Recognition of Human Motion
From Qualitative Normalised Templates

Chee Seng Chan · Honghai Liu · David J. Brown

Received: 10 April 2006 / Accepted: 8 September 2006 /
Published online: 20 December 2006
© Springer Science + Business Media B.V. 2006

Abstract This paper proposes a Qualitative Normalised Templates (QNTs) framework for solving the human motion classification problem. In contrast to other human motion classification methods which usually include a human model, prior knowledge on human motion and a matching algorithm, we replace the matching algorithm (e.g. template matching) with the proposed QNTs. The human motion is modelled by the time-varying joint angles and link lengths of an articulated human model. The ability to manage the trade-offs between model complexity and computational cost plays a crucial role in the performance of human motion classification. The QNTs is developed to categorise complex human motion into sets of fuzzy qualitative angles and positions in quantity space. Classification of the human motion is done by comparing the QNTs to the parameters learned from numerical motion tracking. Experimental results have demonstrated the effectiveness of our proposed method when classifying simple human motions, e.g. running and walking.

Key words human motion classification · pattern recognition

1 Introduction

Human motion detection, coarse or fine body limb tracking and behaviour understanding of human action has attracted a great deal of interest in the last few