Department of Computer Science

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Manifold Learning Based Locomotion Analysis and Synthesis

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Date : 10 August 2007 (Friday)

Time : 11:30am - 12:00noon

Venue : CS Seminar Room, Rm Y6405, 6th Floor Yellow Zone, Academic Building, City University of Hong Kong, Tat Chee Avenue, Kowloon Tong.

Abstract

In this talk, we propose a method for locomotion analysis and synthesis based on motion manifold learning. The locomotion like walking and running can be considered as lying on an intrinsically low dimensional structure because arms and legs operate in a coordinated way. Based on this assumption, we extract low dimensional embeddings from high dimensional motion capture data with Isomap. Segmentation of cyclic patterns and analysis of the dynamic features are performed based on these embeddings, and new locomotion can be synthesized by mapping low dimensional representations into the high dimensional space. The experimental results demonstrate the learned motion manifold provides a more direct way to visualize, analyze and synthesize locomotion in our framework.

This paper was presented in the 10th Joint Conference on Information Sciences, July 18-24, 2007.

Supervisor: Dr H S Wong (CS)
Research Interests: Human Motion Analysis and Synthesis, Bayesian Network, Dimensionality Reduction

All are welcome!

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In case of questions, please contact Dr H S Wong at Tel: 27888624, E-mail: cshswong@cityu.edu.hk, or visit the CS Departmental Seminar Web at http://www.cs.cityu.edu.hk/.