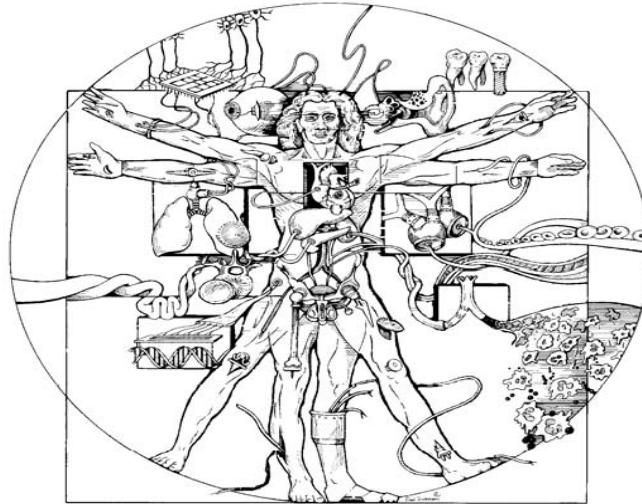


# Biomedical Engineering Seminar



**M. Anthony Lewis, Ph.D.**

Associate Professor, Electrical and Computer Engineering  
University of Arizona

## “Neurorobotics and Walking Machines”

**Abstract:** In this talk, we describe the basic principles by which the physical constraints of locomotion lead to the basic organization of neural networks for motor control. We describe basic strategies for the design of the detail of such circuits, including developmental and evolutionary methods. Finally, we describe the ongoing construction of Achilles, a robot that uses biarticulate muscles simulating the major muscle architecture of the human leg. This robot is a clean departure from current legged robotic designs, and will have clear advantages. We describe possible applications of this technology in neuroprosthesis and exoskeleton work.

**Bio:** Dr. Lewis holds a Ph.D. in Electrical Engineering from the USC and a B.S. in Cybernetics from UCLA. He has held regular and visiting positions at the University of Illinois, Urbana-Champaign, UCLA, the University of Waterloo, and currently at the University of Arizona. Dr. Lewis directed research at Iguana Robotics, Inc, a research and develop company. Dr. Lewis is best known for work in biological motor control of robotics systems, evolutionary robotics, and formation control of multi-robot systems.

**Monday, October 12, 2009**

**2:00 pm**

**Keating 103**

Host: Marty Pagel, Ph.D. (404-7049)

*Persons with a disability may request a reasonable accommodation by contacting the Disability Resource Center at 621-3268 (V/TTY). Requests should be made as early as possible to allow time to arrange the accommodation*