



# ROBOTICS FACING LAW. THE ROBOLAW KICK-OFF (PUBLIC) MEETING

Organisers:

*Erica Palmerini and Pericle Salvini*

**Odense, March 5<sup>th</sup> 2012**

# Agenda

| START        | END   | WHAT   | WHO (IN ALPHABETICAL ORDER)  |
|--------------|-------|--|--|
| 16:30        | 18:00 | ROBOTICS FACING LAW. THE ROBOLAW KICK-OFF (PUBLIC) MEETING                                       | F. Battaglia (UBER), B. Juretzki (EU Commission), D. Lagiou (EU Commission), R. Leenes (TILT), E. Palmerini (SSSA), A. Pirni (SSSA), P. Salvini (SSSA), K. Warwick (UoR) |
| 16:30        | 16:40 | Introduction by RoboLaw Project Officer  | <i>D. LAGIOU</i>   |
| 16:40        | 16:55 | Presentations of RoboLaw Project by the Project Coordinator                                      | <i>E. PALMERINI</i>  |
| 16:55        | 17:10 | From Ethical Issues to Robotics Answers and vice versa: A Philosophical Approach                 | <i>A. PIRNI</i>  |
| 17:10        | 17:25 | Cheating with implants. Implications of the hidden information advantage of bionic ears and eyes | <i>R. LEENES</i>   |
| 17:25        | 17:40 | BioTech Robots and Cyborgs – Ethical Aspects   | <i>K. WARWICK</i>  |
| 17:40        | 17:55 | Ethical and anthropological issues concerning robotics   | <i>F. BATTAGLIA</i>  |
| 17:55        | 18:00 | Wrap-up and Conclusions  | <i>B. JURETZKI</i>   |
| <b>18:00</b> |       | <b>End of the kick-off meeting</b>   |  |

# **Short Introduction from RoboLaw Project Officer**

Dionysia Lagiou

*European Commission – Policy Officer,  
Research & Innovation DG, Belgium*

# Presentation of the RoboLaw Project

Erica Palmerini

*RoboLaw Project Coordinator*

*Scuola Superiore Sant'Anna (Italy)*

**Alberto Pirni**

(Scuola Superiore Sant'Anna – Pisa)

**From Ethical Issues to Robotics  
Answers and vice versa:  
A Philosophical Approach**

**Workshop:**

***Robotics facing Law The RoboLaw Kick-off Meeting***

**European Robotics Forum**

(Odense – 5-7 March 2012)

FP7 Project ROBOLAW: Regulating Emerging Robotic Technologies in  
Europe – Robotics facing Law and Ethics)

# Outline of the Presentation

- Recall implicitly the main philosophical tasks at stake within the project Robolaw;
- Articulate briefly what I provisionally call “a question of form”, that is a methodological issue;
- Figure out “a question of contents”, by giving an account of a crucial concern, which constitutes one of the basis for addressing the principal aim of the project.



## **2. A Question of Form**

- **Robotic and Ethics: reciprocal boundaries**
- **Ethics against the “Rhetorics of Ethics”**
- **An exercise of linguistic and conceptual cleaning**

### **3. A Question of Contents - I**

- **Towards the “White Paper on Regulating Robotics”**
- **A phenomenological evidence: the body**
- **The priority of the body: the horizon of experience**



### **3. A Question of Contents - II**

- **The “rights to equality” revisited**
- **The “capabilities approach” (A. Sen) and Robotics: an attempt of theoretical intersection**
- **Ethics, Robotics and Law: a fundamental link**

**Thank You for Your attention!**

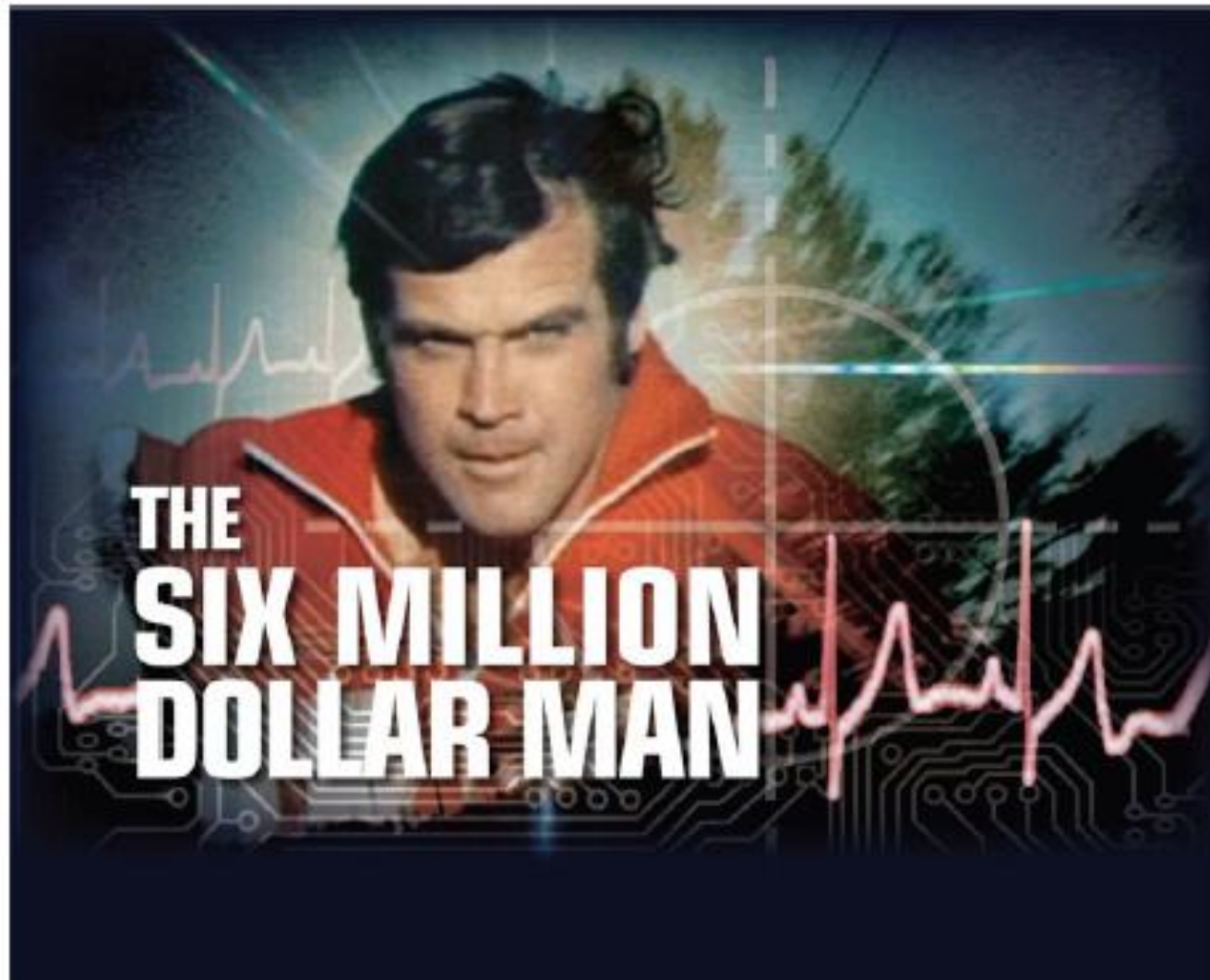
[a.pirni@sssup.it](mailto:a.pirni@sssup.it)

[www.robolaw.eu](http://www.robolaw.eu)

# cheating with implants

Bert-Jaap Koops & **Ronald Leenes**

European Robotics Forum  
5 March 2012, Odense, Denmark



[http://3.bp.blogspot.com/\\_ooCRlrvj6h4/TQn7QzpMKPI/AAAAAAAAA88/NRwqdYLqXE4s/600/6mill.jpg](http://3.bp.blogspot.com/_ooCRlrvj6h4/TQn7QzpMKPI/AAAAAAAAA88/NRwqdYLqXE4s/600/6mill.jpg)



# bionic eye

<http://s356.photobucket.com/albums/108/feanerys2008/imagens/?action=view&current=bionic-woman-eye-1.jpg>



# neural prosthetics

# neural sensory prosthetics

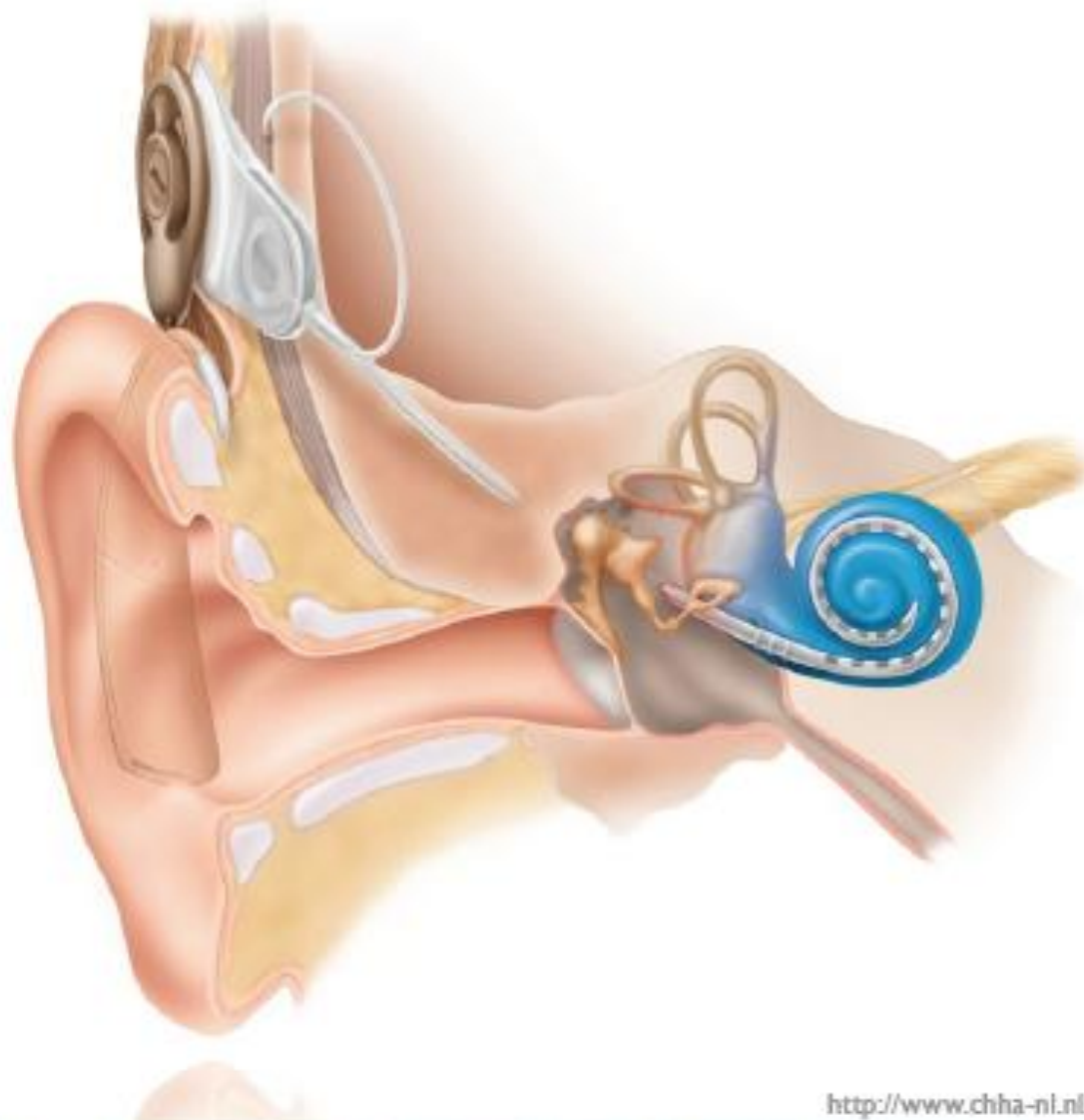
**(bionic sensory implant)**



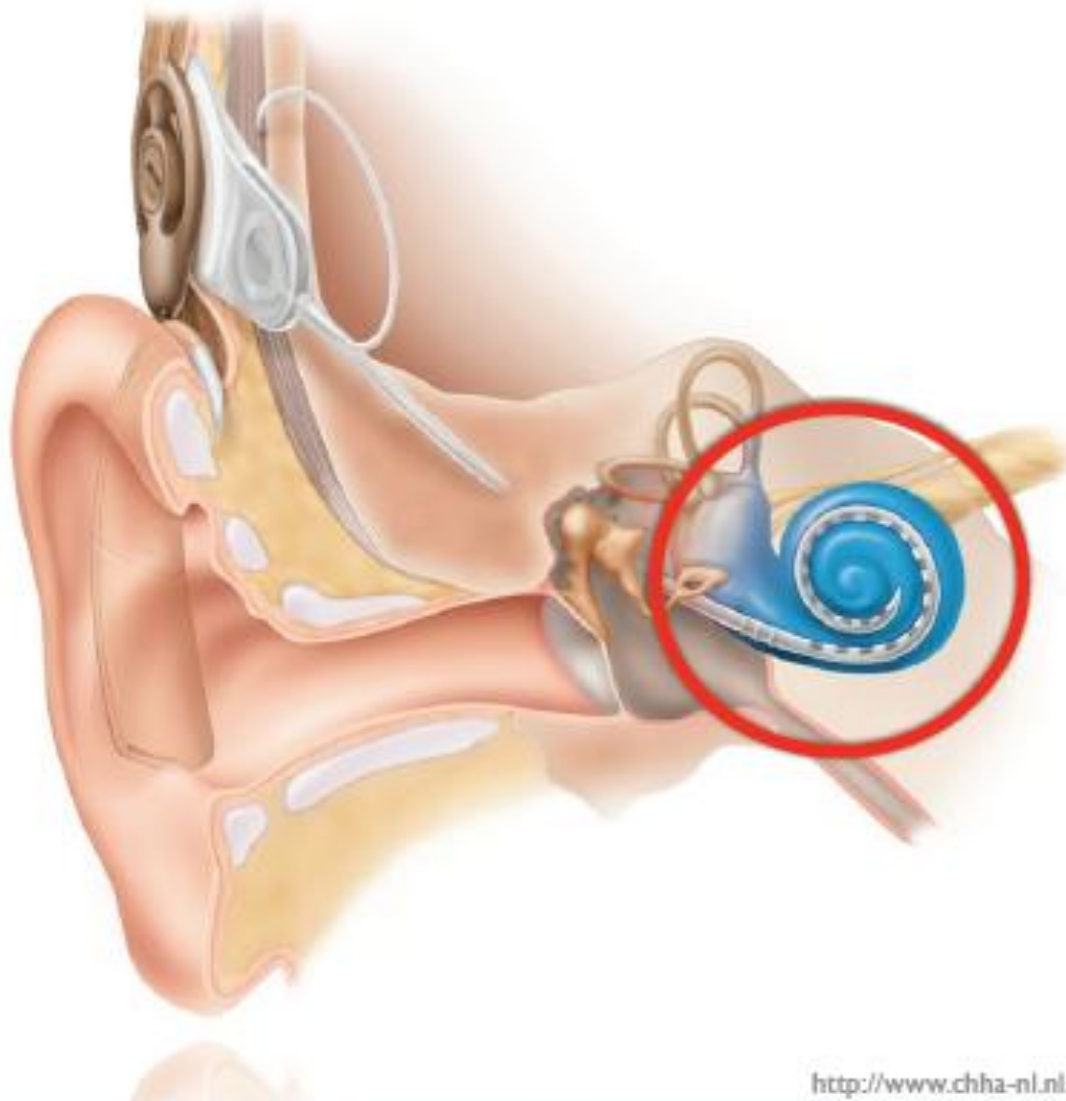
# basics



<http://hearing-aids-sioux-falls-sd.com/wp-content/uploads/behind-the-ear-hearing-aid.jpg>

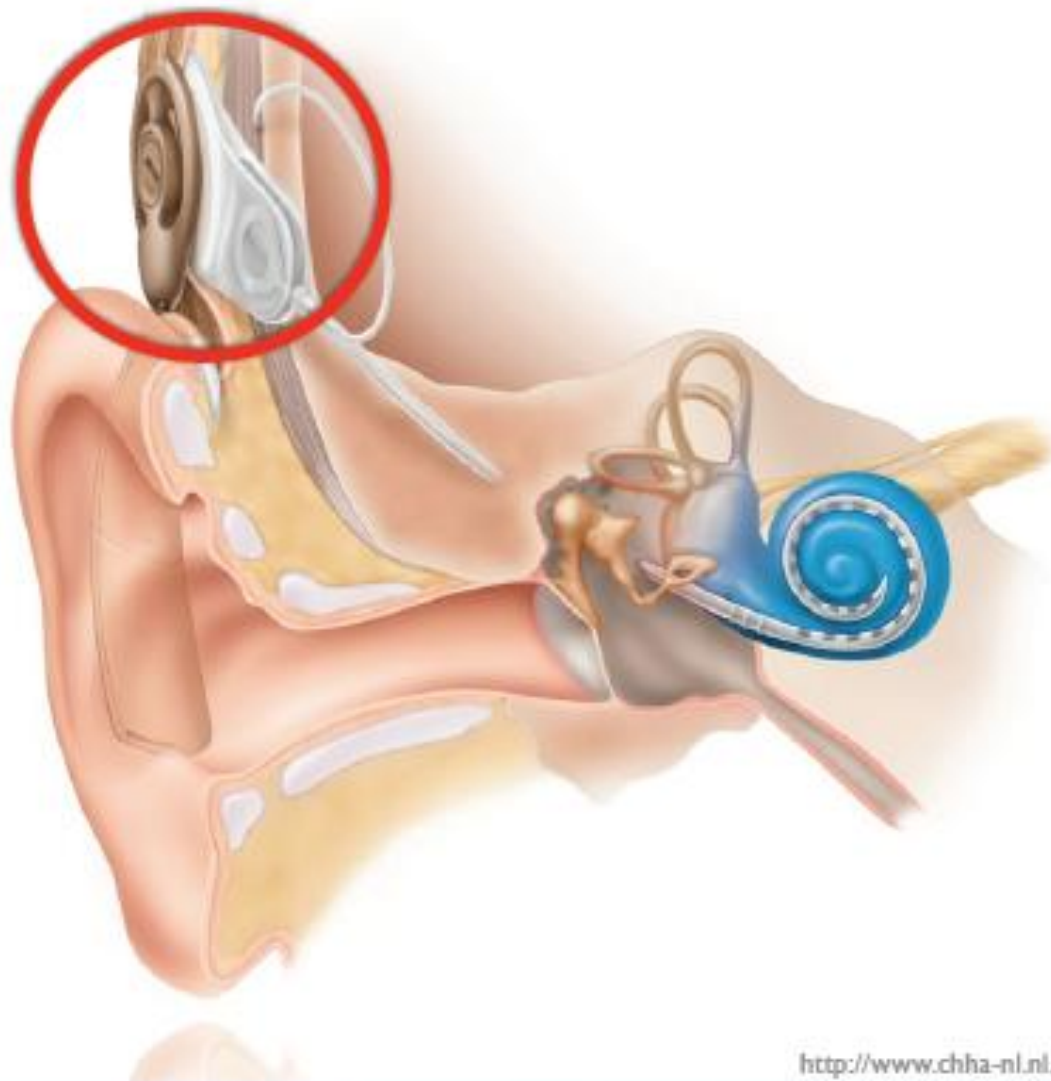


<http://www.chha-nl.nl.ca/hearing-cochlear.html>



<http://www.chha-nl.nl.ca/hearing-cochlear.html>

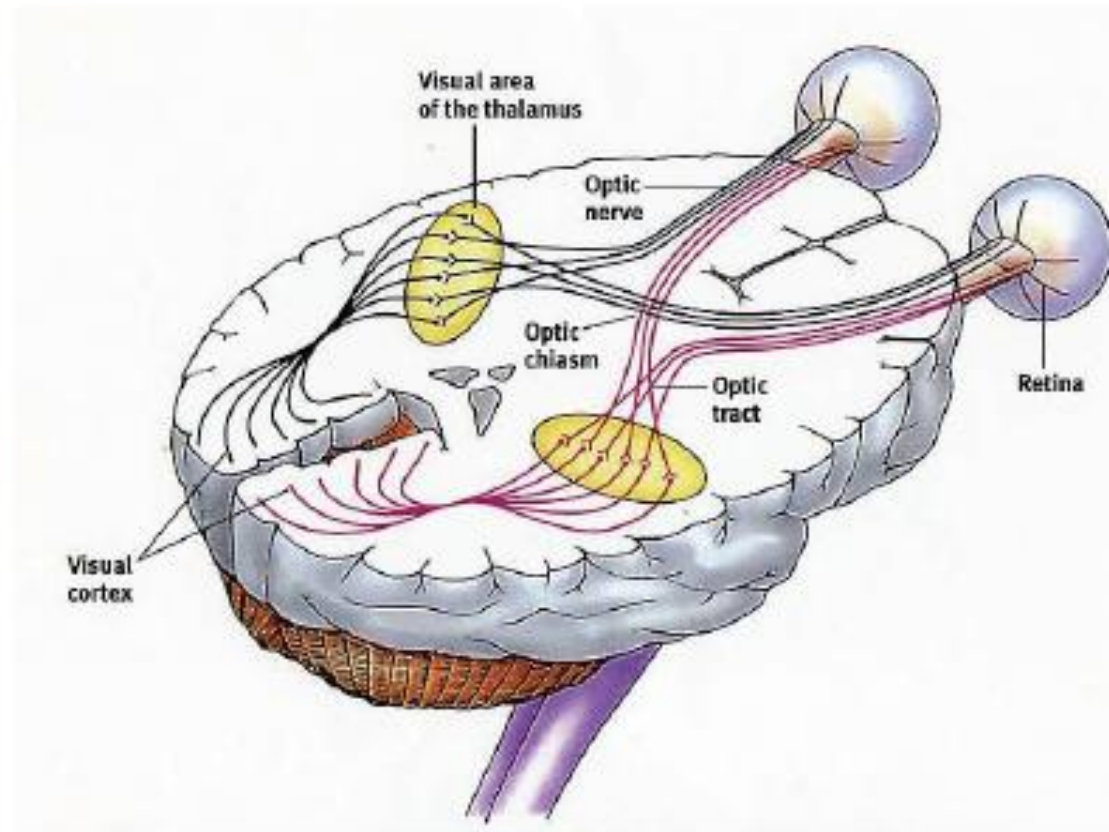




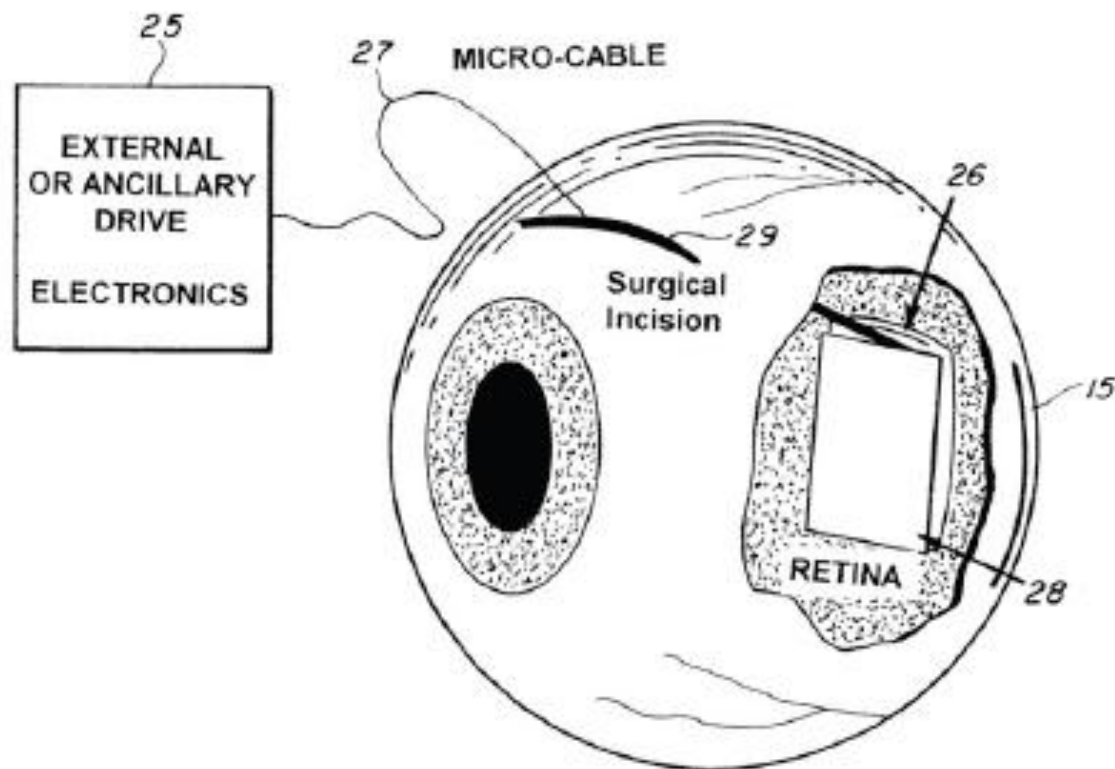
<http://www.chha-nl.nl.ca/hearing-cochlear.html>



<http://www.livingwithcerebralpalsy.com/images/implantimage.jpg>

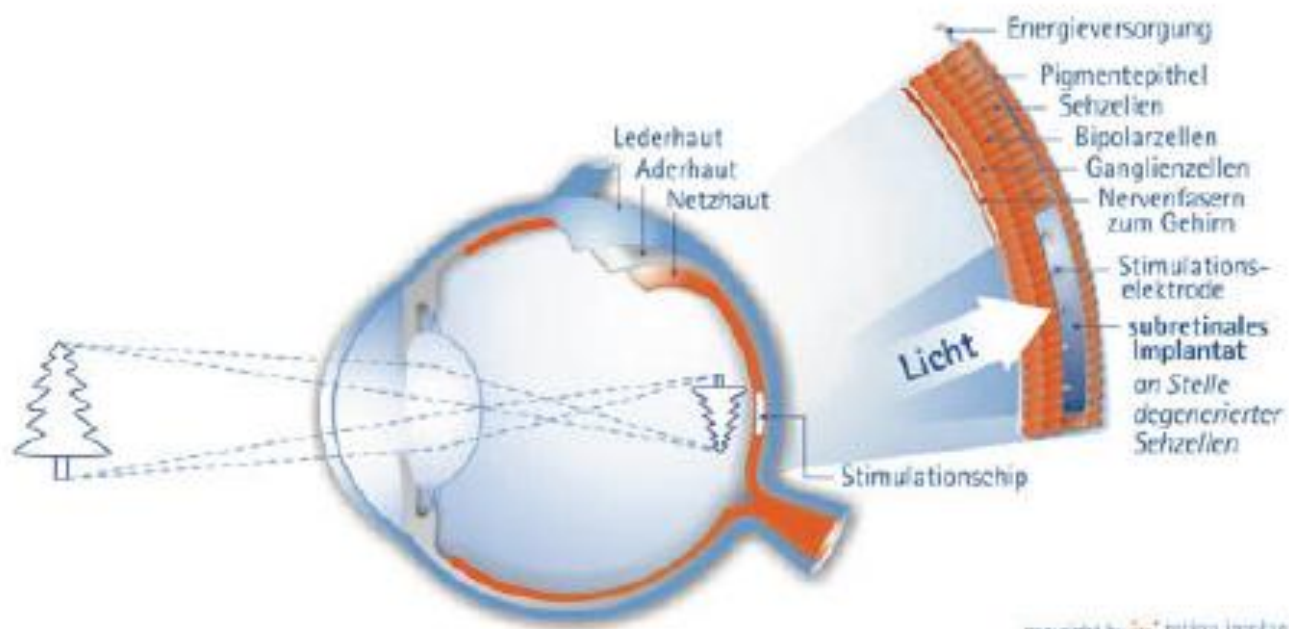


<http://camelot.mssm.edu/~ygyu/research.html>



<http://www.freepatentsonline.com/6647297-0-large.jpg>



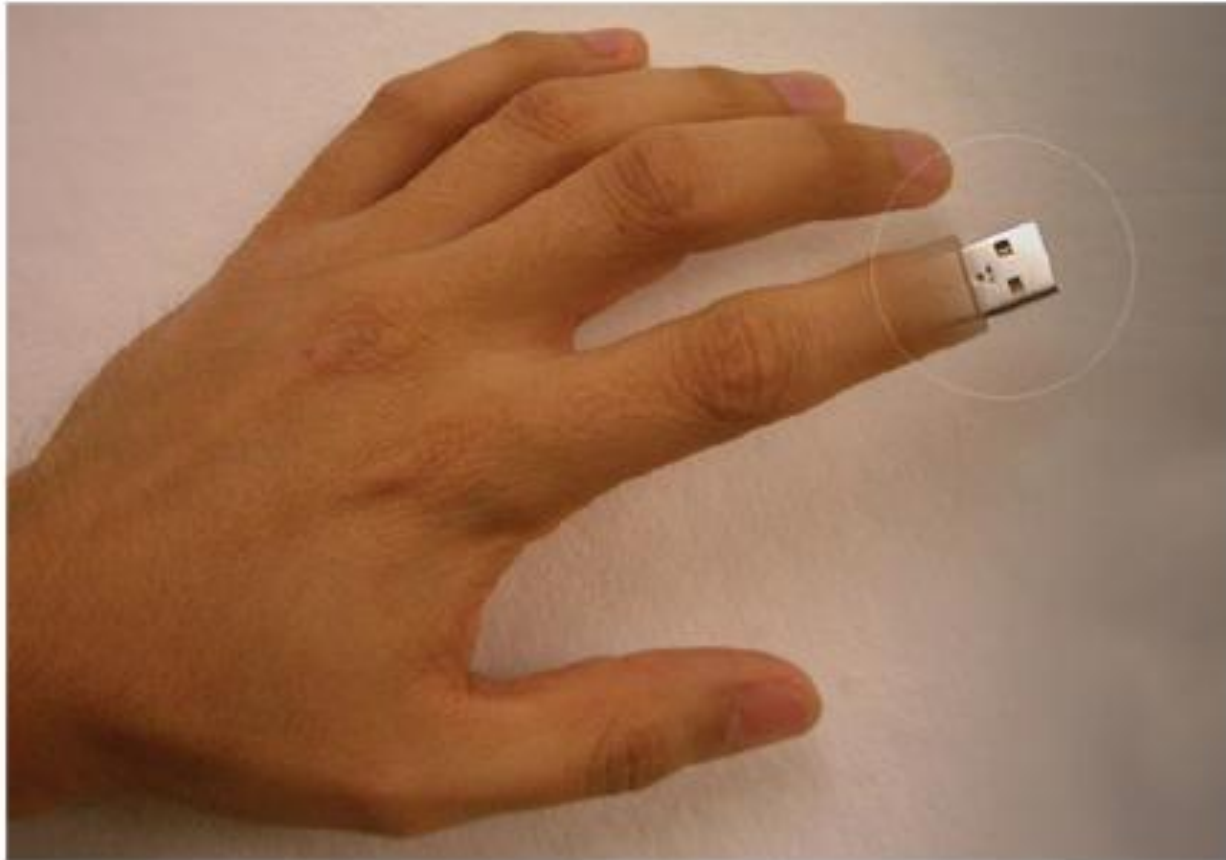


copyright by  retina-implant

entwurf: pl  ingenieurgesellschaft

[http://www.retina-implant.de/de/media/download/files/diagramm\\_chip.jpg](http://www.retina-implant.de/de/media/download/files/diagramm_chip.jpg)

# bionic human



<http://www.flickr.com/photos/mikevz/4778566040>



<http://img253.imageshack.us/img253/5623/zz4df78c5dpt8.jpg>

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[http://upload.wikimedia.org/wikipedia/commons/c/ce/Russian\\_ISS\\_Flight\\_Control\\_Room.jpg](http://upload.wikimedia.org/wikipedia/commons/c/ce/Russian_ISS_Flight_Control_Room.jpg)



# THE ELECTROMAGNETIC SPECTRUM

THESE WAVES TRAVEL THROUGH THE ELECTROMAGNETIC FIELD. THEY WERE FORMERLY CARRIED BY THE AETHER, WHICH WAS DECOMMISSIONED IN 1897 DUE TO BUDGET CUTS.

## ABSORPTION SPECTRA:

HYDROGEN:



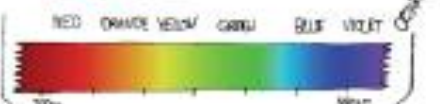
HELIUM:



DEPENDS®:



TAMPAX®:



## VISIBLE LIGHT

### OTHER WAVES:

SUNNY WAVES



### SOUND WAVES

AUDIBLE SOUND



### THE WAVE



### ADJUSTING OUR CHAIRSHIP COMFORTS:

CTA (Chair)

HAM (Radio)

SCORCH (Radio)

CELL PHONE

CROCK POTS

ALIDS

SETI

WIFI

BRAIN WAVES

WAVES

WAVES

WAVES

WAVES

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SUPERHERO HEAT VISION

SUNLIGHT

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PORTO



BLOOD RAYS



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<http://xkcd.com/273/>

TILT - Tilburg Institute for Law, Technology, and Society





vision.jpg



# augmented reality



**DISCLAIMER**

**sheer science fiction**





normal



erwartete Ergebnisse



copyright by: retina implant

Maximal mögliche räumliche Auflösung durch den Einsatz des retinalen Implantats

[http://www.retina-implant.de/de/media/download/files/maximale\\_aufloesung.pdf](http://www.retina-implant.de/de/media/download/files/maximale_aufloesung.pdf)

# normative implications

ETHICAL  
ISSUES



<http://www.evisibility.com/blog/wp-content/2010/04/balance.jpg>

# bounded rationality

Herbert Simon, 1947





Tim Robberts/Photonica/Getty Images

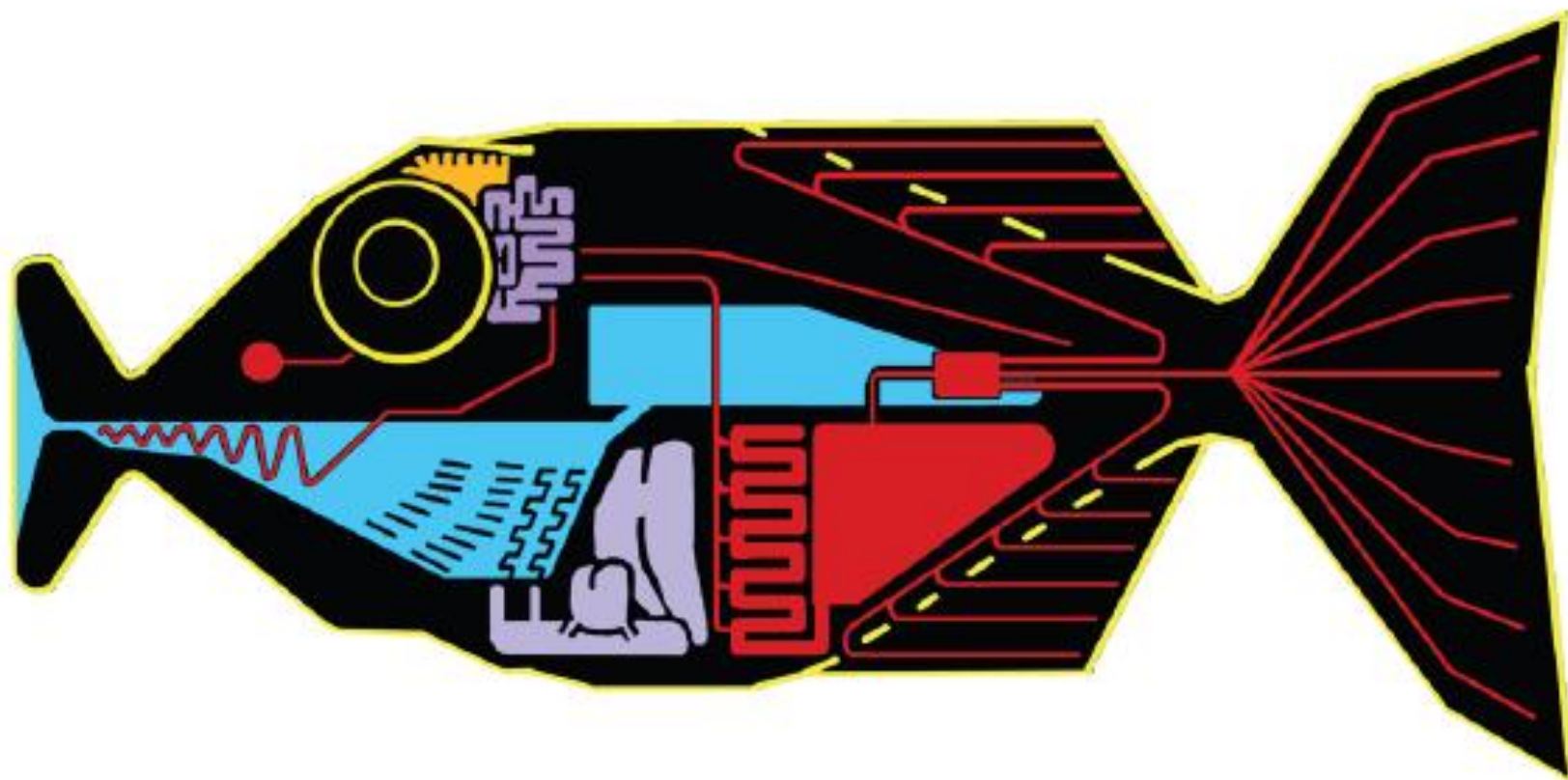


**pocket negotiator**



[http://www.zonkio.com/augmented-reality-technology-and-communication\\_1700.html](http://www.zonkio.com/augmented-reality-technology-and-communication_1700.html)

# normality assumption

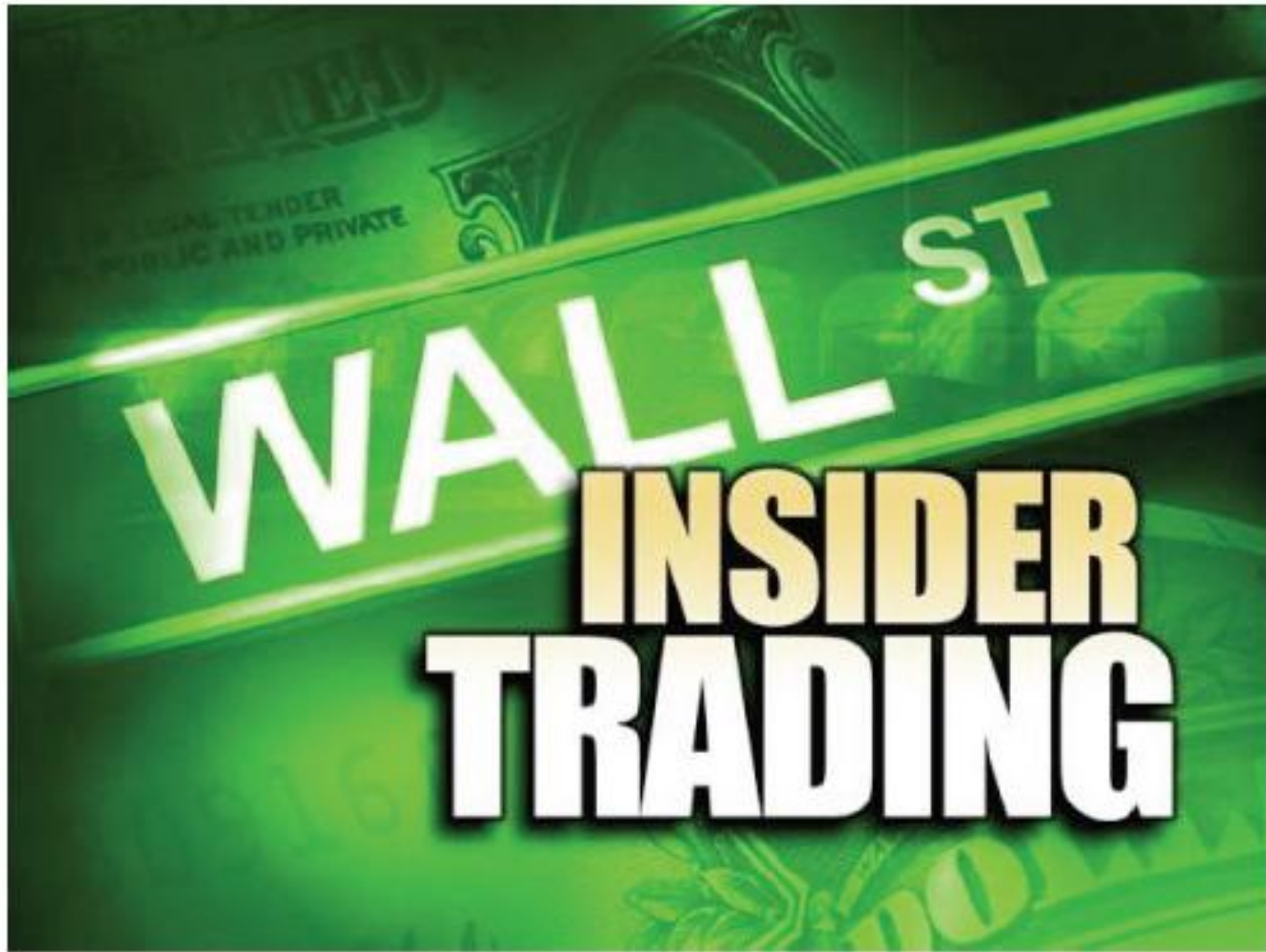


<http://mjmobbs.com/wp-content/uploads/2010/08/babel.jpg>

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# level playing field



<http://www.insidermonkey.com/blog/wp-content/uploads/2011/12/Insider-Trading.jpg>

# foul play, cheating

# expectations

**some other issues**



# therapy v. enhancement



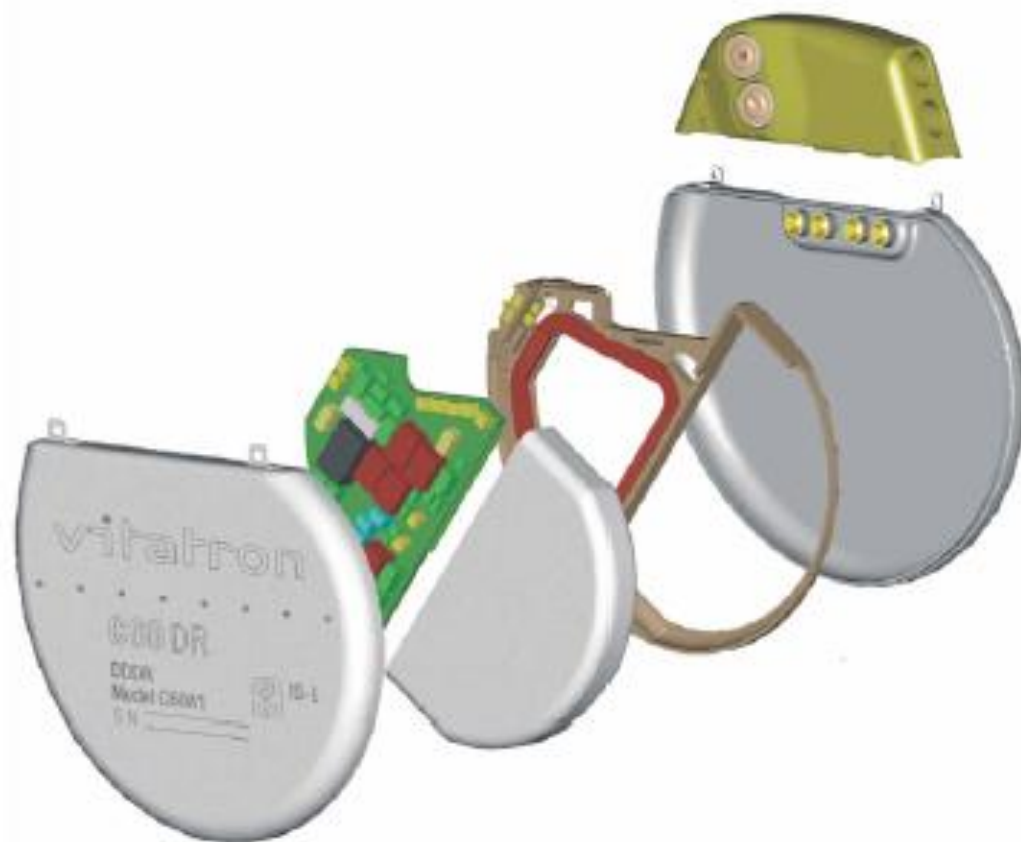
<http://www.operaglasses.com/opera-glasses/lorgnette-opera-glasses/zhumellmezzoooperaglassessilver.cfm>

**regulate potential  
abuse**

# effects on individual

# authenticity

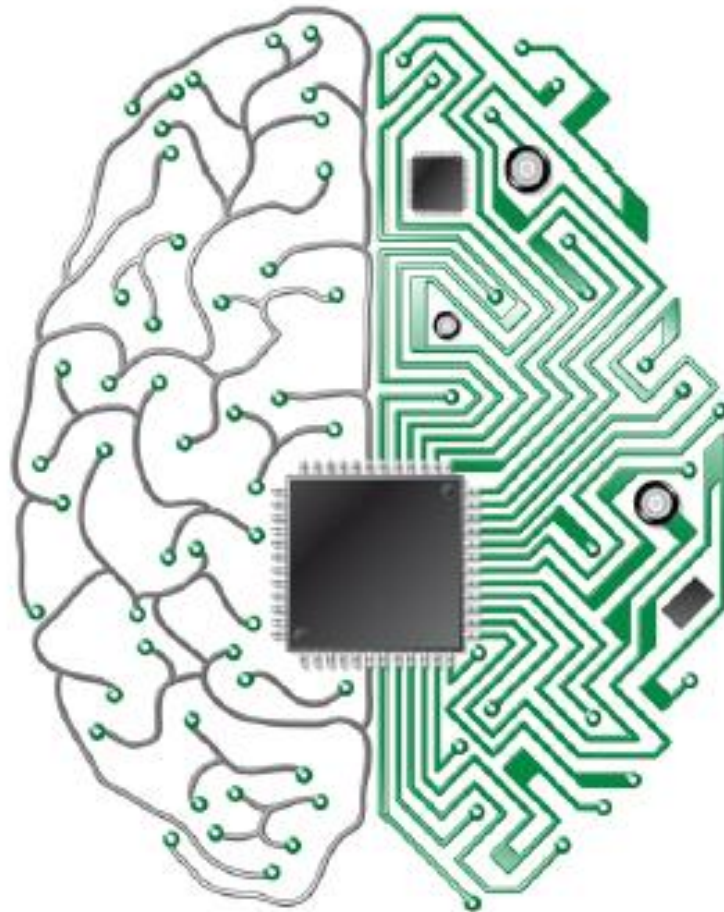






<http://www.socialmediaonlineprofits.com/wp-content/uploads/2010/09/scratch-head-w-bubbles.jpg>

# identity?



<http://www.modha.org/C2S2/2009/11182009/content/HiRes.jpg>

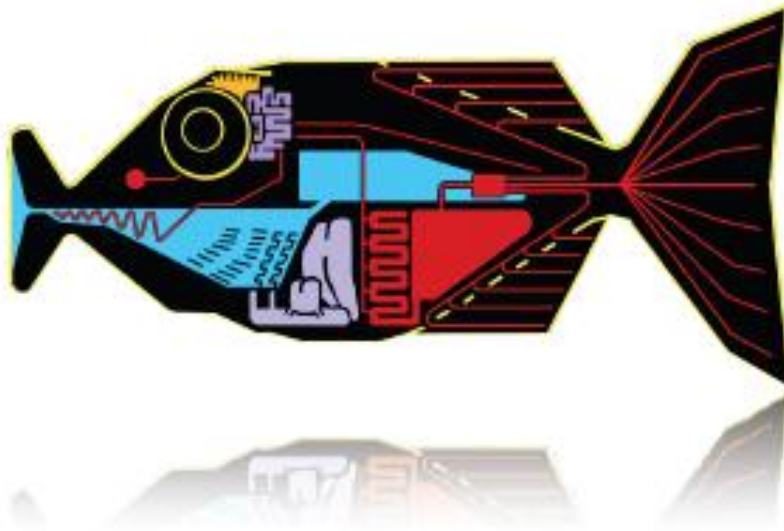


<http://infcomp.files.wordpress.com/2011/01/seagate2.jpg>



# appreciation of achievements





leebroz  
japanese ●  
language  
æcþ88|  
isuðnsðe

# effects on society

# distributive justice



# socio/economic/ cultural inequalities

**regulate access?**



<http://www.kcdee.org/assets/images/legal.jpg>

# functioning of the brain



<http://www.theinformedpatient.com/tip.jpg>

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# rules of the game





<http://olympics.stmp.com/Images/UploadImages/20080517/20080517143425.jpg>

# conclusion

prof.dr. **Ronald Leenes**  
r.e.leenes@tilburguniversity.edu

**external intelligence  
potentially unnoticeable**

**think, feel & behave**

# authenticity, identity, autonomy

# cautionary approach

**accessibility  
do no harm**



# *BioTech Robots & Cyborgs*

Kevin Warwick

University of Reading

5 March 2012

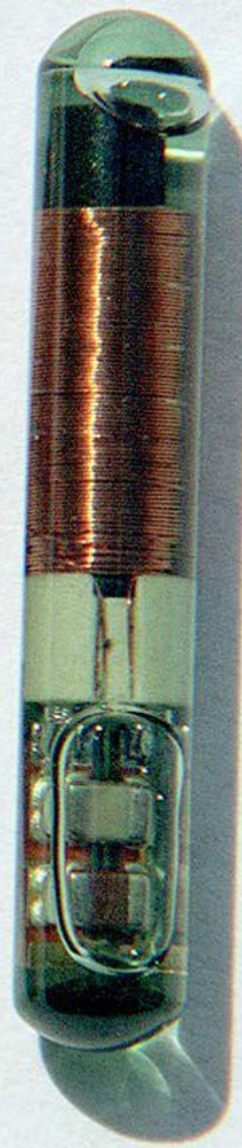


# Identity











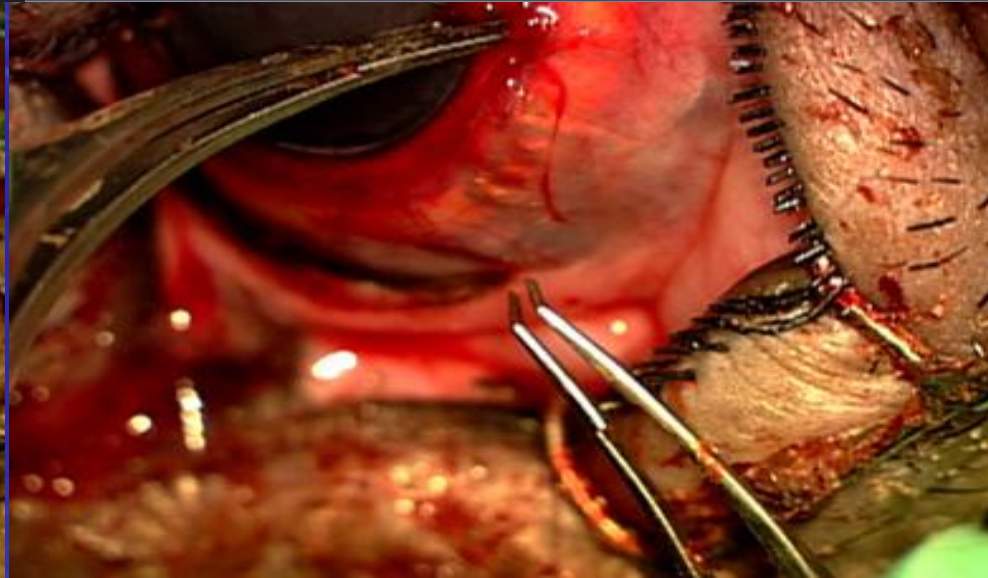
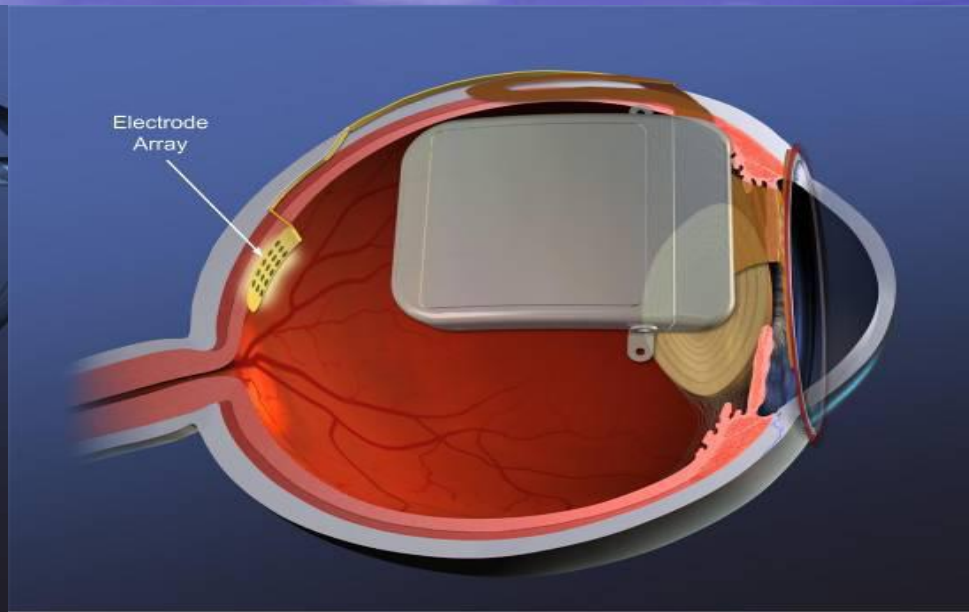
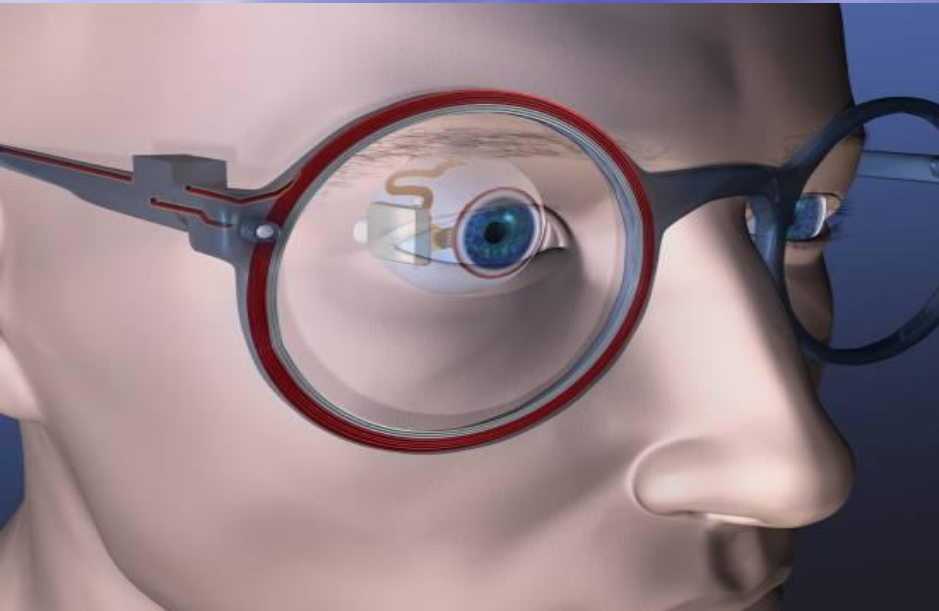
# Regulation?

- The Obama care bill specifically includes in it's lists of things to be registered in the NATIONAL DEVICE REGISTRY: "a class II device that is implantable."
- Approved by the FDA, a class II implantable device is an "implantable radiofrequency transponder for identification and health information."

# Neuroprostheses



# Artificial Retina





# Sensory Substitution





DEC 5010 (54)  
J8J  
HAWESD

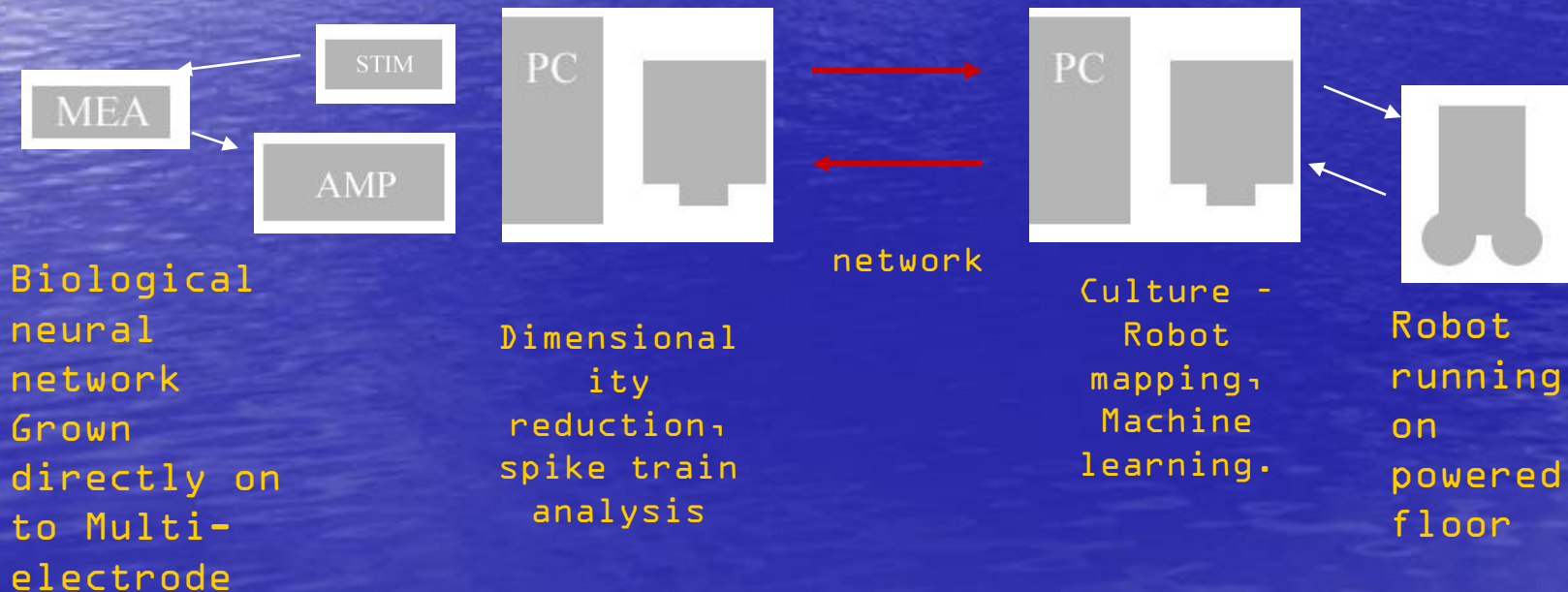




# Rat Brain Robot

# Robot with a Biological Brain

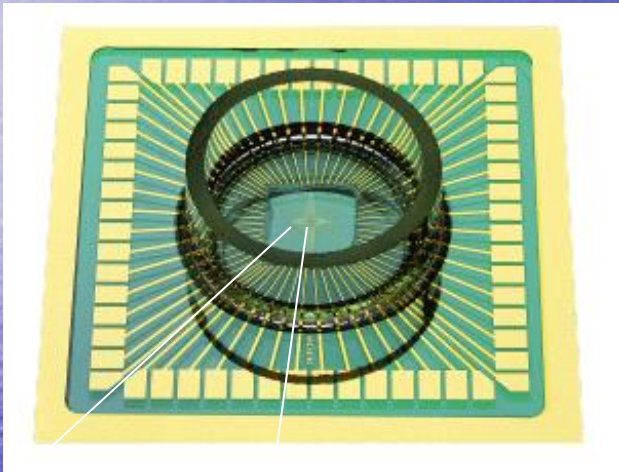
A closed loop interface between a biological network and a robot



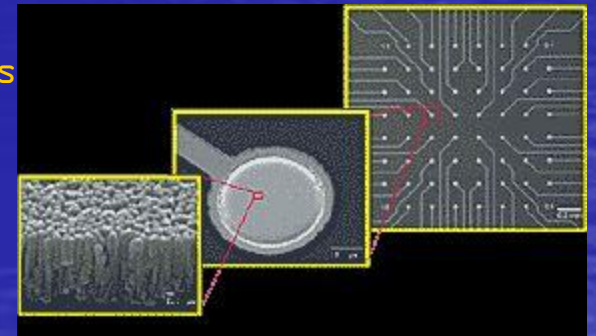
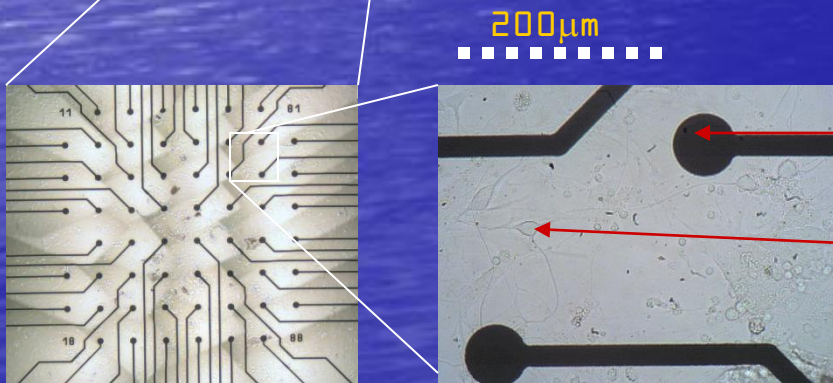


# Approach

- Culture brain cells directly on to a recording surface and re-embodiment the 'brain' within a robotic body.



- Multi-Electrode Array (MEA) allows recording from 128 electrodes across the entire culture.



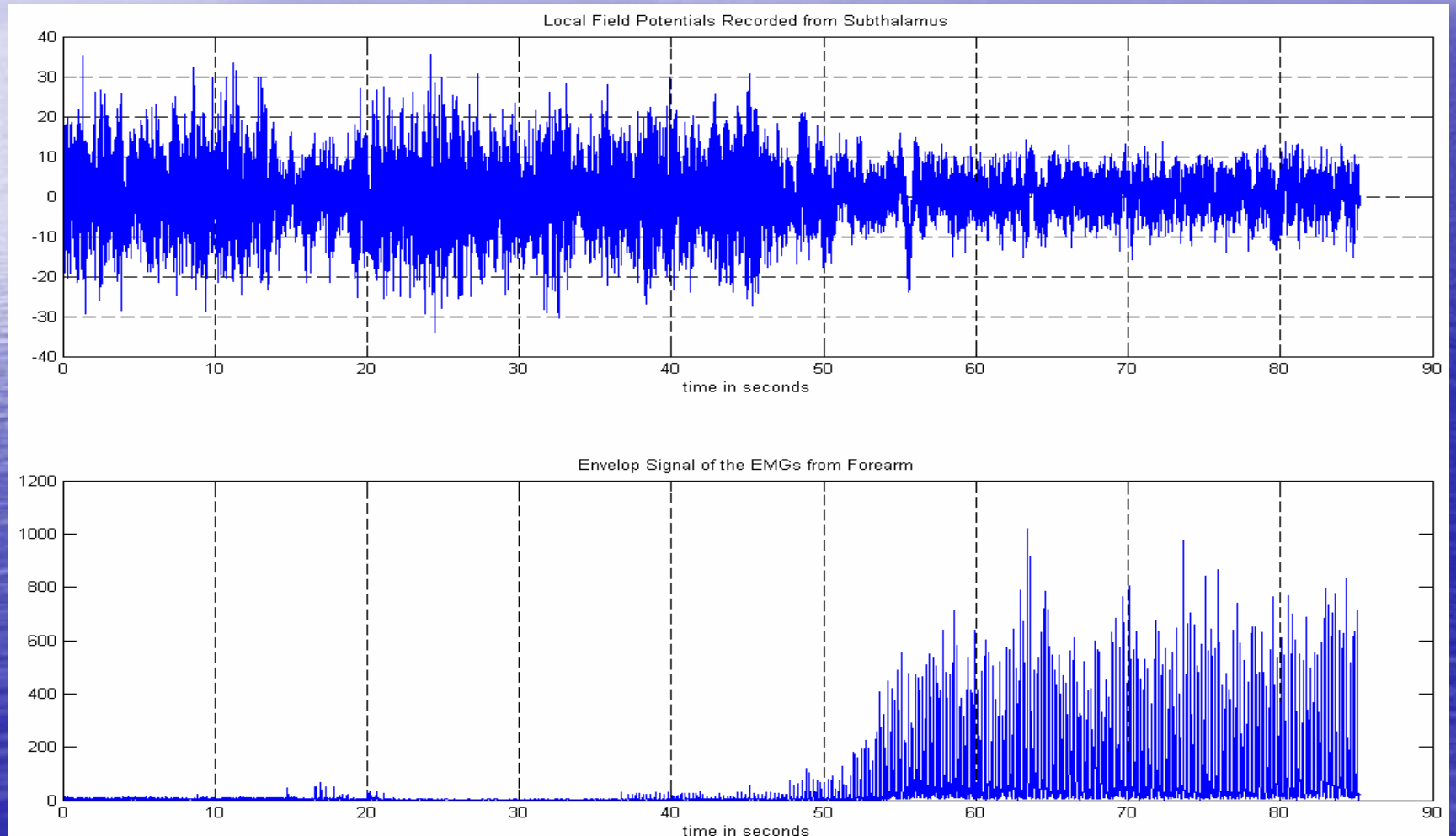


# Deep Brain Stimulation

# Implant Positioning



# Patient Data





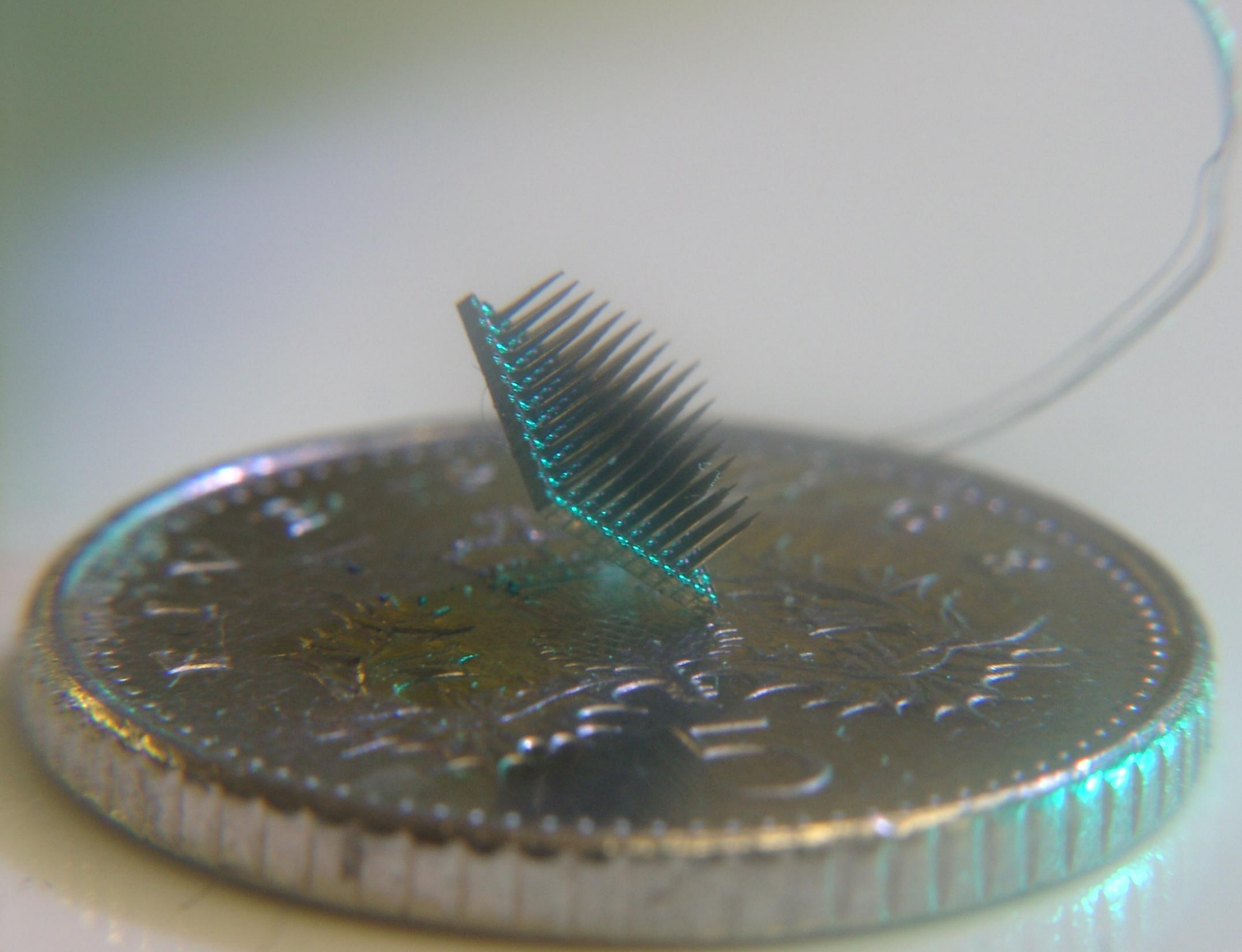
# Human? Enhancement



























[www.kevinwarwick.com](http://www.kevinwarwick.com)

Youtube 'rat brain robot' .. 'cyborg'

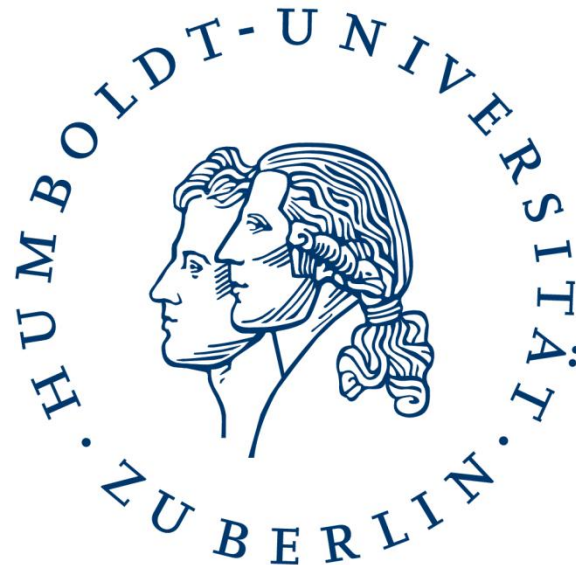
wikipedia .. Kevin Warwick

[k.warwick@reading.ac.uk](mailto:k.warwick@reading.ac.uk)

European Robotics Forum  
Robotics facing Law and Ethics. The RoboLaw Kick-off Meeting (Public)  
Odense: Monday, March 5th 2012

# Ethical and anthropological issues concerning robotics.

Fiorella Battaglia  
Department of Philosophy





# Enhancement

There are modifications intended to compensate for deficiencies. Since times immemorial the regulative idea of ***Restitutio ad integrum***, reinstatement of human wholeness or intactness, has dominated medicine. Currently the idea of restoring the normal functions of the human body still plays a central role. However, an other notion has recently entered a new interdisciplinary field as well. Beyond merely reinstating the original physical and mental states of the patients, physicians are currently increasingly envisaging the improvement of the traits of perfectly healthy persons. Thus, the ***restitutio ad integrum*** doctrine is gradually being forced to share its status with the ***transformatio ad optimum*** idea, reshaping persons who are already in good physical shape to further improve certain characteristics. This phenomenon is commonly called “enhancement”.



# Natural-Born Cyborgs?

I don't think this tendency toward cognitive hybridation is a modern development; rather it is an aspect of our humanity which is as basic and ancient as the use of speech and has been extending its territory ever since.

Andy Clark 2003

# *Homo faber* beyond *homo sapiens*?

Hans Jonas has attempted to show the gap between what we know and what we do when it comes to modulating and transforming human beings.

Hans Jonas 1979

# Descriptive and normative idea of human being

The idea of human being has to be understood as descriptive and as normative. Human beings are on the one hand like all other natural objects, which follow natural laws. On the other hand since human beings can shape human nature through technological advancements, they need rules in order to change their selves in accordance with their own desires.

Kant 1785

# Embodied cognitive neuroscience and its consequences for robotics

Recent years have seen the emergence of a new interdisciplinary field called *embodied* or *enactive cognitive science*. Whereas traditional representationalism rests on a fixed inside-outside distinction, the embodied cognition perspective views mind and brain as a biological system that is rooted in body experience and interaction with other individuals. Embodiment refers to both the embedding of cognitive processes in brain circuitry and to the origins of these processes in an organism's sensory-motor experience. Thus, action and perception are no longer interpreted in terms of the classical psysical-mental dichotomy, but rather as closely interlinked.

# “Part of my body”

- What it would be like
- Transparent technologies are those tools that become so well fitted to, and integrated with, our own lives and projects that they are pretty much invisible-in-use.

Kevin Warwick 2003



# The cultural origins of human cognition

Emphasis has been placed mostly upon the modern structure of human mental capacity, without taking their evolution in account.

One element frequently left out of cognitive modeling is the element of culture, that is, shared patterns of acquired behaviour characteristic of a species. **But the cognitive capacities of animals directly affect the kinds of culture they produce, and in the case of humans, the opposite is also true: specific types of human culture have direct effects upon individual cognition.** In fact the uniqueness of humanity could be said to rest not so much in language as in our capacity for rapid cultural change.

Merlin Donald 1991

# Last things first

Emerging Robotic Technologies (enhancement) may partially reverse the logical and temporal precedence of the biological-natural versus the ethical and cultural dimension of human existence.

All the same, cognitive evolution has shown that the relationship between nature and nurture is a correlated variation.

# Self-determination and Justice

Since freedom is never intended as individual freedom (self-determination), but always as freedom of an individual in relation to other individuals, we need to analyze the social and political problems that these changes involve, first of all, the question of justice in a democratic order.

Kant 1785

# Oration on the Dignity of Man

“We have given you, O Adam, no visage proper to yourself, nor endowment properly your own, in order that whatever place, whatever form, whatever gifts you may, with premeditation, select, these same you may have and possess through your own judgment and decision”.

Pico della Mirandola 1486

# Wrap-up and Conclusions

Bjorn Juretzki

*European Commission – Project Officer,  
Directorate-General for Information  
Society and Media, Belgium*



# Thank you!

[www.robolaw.eu](http://www.robolaw.eu)