

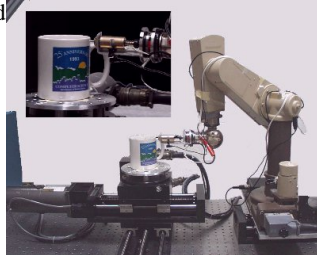
Static and Dynamic Contact

Chairs: Imin Kao, Dinesh Pai

Active Measurement of Contact Sounds

Joshua L. Richmond and Dinesh K. Pai
University of British Columbia

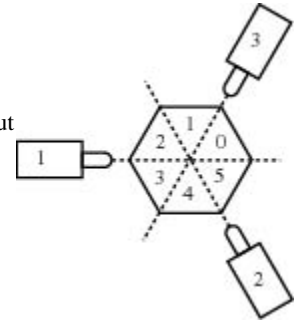
- Automatic acquisition of sound measurements.
- Uses a special
- Measurements used to create a sound model of an object.
- Produced good models of a brass vase.



A Tapping Micropositioning Cell

W. H. Huang
Rensselaer Polytechnic Institute

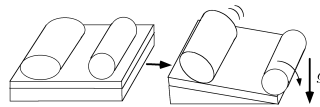
- Positions parts precisely within the cell by tapping the part.
- Tapping actuators are placed about the perimeter of the cell.
- The system is controllable.
- We give a positioning algorithm and show simulated results.



Neighborhood Equilibrium Grasp for Multiple Objects

K. Harada and M. Kaneko
Hiroshima University

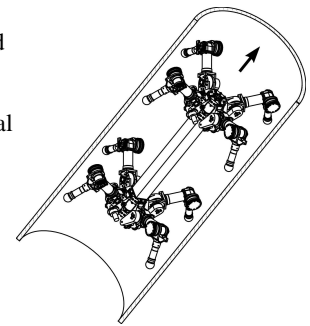
- We discuss the neighborhood equilibrium where the system can be shifted to another equilibrium state even when the current equilibrium is broken.
- We discuss the equilibrium grasp for multiple objects.
- We evaluate the robustness of the equilibrium state by utilizing the rotating angle of the system.
- We show several numerical examples to verify our idea.



About Friction in Walking Machines

F. Pfeiffer and Th. Rossmann
Technische Universität München

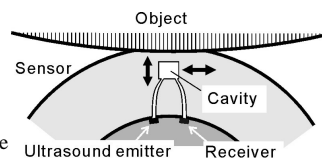
- Gears in Walking Machines and Robots, Harmonic Drives
- Multibody theory with unilateral contacts
- Efficiency of Harmonic Drives
- Powerful tool for design and friction observer layout



Instantaneous Evaluation of Friction Based on ARTC Tactile Sensor

H. Shinoda, S. Sasaki and K. Nakamura
Tokyo University of Agriculture & Technology

- Detecting a friction coefficient at the moment of touch, with no preliminary motions.
- An ARTC measures two skin stress components parallel and vertical to the surface.
- Stress parallel to the sensor surface depended on the friction.
- ARTC tactile sensor senses friction coefficient at the moment of touch.



Study of Soft Finger Contact Mechanics Using Finite Elements Analysis and Experiments

Nicholas Xydias, Milind Bhagavat and Imin Kao
SUNY Stony Brook

- Nonlinear FEM modeling and simulation of soft finger contact
- Experiments and model verification
- Normal force vs. radius of contact, pressure distribution
- Limit surface

