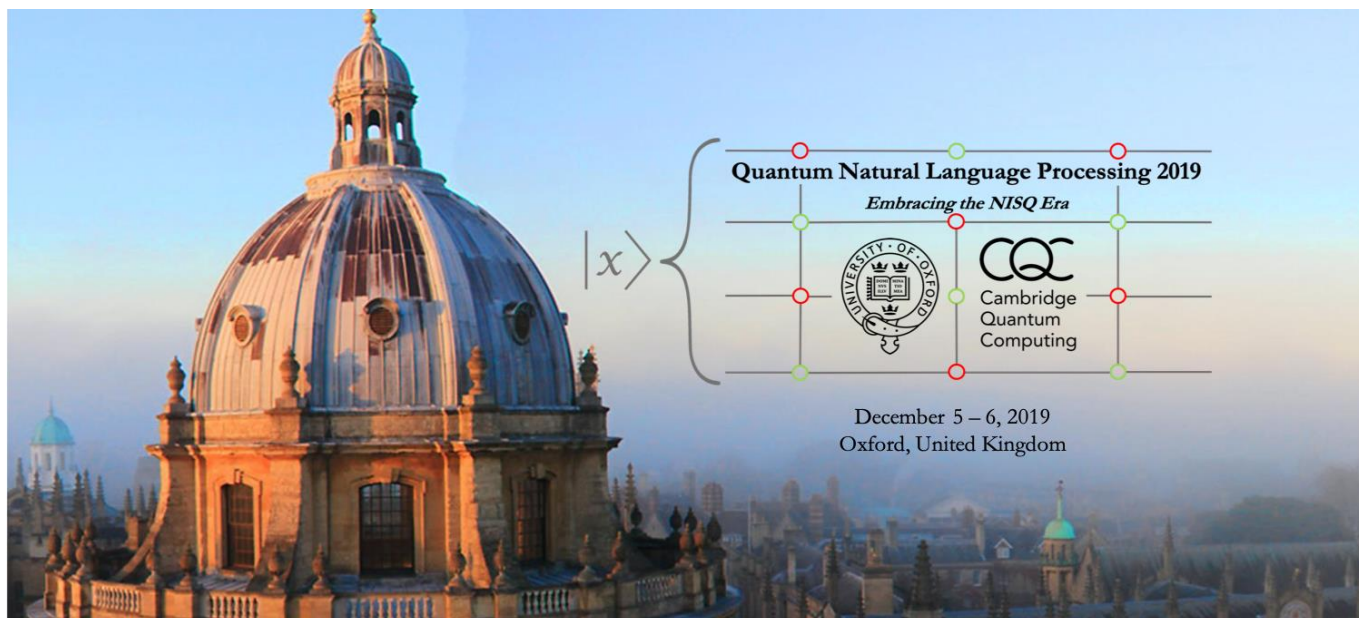




Speaker: Nate Earnest-Noble

Title: Qiskit OpenPulse: Building Quantum Applications from the Ground Up

Abstract:

NISQ devices show promise to make impact on real world problems in the near-term. However, these devices suffer from short coherent times and imperfect gates, which ultimately limits the extent to which these devices can perform. Due to this issue, error mitigation – a general term describing how to reduce the effects of imperfect qubits and/or gates – has become an increasingly important area of research. In this talk I will present the newly developed Qiskit OpenPulse, which allows users to program quantum computers at the pulse level, unlocking the users' ability to program a quantum computer without the need to make use of predefined gates. I will specifically cover how different gates are realized with superconducting qubits and how this allows for the implementation of Richardson extrapolation, a general error mitigation technique that is realized through extending the duration of a quantum gate.