

# Process mining of collaborative healthcare data.

Process mining techniques allow for extracting information from event logs. Healthcare management systems provide a lot of information in the form of event logs. Especially patients with chronic diseases are a rich source of information over a longer period of time. VitalHealth Software (VHS) has developed collaborative healthcare management software for a decade and its customers have collected data on tens of thousands of chronic patients over the years. Early experiments suggest that analyzing the combination of process data and medical data is not trivial.

## Assignment for the master's thesis

Goal of the thesis is twofold:

1 Apply existing process mining algorithms and develop appropriate algorithms for the analysis of CHM data. Process mining already provides a rich toolset but initial experiments suggest that combining process data and medical data leads to additional, non-trivial algorithmic requirements. For example: additional tooling is required to take into account all relevant medical outcomes and process indicators in order to easily advise the most effective treatment for certain patient groups within a population.

2 Apply the existing and additional algorithms to real-life datasets. VitalHealth has agreements with some of its customers that process mining can be applied to anonymized data sets with real-time data. Both for the medical and computer science scientists a process mining analysis of such large real-life datasets will provide new insights.

## Company

VitalHealth Software is a 150 people software company with its main premises in The Netherlands, India and the US. Focus is collaborative healthcare software and among its customers are some of the most famous medical institutions in the world (e.g. Mayo Clinic). VHS is market leader for CHM software in The Netherlands.

## Supervision

The student will be supervised by Michiel van Genuchten en Kees Roodnat from VHS. Michiel van Genuchten worked as a part-time professor at the TUE from 2002 through 2011. Previous research with TUE staff members on process mining has led to publications in both medical and computer science journals.

## Location

The main premise of VHS in The Netherlands is in Ede. The students will have to be present in Ede regularly for interaction with VHS software engineers and customers but can do most of its research at the TUE.

For more information please contact

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