# Solving Many-body Quantum Problem using Machine Learning

by

Even M. Nordhagen

#### **THESIS**

for the degree of

#### MASTER OF SCIENCE



Faculty of Mathematics and Natural Sciences University of Oslo

August 22, 2018

#### Abstract

Abstract should be written here

## Acknowledgements

Acknowledgements should be written here

## Contents

1	$\mathbf{Bac}$	Background theory				
	1.1	Hamiltonian	-			
	1.2	Born-Oppenheimer approximation	-			

## List of abbreviations

Letters		Meaning
RBM	-	Restricted Boltzmann Machine
MC	-	Monte Carlo
VMC	-	Variational Monte Carlo
DMC	-	Diffusion Monte Carlo
ML	-	Machine Learning
WF	-	Wave Function
SPF	-	Single Particle Function

Table 1: List of symbols used with explaination.

## Source Code

The source code is given in https://github.com/evenmn

## 1 Background theory

Here I might present basic quantum mechanics briefly.

#### 1.1 Hamiltonian

#### 1.2 Born-Oppenheimer approximation