

Lab. for Integrated Machine Intelligence

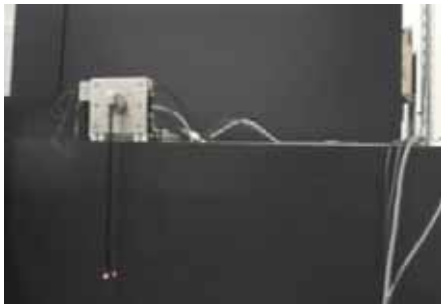
Directed by Professor Shinichi Hirai

<http://www.ritsumeai.ac.jp/se/~hirai/index-e.html>

We are investigating machine intelligence based on mechanics and its related technologies including sensors and actuators.

CMOS+FPGA vision

Fast (1,000fps) and high-resolution (1,000x1,000 pixels) visual feedback



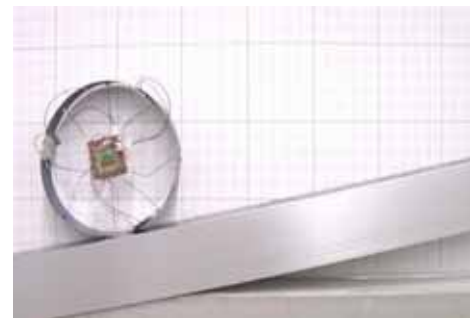
Soft-fingered Manipulation

Dexterous and stable object manipulation using soft-fingered mechanical hands



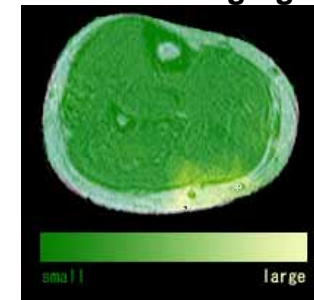
Crawling and Jumping Soft Robots

Locomotion by the deformation of robot body



Non-Uniform Biological Object Modeling

Deformation model of non-uniform biological objects based on MR imaging



Micro Parts Feeding

Vibration drive of micro parts along asymmetric surface with symmetric vibration



Micro Pneumatic Valve

Unconstrained poppet valves for small-sized pneumatic drive



Cloth Unfolding

Manipulation of clothes and flexible boards by robots



Tensegrity Robots

Rolling via the deformation of tensegrity structures

