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The Analysis and Synthesis of Motion
Dr. Brian Allen Foster, Senior Research Fellow, IMI

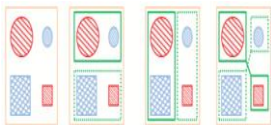
Physically simulated motion is now a key component of visual effects and computer games. In contrast to key-frame animation or motion capture, characters driven by physical laws can move in new, dynamic and unforeseen ways in response to their environment and user interaction. However, creating physically simulated characters capable of reproducing the fluidity and compliance of well-practiced human motion remains a challenge. Analogously, addressing the dual problem-- that of recognizing the particular grace of practiced human motion-- has the potential to improve the training of manual skills. In this talk, I will present several new approaches to human and human-like motion, and describe applications in computer games, visual effects, robotics, virtual reality and medical training.



User Profile Enhanced Geolocation Suggestion for Social Images
Yuan Quan, PHD Student, IMI & SCE

Social image sharing websites, such as Flickr and Zoomr, have attracted a large number of Internet users. These systems provide a service allowing users to attach geolocation information to their images, which is essential to a large number of applications like location-aware queries. However, only a small fraction of social images are geotagged. In our study, we build a multinomial model based on the user profile for geotagging. A unified framework is proposed to combine evidences from user profile and image tags to suggest geolocations for social images. This is the first work that utilizes the user profile to improve the geolocation suggestion for social images. The proposed methods are evaluated with a large Flickr dataset. Experimental results show that our method is able to improve the performance of baseline significantly for grids at different granularities, especially for images uploaded by users who never did geotagging before.

Conjunctive Patches Subspace Learning with Side Information for Collaborative Image Retrieval
Zhang Lining, PhD Student, IMI & EEE



Various Collaborative Image Retrieval (CIR) schemes aim to utilize the user historical feedback log data with similar and dissimilar pair wise constraints to improve the performance of a CBIR system. However, existing subspace learning approaches with explicit label information cannot be applied for a CIR task, although the subspace learning techniques play a key role in various computer vision tasks, e.g., face recognition and image classification. In this work, we propose a novel subspace learning framework, i.e., Conjunctive Patches Subspace Learning (CPSL) with side information, for learning an effective semantic subspace by exploiting the user historical feedback log data for a CIR task. The CPSL can effectively integrate the discriminative information of labeled log images, the geometrical information of labeled log images and the weakly similar information of unlabeled images together to learn a reliable subspace. We formally formulate this problem into a constrained optimization problem and then present a new subspace learning technique to exploit the user historical feedback log data. Extensive experiments on both synthetic data sets and a real-world image database demonstrate the effectiveness of the proposed scheme in improving the performance of a CBIR system by exploiting the user historical feedback log data.



Psychological and Sociological Inspirations in Development of Believable Social Agents
Jaroslav Slawomir Kochanowicz, PhD Student, IMI & SCE

This research aims to develop elements of a cognitive-affective architecture for believable agents capable of generating complex social behavior for various applications. Existing models will be improved and expanded by certain significant concepts from psychology and sociology, enabling implementation of agents with more believable personality, values, morality, goals, styles, social identities, culture, world model, individual social maps and other characteristics. Afterwards this flexible and reusable model will be embedded in various environments as a basis of simulation of an emergent, dynamic and interactive social structure of believable society.

DATE : 24 April 2012
TIME : 10:30 am – 12:30 pm
VENUE : IMI Seminar Room
Research Techno Plaza
X Frontiers Block, Level 03-01