Modeling Quantum States using Machine Learning

A colloquium sponsored by the Society of Physics Students

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Motivated by the success of neural networks to learn underlying patterns of high dimensional datasets, physicists have adapted machine learning techniques to study quantum mechanical systems. The focus of this talk will be on how we can use neural networks as a highly expressive parameterized quantum wave function. We will begin by introducing the variational principle and how the task of finding a quantum state can be transformed into an optimization problem. Then, we will outline how neural networks can represent quantum states and the various ways they can learn from data. We will end the talk with an example of how these techniques can come together to mitigate noise in quantum computers.

Friday, November 18, 2022
4:00 PM EST in Jepson 225

Please contact SPS president Abby Swanson at aswanson2@mail.umw.edu with any questions!

Open to all who wish to attend

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