



KULeuven

Department of  
Computer Science

**ADVANCED CAPITA SELECTA  
ARTIFICIAL INTELLIGENCE (H02A8A)**  
Metaheuristics - Report

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# **1 introduction**

## **2 Background**

### **2.1 Introduction**

This chapter contains some information to be able to understand the contents of this scientific report. The

## **3 Relevant research**

Een grondige bespreking van relevant onderzoek is nodig om het onderzoek te kunnen plaatsen in het onderzoeksdomein. Vooreerst zal er een algemene bespreking zijn van onderzoek in verband met sport analyse, waarna er specifiek ingegaan wordt op relevanter onderzoek dat rechtstreeks de inspiratie was voor dit onderzoek.

## **4 Hypothesis**

### **4.1 Hypothesis**

The main focus of this research is to see if the equal performance can be achieved with a pre-processed representation of the original community graph using a combination of previously existing algorithms. These algorithms will be further explained in Chapter [?].

### **4.2 Goal**

The goal of this research is to see if we can achieve similar performance with a reduced version of the graph.

### **4.3 Research questions**

#### **4.3.1 Main research question**

Does the reduction of a graph have any influences on the performance of current state of the art, mainly on the time that is required to reach reasonably good results?

#### **4.3.2 Other research questions**

To reduce the complexity of the main research question, some smaller research questions have been chosen.

What kind of influence does the replacement of a small cliques by a single node have on the information in the graph?

Can all of the information of the graph be retained while still reducing the size?

Is it worth to preprocess a graph before applying the meta-heuristic?

What differences are there between the algorithm with and without the preprocessing?