University of Birmingham

'Insects on rubber, dogs on springs, and robots in a field: An integrative approach to discovering how animals move, and making better robots'

Date(s)	Tuesday 13th March 2012 (16:00-17:00)
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Speaker: Dr Andrew Spence, Structure and Motion Laboratory, Royal Veterinary College University of London

One of the grand challenges in biology is to understand how animals move. Movement results from the dynamic interaction of many complex, nonlinear constituents: the nervous system, muscles, the mechanics of the body, and an often unpredictable external environment. Yet animals move quickly through heterogeneous, three-dimensional environments with stability and economy that far surpass our technology. This talk will present work that seeks to discover the control targets used by fast running, legged animals to achieve their remarkable performance. Results from insects, dogs, and a six-legged robot running over soft surfaces will be presented, suggesting that many-legged runners use a different strategy than that of bipedal runners to compensate for soft surfaces. Yet the intriguing possibility exists in both systems that sinking into a surface may simplify the task for the neural controller, because of the mechanics of an altered leg posture on foot touchdown. Recent work to formalize a new controller for quadrupedal systems will be discussed.