REELER- RESPONSIBLE ETHICAL LEARNING WITH ROBOTICS

ELS ETHICS - SHOULD SOCIETY BE AFRAID OF ROBOTS?

WORKSHOPS ERF 2017 ELS 1: ETHICS (22.3.17, 14-15:30)

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MAIN OBJECTIVE AND OUTCOME

Align roboticists' visions of a future with robots with empirically-based knowledge of human needs and societal concerns.

Develop new proximity-based human-machine ethics that take into account how people and society connect with robot technologies.

REELER – HRI PROXIMITY SPECTRUM

(ROBOTS EXEMPLIFYING THE CASE)

HIGHER

Retrainer
Ab.Acus

Integrated

Worn or implanted on a person

KASPAR
University of Hertfordshire

Social

Interacts socially with a person

LBR iiwa
Kuka

Cooperative

Cooperates physically with a person

EZ-10
Easy Mile
Robosoft

Operative

Operated or commanded by a person

Apple Gripper
Festo

Parallel

Works independently alongside a person

B-Droid
Warsaw University of Technology

Minimal

Independent, unlikely to contact a person

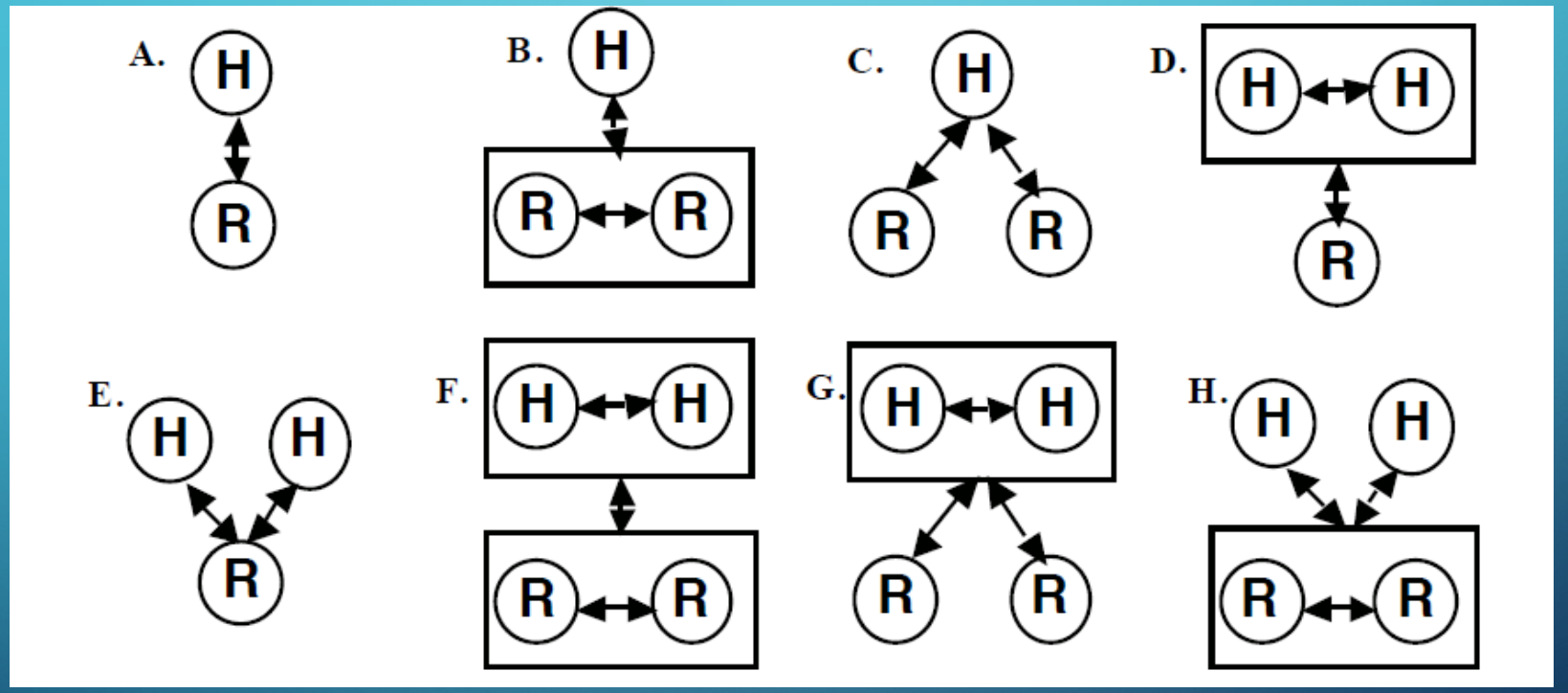
Smart Platform
Ocado

None

Protected from contact with a person

LOWER

HRI: HUMAN PROXIMITY (SOURCE YANCO, DRURY, 2002)



REELER - RESPONSIBLE ETHICAL LEARNING WITH ROBOTICS

Why ethics and why learning:

Different (interrelated) meanings of ethics:

Task of anthropology: systems of values and custom instantiated in the lives of particular groups of human beings

'Morality' embedded in these systems: notions of 'right' and 'wrong'

Moral principles – the ethical thing to do regarding the circumstances

Crisp, R., "Ethics." Pp. 242–245 in *The Shorter Routledge Encyclopedia of Philosophy*. London: Routledge, 2005

REELER – HRI WIDER PROXIMITY SPECTRUM

(ROBOTS EXEMPLIFYING THE CASE)

Retrainer
Ab.Acus

KASPAR
University of Hertfordshire

LBR iiwa
Kuka

EZ-10
Easy Mile
Robosoft

Apple Gripper
Festo

B-Droid
Warsaw University of Technology

Smart Platform
Ocado

AFFECTED STAKEHOLDERS

Affected training staff Relatives Hospitals	e.g. Researchers Media staff	Workers in cooperative environments (e.g. factory workers, hospital staff)	e.g. truck drivers Taxidrivers Private drivers	e.g. Fruit pickers Harvesters	e.g. Postmen Package delivery staff	e.g. Supermarket personelle

Wider spectrum: Human readiness levels toward robot acceptance. Roboticists' learning about systems of values and notions of right and wrong from the people's perspective.

WHY ROBOT DESIGNERS SHOULD USE REELER ?

To have REELER roadmap accepted and shared by robot designers and technical people involved at different level in the standard design/development/testing process as well as in the research oriented one, it is important to share concerns and to tune expectations.

The next SWOT analysis aims to supply technical people with a boundle of «good reasons» to accept REELER and implement it in their facilities

WHICH STRENGTHS FOR ROBOT DESIGNERS AND TECHNICIANS?

- Setup of a more robust design process, proactively including end users (not only from the strict functional point of view)
- Awareness of new tools for more effective users involvement in prototyping
- Early clearance of potential ethical issues
- Clear identification of issues specifically related to different Technological Readiness Levels
- Availability of suitable guidelines to support the new process

WHICH WEAKNESSES FOR ROBOT DESIGNERS AND TECHNICIANS?

- Longer design time
- Need of additional professional profiles in early design phases
- Need of new training for developers

WHICH OPPORTUNITIES FOR ROBOT DESIGNERS AND TECHNICIANS?

- Cooperation with people from humanities and social sciences may «open» very technologically oriented minds
- The focus of the design enlarged to include the final product as well as the end user (from what? to why?)
- The technological acceptance of the final product is improved by a more user centered design

WHICH THREATS FOR ROBOT DESIGNERS AND TECHNICIANS IF STATUS QUO?

- Setup of a not agreed and not tuned REELER based design process
- Setup of a very complex process not integrated in standard design/development/testing practices
- No improvement in final product quality

REELER ROADMAP

The main outcome of REELER is a research-based roadmap presenting:

- a) ethical guidelines for Human Proximity Levels,
- b) prescriptions for how to include the voice of new types of users and affected stakeholders through Mini-Publics,
- c) unfolding assumptions in robotics about affected stakeholders through socio-drama
- d) agent-based simulations of the REELER research for policymaking.