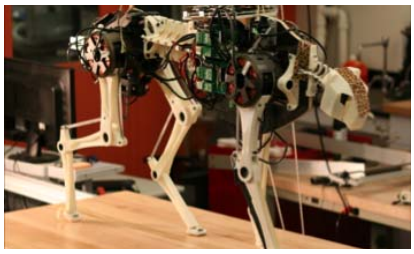
Biorobotics Seminar Series

ASU Ira A. Fulton Schools of Engineering
ARIZONA STATE UNIVERSITY

Sangbae Kim, Ph.D.

Highly Dynamic Locomotion: Actuation, Structure and Control of the MIT Cheetah Robot



Robot designers are increasingly searching for ideas from biology. The talk will introduce such bio-inspired robots that embody the hypothesized principles from the insights obtained by animal studies. Through these examples, the intricate processes of design principle extraction will be discussed. Current research in the MIT biomimetics lab is centered on the development of a cheetah-inspired running robot. Three major associated research thrusts are optimum actuator design, biotensegrity structure design, and the impulse-based control architecture for stable galloping control. Each research component is guided by biomechanics of runners such as dogs and cheetahs capable of the fast traverse on rough and unstructured terrains.

When: Friday, April 5, 2013
Where: Schwada Classroom Office Bldg., Rm. 250
Time: 3:30 p.m. - 4:30 p.m.

About Professor Kim

Sangbae Kim has been an Assistant Professor of Mechanical Engineering at MIT since 2009. As the director of the Biomimetic Robotics Laboratory, Sangbae is working at the convergence of mechanical engineering, biology, and material science. His design approaches focus on the design principles from complex biological systems
from understanding the difference between biological and engineering requirements.

Kim's achievement on bio-inspired robot development includes the world's first directional adhesive inspired from gecko lizards, and a climbing robot, Stickybot, that utilizes the directional adhesives to climb smooth surfaces. Stickybot was featured as one of the best inventions of 2006 by TIME, and the papers on Stickybot won the best student paper award at IEEE International Conference on Robotics in 2007 and Automation and Transactions on Robotics in 2008.