Assignment Lecture 3
Quantum Phase Estimation

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March 14, 2024

Abstract

1 Introduction

Guidelines for this assignment:

- This exercise is done by a team of two students.
- The deadline for submitting the exercise is a week after the assignment is issued.
- You will create a Jupiter notebook for each exercise and hand in this notebook.
- In the notebook you will give ample comments on what you are doing and why.
- You will use Qiskit as a simulation tool.

2 Quantum Phase Estimation

2.1 Exercise 1

In the assignment map you can find the notebook qpe.ipynb. This is a qpe for a T-gate with $\theta = \frac{1}{8}$. Make this a qpe for a T-gate with $\theta = \frac{1}{3}$.

2.2 Exercise 2

To make this more precise, add two (or more) counting qubits to this circuit.

2.3 Exercise 3

Do an experiment with the CNOT-gate instead of a T-gate.