Variational quantum algorithms: adaptive and pulse-based approaches

Sophia Economou [1]

[1]Virginia Tech, USA

September 21, 2024

Variational quantum algorithms (VQAs) constitute a class of hybrid quantum-classical simulation algorithms that are envisioned for quantum simulation and machine learning applications, possibly in the near term. For VQAs to be useful, it is important to reduce the size of the ansatz and the number of required measurements. I will present our work addressing these challenges with ADAPT-VQE, an adaptive, problem tailored approach to ansatz construction. I will also discuss a pulse-based alternative for variational algorithms.