Call for Papers

IEEE TRANSACTIONS ON ROBOTICS

Special Issue on Robotic Sense of Touch

Future robots will be expected to work closely and interact safely with humans as well as real-world objects. Among various sensing modalities needed for this purpose, the sense of touch is particularly important. Unlike other senses (e.g. vision, audio), it involves complex physical interaction, and plays a fundamental role in estimating properties such as shape, texture, hardness, material type and many more. The sense of touch provides action related information, such as slip, and helps in carrying out actions, such as rolling an object between fingers without dropping it.

For a long time, the robotics community has emphasized the need for touch/tactile sensing in robots. Many innovative intrinsic and extrinsic touch sensors using different modes of transduction have been reported in literature. Touch sensing structures such as electronic skin, that are flexible, conformable, stretchable and thus suitable for covering large body parts of robots, are being increasingly investigated. The effective integration of such sensors and structures on various robotic platforms will allow researchers to develop new cognitive algorithms involving touch information from large areas. In addition to robotics, such structures will also help understand human interaction with the environment.

Researchers working in the academy or industry are invited to submit papers to this Special Issue of the ***IEEE Transactions on Robotics*** (T-RO) on the theoretical, technological and experimental aspects of design, development, and validation of novel robotic touch sensing systems, their integration with robots, and the effective utilization of touch information.

Topics

- Robotic Intrinsic/Extrinsic touch sensing systems.
- Intrinsic/Extrinsic touch sensor technologies.
- Large area skin/wearable skin technologies and architectures.
- System level integration of touch sensors/arrays/skin on robot's body.
- Human/biological inspired touch sensing technologies.
- Whole body sensing.
- Safe interaction with touch sensing.
- Real world interaction with multiple sensory modalities (involving touch).
- Touch/Tactile sensing in Robotic tasks (exploration, manipulation, recognition, imaging, etc.)
- Touch/Tactile sensing in applications (humanoids, biomedical, MIS, etc.)
- Experiments on robots utilizing touch information.
- Touch sensing and perception.
- Touch sensing and cognition.
- Touch sensing based control algorithms and methods.
- Modeling and simulation techniques of contact (soft/hard) phenomena.
- Softwares for processing touch information.
- Humans' real world interaction and large area contact information.
- The lessons from biological touch studies for robotic tactile sensing.

Important dates

April 1, 2010:	Call for Papers
Aug. 1, 2010:	Deadline for Paper Submission
Nov. 15, 2010:	Completion of First Review
Feb. 15, 2011:	Completion of Final Review
June 2011 (tentative):	Publication

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Submission and Review of Papers

Author information is available at the T-RO web site http://www.ieee-ras.org/tro. Submissions should go to T-RO PaperCept at http://ras.papercept.net/journals/tro. T-RO considers also accompanying multimedia material. Papers submitted to the Special Issue undergo the usual T-RO review process.