

1 Methodology

In this chapter, the simulator used to investigate the research questions is described. An overview of the system is presented in section 2. Section 3 includes implementation details, and design decisions made when implementing the genetic algorithm which is the foundation for all the population distributed genetic algorithms. Sections 4-6 contains implementation details of the population distributed genetic algorithms. The wind scenarios used to evaluate the different population distributed genetic algorithm are described in section 6.1, and the choice of implementing the genetic algorithm from scratch is defended in section 7.

2 System Architecture

3 Genetic Algorithm

3.1 Adult Selection

3.2 Parent Selection

3.3 Genetic Operations

3.4 Wind-, Wake- and Power Model

3.5 Fitness Function

4 Island Model

5 Cellular Model

6 Pool Model

7 Scenarios

8 Motivation