



<b>Project Title:</b>	Towards A Reinforcement Learning Approach To Make Robots Learn How To Dance
<b>Student Name:</b>	Ibrahim Tholley
<b>Supervisor Name:</b>	Dr Qinggang Meng & Professor Paul Chung
<b>Start/End Date:</b>	July 2007 – July 2010
<b>Funding Source:</b>	Computer Science Department
<b>Department:</b>	Computer Science

### **Project Description:**

Dancing is an activity that is well enjoyed by humans as means to perform as well as observe. It is an advanced, non-verbal form of communication, which expresses and interprets the music being played as well as convey the emotional state of the dancer. From a psychological perspective, it is a highly rewarding and satisfying activity, which is also influenced by the external feedback of the onlookers. It is this as well as the cognitive aspects of dancing that make it an interesting problem in the field of robotics.

There is a growing interest in dancing robots today mainly developed for entertainment purposes and research into human-robot interactions, however, what seems to be minimal in this field is the ability to make robots adapt their movements as the music progresses in a meaningful way. Not only, must dancing robots be in rhythm with the music but also, know how best to choreograph their movements to the music. My research looks into how we can detect the fundamental parts of music (such as rhythmic patterns and dynamic structures), but also apply the appropriate movements and types of movements to go with the changing music, using Reinforcement Learning.