Engineering Neuroscience & Health

Department of Biomedical Engineering Division of Biokinesiology and Physical Therapy

USC UNIVERSITY OF SOUTHERN CALIFORNIA

ENH SEMINAR SERIES

Presents:

Joshua C. Bongard
University of Vermont

jbongard@uvm.edu

Monday

January 23, 2012

4:00 p.m.

Pizza will be served: 3:30— 4 pm

"Morphological change in machines accelerates the evolution of robust behavior"

Joshua C. Bongard, Ph.D.
Assistant Professor
Department of Computer Science
University of Vermont
http://cs.uvm.edu/~jbongard/

Most animals exhibit significant neurological and morphological change throughout their lifetime. No robots to date, however, grow new morphological structure while behaving. This is due to technological limitations but also because it is unclear that morphological change provides a benefit to the acquisition or robust behavior in machines. In this talk I will show that evolving populations of simulated robots, if robots grow from anguilliform into legged robots during their lifetime in the early stages of evolution, and the anguilliform body plan is gradually lost during later stages of evolution, gaits are evolved for the final, legged form of the robot more rapidly? And the evolved gaits are more robust? Compared to evolving populations of legged robots that do not transition through the anguilliform body plan. This suggests that morphological change, as well as the evolution of development, are two important processes that improve the automatic generation of robust behaviors for machines. It also provides an experimental platform for investigating the relationship between the evolution of development and robust behavior in biological organisms.

Locations: *Seminar is simultaneously presented*

UPC: HNB 100 — LIVE
Hedco Neurosciences Building
UPC Campus Map/Directions:
http://www.usc.edu/about/visit/upc/

HSC: CHP 147 – Video Conference
Center for the Health Professional
HSC Campus Map/Directions:
http://www.usc.edu/about/visit/hsc/

Organized by Professor Francisco Valero-Cuevas http://bbdl.usc.edu/ENH

Web Cast
http://capture.usc.edu/college/Catalog/pages/catalog.aspx?catalogId=946350f1-ca84-40e7-b867-e16adba01e4e

Information about all seminars can be found at
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