Sensors and Materials

Special Issue on Human-in-the-loop Sensing in Cognitive Robotic Systems

Call for Papers

With Industry 4.0 and artificial intelligence technology development, robots are now making their way into spaces shared with people, instead of working behind fences. With this background, developing robotic systems that collaborate with humans is becoming critically important in a range of areas from manufacturing lines to domestic service, elderly care, and medical care. Despite the high demand, developing collaboration between humans and robots faces various challenges:

1. Learning and identification of an uncertain environment;
2. Human intention recognition and human action prediction;
3. Advanced robot control approaches to execute tasks in response to human actions.

All these challenges need collaborative robots that are made of novel materials or equipped with a wide range of sensors that provide signals for learning and adaption. This special issue on human-in-the-loop sensing in cognitive robotic systems is mainly concerned with achieving the above challenges of collaborative robots and sensors. The goal is to highlight recent progress in human–robot collaboration, with a particular focus paid to the new sensors and materials developed for these applications, and the related learning and control methods for robot interaction. With this special issue, we hope to reflect the state-of-the-art in the field. Studies that present new sensor designs and related robotic control or planning methods using sensor data are particularly welcome.

Scope:

- New tactile, force, vision, or other sensors developed for human–robot collaboration
- Soft robotics and related sensing problems
- Environment perception and cognition
- Human-in-the-loop decision making and robot control
- Compliant robotic interaction control
- Intelligent control for interactive robotic systems
- Adaptive and learning control for interactive robotic systems
- Optimal robotic interaction control
- Sensor fusion in robotic interaction control

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If you have any questions, please feel free to contact the editorial staff at the address below.

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