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# Machine Learning @ DESY

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At DESY different types of particle accelerators are operated and investigated. Particle accelerators are large, complex systems, with non-linear coupling between many components, and time varying, uncertain disturbances. Their operation is challenging due to are vast number of sub-components, high dimensionality, high data rates and different operating time scales, while at the same time there is an increasing demand in performance, flexibility and availability. To address this in the DESY machine division, machine learning is investigated as enabler for new operation modes. Different projects in this field are presented that are currently worked on, from the topics (1) data acquisition and analysis, (2) fault diagnosis and supervisory control, (3) models, simulations and digital twins and (4) optimization an feedback control algorithms.

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**Session Classification:**   Machine Learning