

Nicholas Chancellor

Durham University

Modernizing Quantum Annealing (and beyond) using Local Search

I will discuss my recent work which examines how to take advantage of protocols search the solution space locally by using hybrid algorithms. In doing this I will discuss the numerous advantages of doing this, and how such methods are compatible with many other cutting edge techniques which are currently being explored. I will also discuss, how such searches can be understood as 'inference primitives' which encode not only a local state to search near, but also encode certainty values of bits or even clusters of bits. I will further discuss present and future work toward producing proof-of-principle results for such methods as well as the potential of extensions to other continuous time quantum computing methods such as closed system adiabatic quantum computation and quantum walk. This presentation is based mostly on work I have done on my own, but will also contain some work done in collaboration with Viv Kendon, James Morely and Suogato Bose.