AI goes Quantum:
From Neural Networks to Quantum Machine Learning

<u>Short Description of the Course:</u>
We will discuss a selection of topics from classical machine learning (neural nets, kernel methods reinforcement learning) that build the basis to understand recent trends in quantum convolutional neural networks, quantum reinforcement learning, and quantum machine learning algorithms applied to quantum data sets.

We have paired classical and quantum versions of different machine learning algorithms. The idea is that teams of two to four students pick an algorithm and then present both its classical and quantum version.
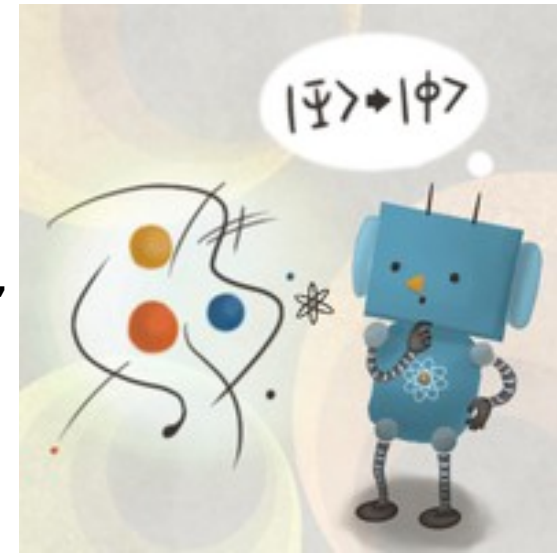Talks can be given in German or English.

From Huang et al., PRX Quantum 4, 040337 (2023).

Where: E2 6, Raum E04
When: Wednesdays, 12ct
Module Code: 149534
Contact:
- Dr. habil. Philipp Hövel
- Prof. Dr. Giovanna Morigi
- Prof. Dr. Peter P. Orth

<u>Level / Required knowledge</u>
Master level physics / quantum engineering / data science
Bachelor students of all disciplines and guests are welcome!

<u>Mode of participation and examination</u>
Complete attendance at the seminars; one presentation on a topic from ongoing research. UdS participants are required to attend the seminar talks in person, others can attend remotely via MS Teams.