

Studies on humanlike presence by using tele-operated androids

Hiroshi Ishiguro

(Osaka University, Graduate School of Engineering, Professor)

【Outline of survey】

This research project will study humanlike presence with cognitive methods by using a “geminoid,” that is, a tele-operated android identical in appearance to the principal investigator.

People expect to be able to converse naturally with an android that has humanlike appearance and behavior. However, autonomous conversation capability is not yet practical, due to limitations in technologies for speech recognition and artificial intelligence. The geminoid has solved this problem by using tele-operation techniques. In the geminoid system, an operator can communicate with people through the geminoid’s body by sending voice and movements through the internet, creating a feeling of presence as if he/she were actually there. This study goes beyond the mere humanlikeness of the android to investigate the phenomenon of humanlike presence.

This research project will focus on improvement of the geminoid system, studying humanlike presence by cognitive and neuro-scientific approaches, and development of robots that have the minimum design for conveying humanlike presence.

【Expected results】

The research project will introduce new research methodologies for using androids in cognitive science. That is, we expect to be able to gain understanding about humans by observing their interactions with other humans and with robots.

On the other hand, the development of the geminoid system provides us with a new communication technique for projecting a human presence to a distant place. Of course, it is not necessary to use perfectly humanlike robots. We expect to identify the essential factors of humanlike presence through these cognitive studies, enabling us to design minimal robot systems which can still convey humanlike presence effectively.

【References by the principal investigator】

- Hiroshi Ishiguro, Scientific issues concerning androids, International Journal of Robotics Research (Impact Factor 2005: 1.127), Vol. 26, No. 1, pp. 105-117, 2007.
- Hiroshi Ishiguro, Android Science, Studies on robotics for understanding human, Mainichi Communications, 2007.

【Term of project】 FY2008—2012

【Budget allocation】

161,700,000 yen (direct cost)

【Homepage address】 <http://www.ed.ams.eng.osaka-u.ac.jp/research/0012/index.en.html>