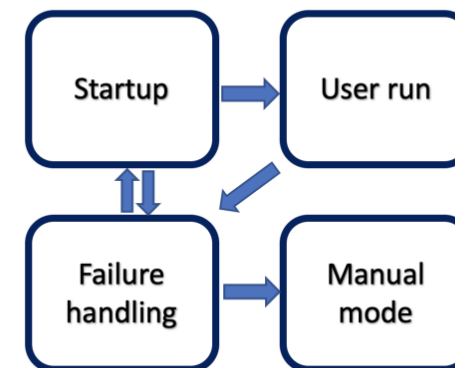
The combined impact of multiple IDs moving at the same time is non-linear. NNs accurately predict the transverse displacement of the beam along the ring for any given ID configuration.

Badger/Xopt optimization

Optimizations of lifetime and injection efficiency were performed and compared with the results obtained with the current manual procedures.



Pipeline for ML and control applications



The ACSS (Accelerator Control and Simulation Services) allows for scheduling and orchestrating of multiple intelligent agents, training and tuning of ML models, handling of data streams and for software testing.