ETHICBOTS

Kick Off Meeting

Napoli, November 26th, 2005

Roboethics

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Genova, Italy

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The Debate

Since the birth of the concept of Automata/Robot, many people thought about the benefits and/or dangers of intelligent machines.

Among them Fritz Lang in his movie Metropolis and Isaac Asimov who invented the word Robotics and wrote the famous Three Laws of Robotics.

In the last decade the debate grew up. Some scientists expressed their opinion about the excess of intrusion by robots in our lives in an apocalyptic or optimistic way.

The Apocalyptics

Among the many who sounded apocalyptic alarm, nuclear physicist and Nobel Prize Joseph Rotblat, Chairman of the Pugwash Conference on Science and World Affairs, repeatedly spoke against "thinking computers, robots endowed with artificial intelligence and which can also replicate themselves. This uncontrolled self-replication is one of the dangers in the new technologies".

Bill Joy (USA, cofounder and Chief Scientist of Sun Microsystems) wrote an article “Why the future doesn't need us”, published in the March 2000 issue of Wired Magazine. The subtitle of the article is: "Our most powerful 21st-century technologies - robotics, genetic engineering, and nanotech - are threatening to make humans an endangered species"..

The Optimistic

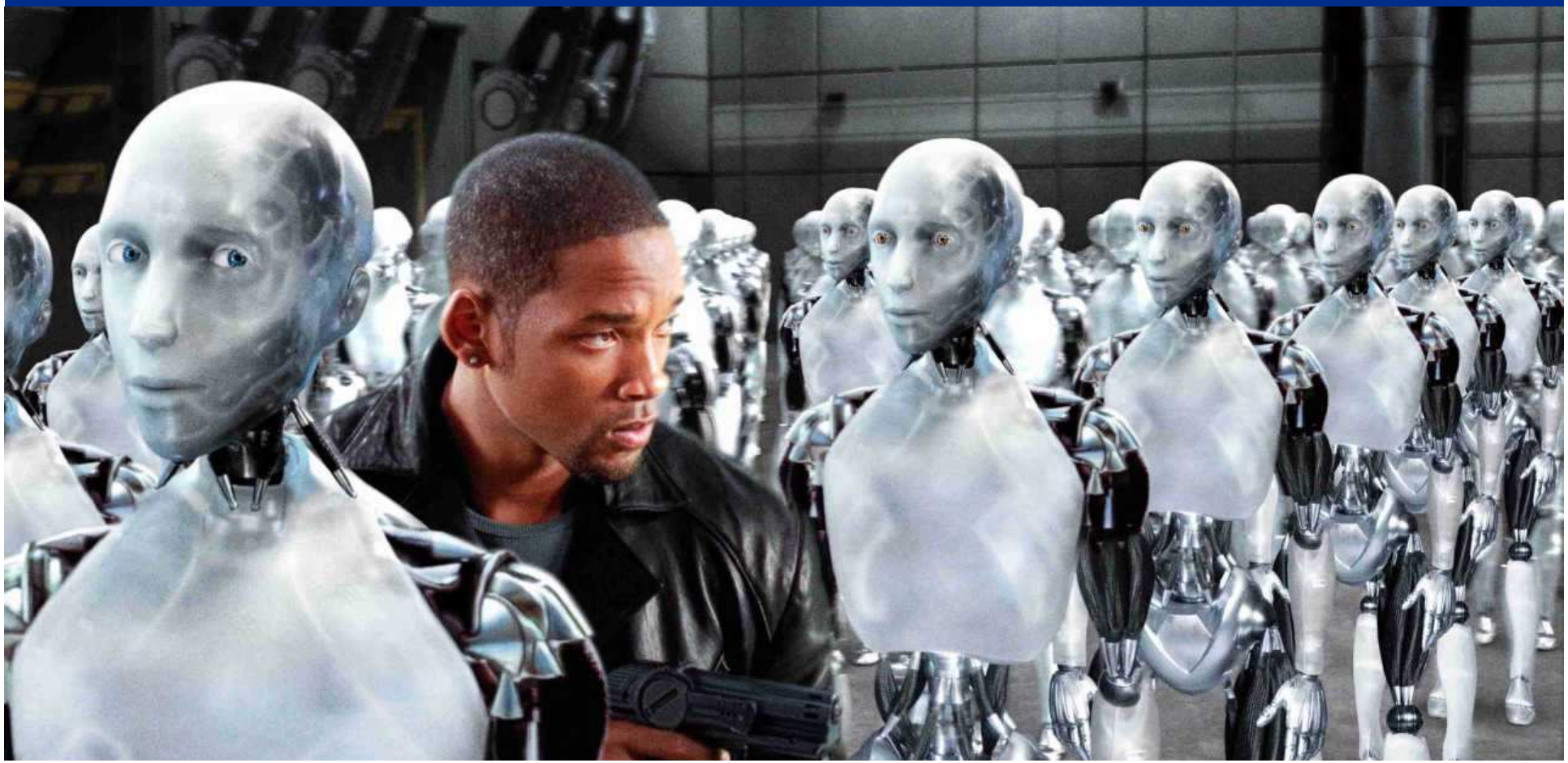
One of more optimistic interventions, that by J. Storrs Hall (Foresight Institute, USA), from his “Why Machines Need Ethics”:
"Suppose we can build (or become) machines that can not only run faster, jump higher, dive deeper, and come up drier than we can, but have moral senses similarly more capable? (…)
The inescapable conclusion is that not only should we give consciences to our machines where we can, but if we can indeed create machines that exceed us in the moral as well as the intellectual dimensions, we are bound to do so. It is our duty. (…)
It is the height of arrogance to assume that we are the final word in goodness. Our machines will be better than us, and we will be better for having created them".

The Technoethical Roots

The collaboration between Paolo Dario and José Maria Galvan gave birth to Technoetics.
Speaking at the Workshop "Humanoids, A Techno-ontological Approach" which took place in the frame of the International Conference on Humanoid Robots, IEEE-RAS at the Waseda University, 2001, Galvan spoke about the Ethical dimension of technology as Technoetics.
And, Paolo Dario:
“Today, the mission of the robotics engineer is to design and build robots able to co-operate with humans. It is an activity deeply different from that of the traditional engineer, who builds industrial robots designed for specialized and technical end-users. In this new enterprise, our European humanist culture is an experienced and solid base to face these problems in an original and satisfying way”.

Why Roboethics?

It is significant to note, actually, that robots are not only "**objects**" used by a human being who is, in the final analysis, the responsible of their use; they are also ***intelligent*** "**subjects**", so posing the ethical and legal problem of the entitlement of the responsibility of their actions.



The Birth of Roboethics

The School of Robotics organized the First International Symposium on Roboethics, 30-31 January 2004, Villa Nobel, Sanremo, Italy

Philosophers, jurists, sociologists, anthropologist and moralists, together with robotic scientists, were called to contribute to lay the foundations of the Roboethics: the Ethics in the design, development and employment of the Intelligent Machines.

www.roboethics.org

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In alphabetic order…

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Main Ethical Positions

Anthropologist Daniela Cerqui identified three main ethical positions emerging from two days of intense debate:

1) Those who are not interested in ethics.
2) Those who are interested in short-term ethical questions.
3) Those who think in terms of long-term ethical questions.

Not interested in Ethics

1) Those who are not interested in ethics. They consider that their actions are strictly technical, and do not think they have a social or a moral responsibility in their work.

Short-term ethical concerns

2) Those who are interested in short-term ethical questions. According to this profile, questions are expressed in terms of “good” or “bad,” and refer to some cultural values. For instance, they feel that robots have to adhere to social conventions. This will include “respecting” and helping humans in diverse areas such as implementing laws or in helping elderly people.

Such considerations are important, but we have to remember that the values used to define the “bad” and the “good” are relative. They are the contemporary values of the industrialized countries.

Long-term ethical concerns

3) Those who think in terms of long-term ethical questions, about, for example, the “Digital divide” between South and North, or young and elderly. They are aware of the gap between industrialized and poor countries, and wonder whether the former should not change their way of developing robotics in order to be more useful to the South. They do not formulate explicitly the question what for, but we can consider that it is implicit.

Roboethics Manifesto

To stimulate the debate on the birth of Roboethics, Veruggio proposed a Roboethics Manifesto: a proposal for an Ethical Commitment to be adopted by everybody involved in the Robotics Field

Roboethics Manifesto

"We express, in the frame of our own competences, our commitment:

1. To contribute to the creation of a *common ethic*, that could be shared by all cultures, all nations and all faiths, according to which the design, building and use of *intelligent machines* against human beings is considered a crime against Humankind;
2. To increase public awareness about Robotics, opening a debate based on correct information, permitting people to actively take part in the process of creating a collective consciousness able to understand and prevent the wrong use of technology;
3. To promote the development of Robotics to move towards the social progress of Humankind and the protection of the Environment;
4. To refuse any involvement in programs aimed at the design, the construction and the use of Robots against human beings."

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Question

Is Roboethics a problem the individual scientist, the end user or the concerned person have to deal with in her/ his own consciousness?

OR

Is it a social problem to be addressed at institutional level?

Robotics is not the first field to face this growing challenge.
Actually many international institutions have brought up Science/Ethics issues in their daily activity.
Contemporary society saw the birth of new instruments to face ethical problems in science: Bioethical committees inside Public and Private Institutions are important examples to be inspired by.

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The European Case

The European Parliament and the European Commission began already in the mid 1980s to reflect on ethical questions emerging through science.
European society is a rich cultural tapestry, made up of a broad spectrum of ethical, religious, historical and philosophical backgrounds, which can often lead to divergent positions on ethical issues in science.
Since the early 1990s, the European Group on Ethics has been helping to find common European positions, while respecting national identities.

The 6th EC Framework Program

Article 3 of the FP6 states that:

"All the research activities carried out under the Sixth Framework Program must be carried out in compliance with fundamental ethical principles.
In order to implement this article the European Commission has introduced an ethical review for proposals raising sensitive ethical issues into the evaluation process"
(…)

The 6th EC Framework Program

(…)
"All proposals for research submitted to the European Commission for funding must include a section describing the ethical issues raised by the project regarding its methodology, the objectives and the possible implications of the results and the way they will be tackled (…) principles reflected in the Charter of fundamental rights of the European Union such as protection of human dignity and human life, protection of personal data and privacy as well as the environment."
(…)

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The 6th EC Framework Program

(…)
“The objective of this additional assessment is to make sure that the European Union is not supporting research which might violate fundamental ethical principles.
Integrated Projects and Networks of Excellence in the priority areas of research are encouraged to take on board specific research and stakeholder groups to study the ethical impact of the research undertaken”.
(…)

EC Action Plan “Science and Society”

The principles leading the decision making and everyday behaviour of the Europeans are governed by the respect for:

a) human life,
b) human dignity
c) integrity of the person
d) democracy
e) the rule of law
f) cultural, religious and linguistic diversity
g) the freedom of arts and research
h) health care
i) consumer protection
j) the right of the child, the elderly and the handicapped
k) environment
l) privacy
m) liberty and security.

Fukuoka World Robot Declaration

"Confident of the future development of robot technology and of the numerous contributions that robots will make to Humankind, this World Robot Declaration is issued on February 25, 2004 from Fukuoka, Japan.

Expectations for next-generation robots:

1. Next-generation robots will be partners that coexist with human beings;
2. Next-generation robots will assist human beings both physically and psychologically;
3. Next-generation robots will contribute to the realisation of a safe and peaceful society."

IEEE-RAS TC on Robo-Ethics 2004-05

In 2004 IEEE-RAS established a Technical Committee (TC) on Robo-Ethics, aimed to provide the IEEE-RAS with a framework for taking care of ethical implications of robotics research, by promoting the discussion among researchers, philosophers, and ethicists, but also by supporting the establishment of shared tools for managing ethical issues in this context.

In its first term, the IEEE-RAS Technical Committee on Robo-Ethics, was chaired by:

Paolo Dario
(chair)

Kazuo Tanie
(co-chair)

Ron Arkin
(co-chair)

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ICRA 2005 Workshop on Robo-Ethics

The focus of the TC on Robo-Ethics includes the unintended warfare uses of robotics research results, the preservation of human integrity in the interaction with robotic (even bionic) systems, and the study and development of the robot-ethics concept.

ICRA 2005

IEEE International Conference on Robotics and Automation

Workshop on Robo-Ethics

Barcelona, April 18, 2005

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Waseda

Italy-Japan 2005 Workshop
Organized by the Embassy of Italy in Tokyo
The Man and the Robot: Italian and Japanese approaches
September 7- 8, 2005

Veruggio and Takanishi spoke about Roboethics and during the final Round Table emerged a fundamental difference between the two cultural approaches to robotics and ethics.
That's why Veruggio proposed a East-West Understanding Project as a background discussion siding Roboethics Atélier and future activities.

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IEEE-RAS TC on Robo-Ethics 2006-07

In its second term, the IEEE-RAS Technical Committee on Robo-Ethics, will be chaired by:

Ron Arkin
(co-chair)

Gianmarco Veruggio
(co-chair)

Atsuo Takanishi
(co-chair)

EURON Roboethics Atélier

EURON - European Robotics Research Network – funded in 2004 a Research Atelier Project devoted to Roboethics.

- It will last one working week, taking place February-March 2006 in Rome (Italy).
- It will be attended by about 30 participants coming from all over the world and from different fields of research, both Sciences and Humanities.

Gianmarco Veruggio
(coordinator)

Paolo Dario

Raja Chatila

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A Roadmap for Roboethics

The aim of the Atelier is to produce a Roboethics Roadmap of, providing a common tool within the interested community:

- To develop a common language among scholars and stakeholders on Roboethics;
- To learn about each other field, make connections and generate ideas;
- To develop a general Survey on the main ethical paradigms in the different cultures, religions, faiths;
- To define a Rosetta Stone of the ethical guidelines “adjusted” to the different cultures, religions, faiths;
- To activate specific studies;
- To lay the foundation for the creation of Roboethics Committees inside Public and Private Institutions.

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Some of the Roboethics topics:

- Societal and Cultural Variations in Robotics Acceptance.
- Privacy. Personal information, its disclosure and misuse.
- Robotics and Jobs. Impact of revolutionary technological changes on employment.
- Robotics and Defense. Ethical implications of machines that kill or assist in killing.
- Entertainment Robots. Manipulation of the individual through affect in consumer robotics. Robot pets. The illusion of life.
- Ubiquitous computing. Robots everywhere.
- Bio-Robotics
- Sexual activity and robotics. Robot partners.
- Religion and Intelligent Machines.
- Robots as Intelligent Beings. Rights related to robots. Robot slavery and society.
- Professional Responsibility.
- Social responsibility and personal and corporate accountability and liability for harm.

Roboethics will foster Robotics

The Roboethics Atelier will contribute to fostering the state-of-the-art in Robotics because:

- it will collect contributions from several field of research and from Humanities. This will contribute to closing the gap between the “two cultures” and enrich the brainstorming in the field of Robotics;
- it will improve the understanding of Human-Robot Communication;
- the discussions on Roboethics, and the adequate disseminations of the Atelier’s results, can help scholars, stakeholders and the general opinion to understand the positive uses of Robotics, and to prevent its abuse.

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Next actions…

• February 20-22, 2006: BioRob 2006 (The first IEEE / RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics), Pisa, Italy.

• February 27-March 3, 2006: EURON Roboethics Atélier, Genoa, Italy.

• March 16-18, 2006: European Robotics Symposium (EUROS-06), Palermo, Italy.

• May 15-19, 2006: IEEE International Conference on Robotics and Automation, Orlando, FL, USA