



SFB/TR 185 OSCAR

OSCAR Student iWeek

Bonn, 28 August – 1 September 2023

Machine Learning in Physics

The goal of this workshop is to provide hands-on experience in machine learning concepts and applications in physics. The iWeek is directed at Master and PhD students, as well as postdocs. Our guest lecturer Prof. Florian Marquardt (Max Planck Institute, Erlangen) will introduce the foundations and basic concepts of machine learning and artificial intelligence from a physicist's perspective. Participants will learn to develop and optimize neural networks, for example to perform image recognition. This will allow you to use machine learning algorithms to boost your experimental and theoretical methods, or it will make you fit for workflows frequently used in modern data science and industry. In additional scientific talks, concrete examples of how machine learning can be applied in fundamental physics research, e.g., to optimize quantum gas experiments, will be presented.

Please send an e-mail to asheikhan@uni-bonn.de or schmitt@uni-bonn.de if you would like to participate. Deadline is 16 June 2023.

Topics:

- Neural networks, gradient descent, backpropagation, autoencoders, ...
- Hands-on programming of machine learning algorithms on your computer
- Applications of machine learning in quantum physics research

Speakers:

Lectures: Florian Marquardt (Erlangen), Ameneh Sheikhan (Bonn)

Scientific talks: Maximilian Prüfer (Wien), Andreas Kell (Bonn)