MOHAMED HIBAT-ALLAH, University of Waterloo
Language models for quantum many-body physics

Recent large language models have achieved remarkable success, performing at near-human levels on many tasks such as speech recognition, machine translation, and text generation. In this talk, I will show how we can adapt language-model architectures, particularly recurrent neural networks (RNNs), to study quantum many-body systems. By training these models on quantum many-body physics problems, we obtain results that are competitive with traditional numerical quantum simulation methods. This progress highlights the exciting possibility of bringing insights from modern language models to quantum simulation.