**Series of Research about Applied Quantum Computing**

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1. **Introduction**

This is the project aimed for my own training purpose to get ready for an upcoming master’s thesis in the following semester. As I intend to dedicate two module slots for writing the thesis to complete within one semester and graduate in May, it will require quick but sophisticated process. I am also considering applying for PhD admission this winter by mid-December. Therefore, this preparatory paper writing is intended not only to give a good start for my upcoming research project, but also to investigate and narrow my research interest for the tenure of PhD.

1. **Project Overview**
   1. Project Outline

In this project, we will research three different topics around Applied Quantum Computing, which is explained by PURDUE University’s edEx course in its introduction that “Learn the fundamental postulates of quantum mechanics and how they can be mapped onto present-day quantum information processing models, including computation, simulation, optimization, and machine learning”. My research too will implement Quantum Computations in the real-world domains, using 1) Quantum Machine Learning, 2) Quantum Search Algorithm, and 3) come up with a Quantum Computation model to solve NP-Hard Problem in classical computation (Tentatively, the current schedule says Travel Salesman problem). It will also analyze complexity differences between Classical and Quantum Computations as part of conclusion.

* 1. Project management methodology and Schedule

This project will use SCRUM spring method. Each of those three sub-projects mentioned above will run for four weeks long. Each week will be represented by “iteration Project #-Iteration #”. In the first iteration, I will complete defining a concrete research topic, write a draft paper with introduction of the research. In the second iteration, experimentation plan will be added. Any relevant research to formulate the experimentation plan will also be added to the paper in its References section. In the third iteration, I will build a model for the experimentation and present an interim result. In the final iteration, I will finalize the paper with final result, conclusion, and Abstract accordingly. Also, I will upload the paper to Github with a proper README.

1. **Schedule**

