Corrections for thesis from draft v2.0 to draft v2.5

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Abstract

Chapter 5 has been added with the results of human-image interaction and minor changes for chapter 6 and 7 by Miguel Xochicale (MX), Draft v2.5 are located in *//phd-thesis/draftrevisions/draft02/draft/v2.5/*.pdf.*

Contents

1 Major corrections (MX)

1.1 chapter 1

1. slighly changes of research questions

   \item What are the weaknesses and strengths of RQA metrics when quantifying MV?

   \item How the smoothing of raw time series affects the nonlinear analyses when quantifying MV?

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2. amended outline of the thesis

   \section{Outline of the thesis}
   This thesis is organised as follow.
   Chapter 1 presents a background for the quantification of
   Movement Variability(MV), state-of-the-art for modelling human MV,
   MV in the context of human-humanoid interaction and research questions
   are stated.
   .
   .
   .
   Finally, Chapter 7 presents conclusions, answers for the
   research questions, the contribution to knowledge and
   future work for this thesis
   (see Fig \ref{fig:thesis-outline} for the thesis outline).

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1.2 chapter 5

1. data preparation

   hii paths are added with code and data '~/github/phd-thesis-code-data'.

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2. description of the results

   \section{Introduction}

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\section{Time series}
\section{Minimum Embedding Parameters}
\subsection{Minimum dimension embedding values}
\subsection{Minimum delay embedding values}
\subsection{Average minimum embedding parameters}
\section{Reconstructed state spaces with UTDE}
\section{Recurrences Plots}
\section{Recurrence Quantification Analysis}
\subsection{REC values}
\subsection{DET values}
\subsection{RATIO values}
\subsection{ENTR values}
\section{The weaknesses and strengths of RQA}
\subsection{Sensors and activities}
\subsection{Window size}
\subsection{Smoothness}
\subsection{Participants}
\subsection{Final remarks}
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1.3   chapter 6

1. Adding subsections to the weaknesses and strenths of RQA.


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\section{The weaknesses and strengths of RQA}
\subsection{Sensors and activities}
\subsection{Window size}
\subsection{Smoothness}
\subsection{Participants}
\subsection{Final remarks}
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2. Polishing Final remarks of weaknesses and stregnths of RQA


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Generally, it can be noted the changes for RQA metrics are evident
with both the increase of embedding dimension parameters and the
recurrence threshold for different structures, window size,
levels of smoothness of the time series.
RATIO values present a plateau (blue colour surface) which is independently
to the source of time series, however there are peaks that change
differently based on the source of time series for embedding parameters
increasing with recurrence threshold less than one.
For DET values, 3D surfaces present a fluctuated surface (red colour)
which slightly differs with the source of time series.
With regards to REC values, 3D surfaces are affected with the type of
velocity, for instance, surfaces for normal velocity presents
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an increase of REC values as recurrence threshold increase and keeping
slightly uniform surface changes for the increase of embedding parameters,
however for faster velocity the 3D surface fluctuations decrease as
the embedding dimension increase and recurrence thresholds increase.
Similar as the human-image activities, 3D surfaces for ENTR values in
this experiment present changes for any source of time series,
making ENTR values a robust metric to quantify human-humanoid activities
for analysis of movements variability from different time series.
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1.4   chapter 7

Minor changes with the use of English language.

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