Project 1: Distributed Quantum Computing for Transition Metal Catalysis
Project 2: Distributed Quantum Computing Abstractions & Algorithms

Much of the research in our group - MSRG@UofT - is interdisciplinary and includes topics such as distributed computing, machine learning, and quantum computing. Our proposed projects are to incorporate these three elements in distributed quantum machine learning for chemical applications (highly interdisciplinary (Project 1)) as well as develop distributed quantum computing approaches (more computing and quantum computing centric (Project 2)).

The student should have familiarity with Python and common packages such as NumPy, scikit-learn, and pandas. While not required, it would be highly preferred if the student had experience with quantum computing software packages such as IBM's Qiskit or Xanadu's PennyLane. Project 1 requires knowledge and background in either Chemistry (preferred) or Physics; Project 2 is more computing-oriented and may sway towards similar chemistry applications as Project 1, depending on the student who engages. Skills related to the daily tasks of a researcher include writing, reading, and presentation skills. Soft skills such as time management and teamwork in a highly collaborative environment are required. We are looking for candidates who show commitment to seeing the project through to the end, even if the end goes beyond the end of the summer we start. The project will offer a glimpse into the life of a graduate student and research scientist in quantum computing.