

PHILIPS

sense and simplicity

Multi-Sensor Information Retrieval for Lifestyle Applications

ACM-CIVR Practitioner Day

Hans van Gageldonk

Philips Research

10 July 2009

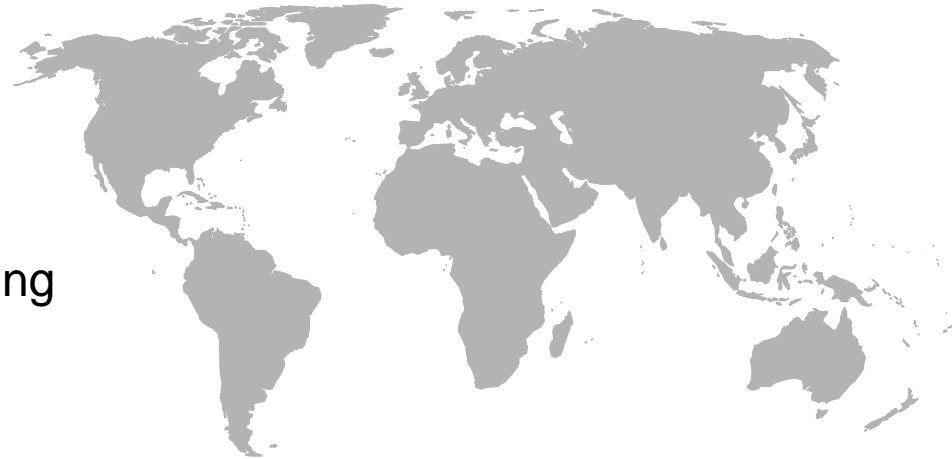
Agenda

- Introduction to Philips and Philips Research
- Themes in Consumer Lifestyle
 - “Interactive Living”
 - Multimedia search & retrieval
 - Examples
 - “Healthy Life”
 - Body sensing and interpretation
 - Examples
- Concluding remarks



Royal Philips Electronics

- Founded in 1891
- Headquarters: Amsterdam, The Netherlands
- A global diversified Health and Well-being company with sales in 2008 of EUR 26,385 million
- Multinational workforce of 121,000 employees (January 2009)
- Manufacturing sites in 28 countries, sales outlets in 150 countries
- R&D expenditures EUR 1,622 mln (2008)



Global challenges and trends

Global trends

Globalization, urbanization and rise of emerging markets

Aging population

Climate Change

Consumer empowerment

Sustainable development

Philips opportunities

Energy efficiency

Personalized experiences and atmospheres

Personal wellbeing

Home care, independent living

Better healthcare for all at lower cost



Building the leading brand in Health and Well-being



Philips defined: we are...

“...a global company of leading businesses creating value with **meaningful innovations** that improve people’s **health and well-being**.”

Health and well-being

A commitment to healthy, fulfilled lives in our communities and societies our world

Meaningful innovations

Improving people’s lives
Going beyond technology
Introduced at the right time



Our health and well-being offer is powered by 3 sectors



Healthcare



Lighting



Consumer Lifestyle

Meet Philips Research



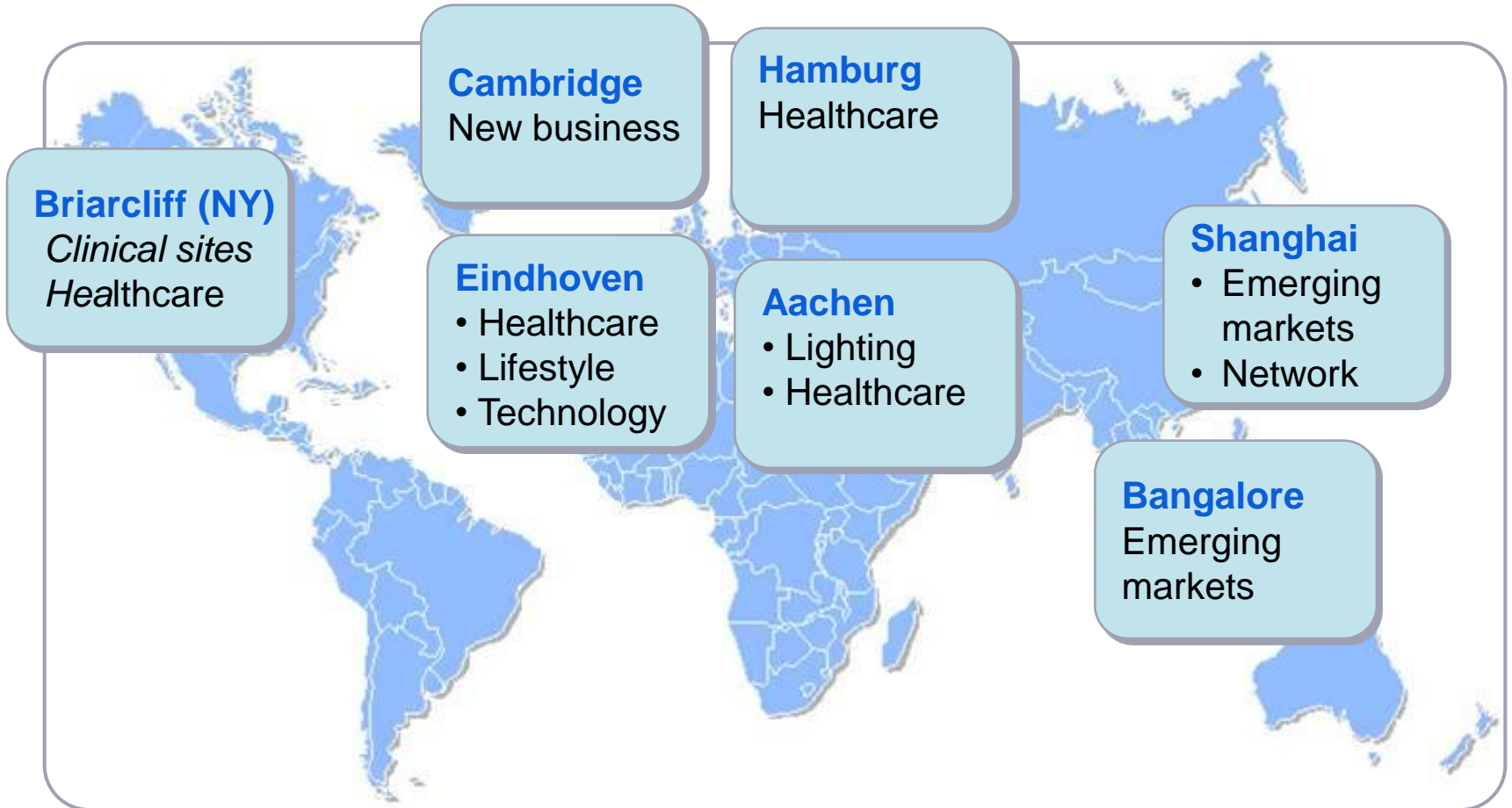
About Philips Research

- Founded in 1914
- One of the world's largest private research organizations
- Diverse and creative climate with over 1,800 professionals with more than 50 nationalities
- Since its foundation, Philips Research has created over 50,000 patents (total R&D)
- At Philips Research, more than 1 patent is filed per scientist per year
- International laboratories in North America, Europe and Asia
- Annual research budget slightly less than 1% of Philips' annual sales



Regional representation

Staffed by around 1,800 people



PHILIPS

Understanding people



ExperienceLab: starting with the end-user



Home area

Shop area

Care area





SimplicityLabs - Windows Internet Explorer

http://www.simplicitylabs.net/

SimplicityLabs

PHILIPS
sense and simplicity

Choose country / language

Consumer Products Healthcare Lighting Contact and Support Company and Press

SimplicityLabs

Enhancing our solutions with your input
SimplicityLabs

SimplicityLabs is created by Philips Research as a testing ground for upcoming technologies and applications. It is a means to get your feedback early on, and allows us to improve our applications to suit your needs, well before they hit the market.

So please go ahead, take a look and tell us what you think...

The SimplicityLabs team
(info@simplicitylabs.net)

Edit-While-Watching
Imagine if... there was a quick and easy way to edit your videos, while sitting on the couch in your living room close to and involving your loved ones...
[+More](#)

Photobook
Imagine if... there was an easy and fast way to create a photo book of your favorite photos, without having to spend endless hours sitting in front of your computer.
[+More](#)

Cooking Stories

Retail Light & Music

start DoVo_Sept2008 Microsoft Office P... SimplicityLabs - Wind... Hans van Gageldonk ... 20:33

Our health and well-being offer is powered by 3 sectors



Healthcare

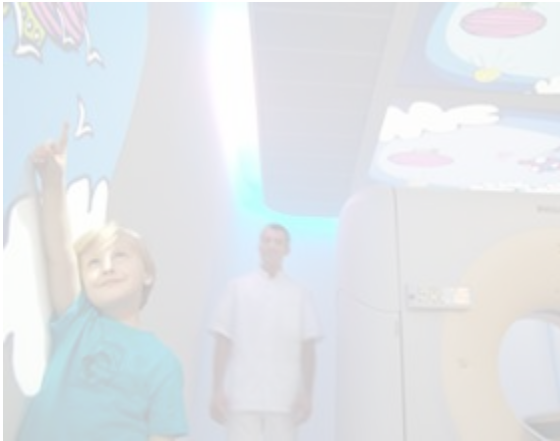


Lighting



Consumer Lifestyle

Our health and well-being offer is powered by 3 sectors



Healthcare



Lighting



Consumer Lifestyle

Consumer Lifestyle – Growth Platforms

Healthy life



Personal care



Consumer Lifestyle



Home living



Interactive living

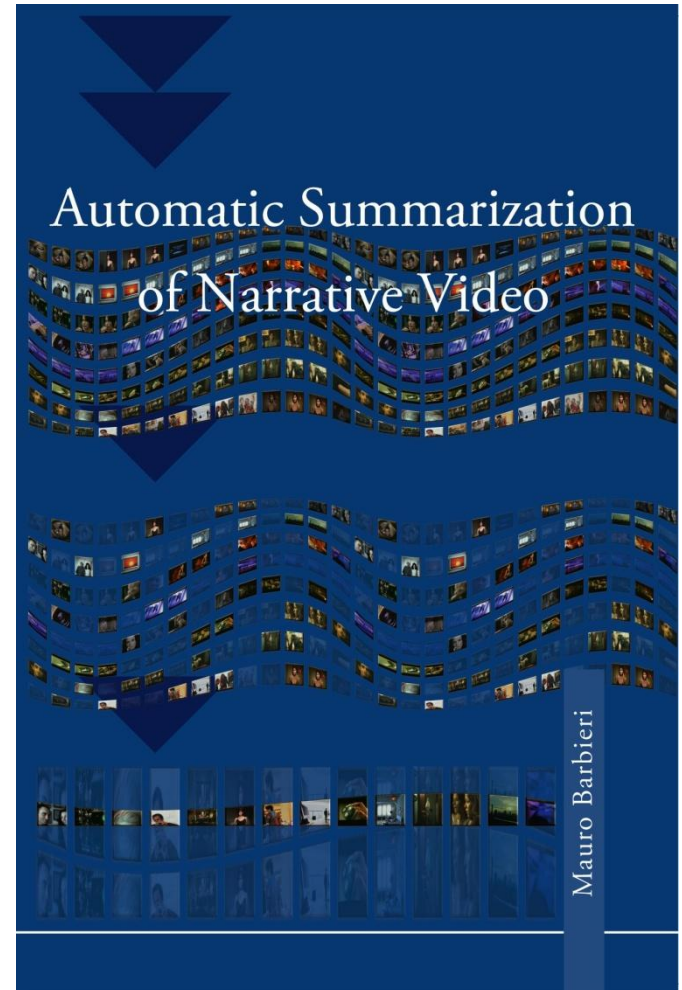
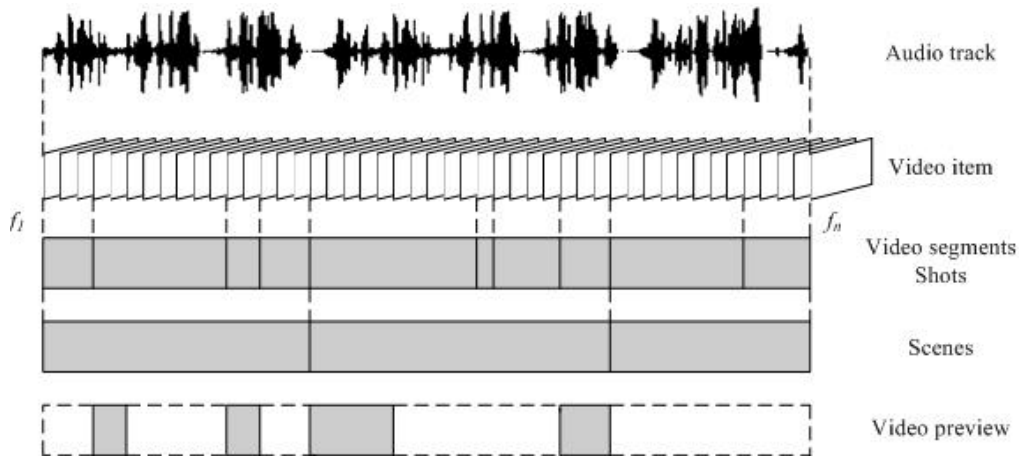
Growth platform **Interactive living**

Sharing life experiences through entertainment and information



The way we deal with media, communication and entertainment content is rapidly changing. We have shifted from being consuming audiences to interactive contributors that love to **share and connect** with others. It is often the sharing with others that makes us enjoy **entertainment and information**

Automatic AV Analysis: Summarization of video



Aprico

- Philips Q2-2008 report, business highlights:
 - *Philips joined forces with Axel Springer, combining Philips' Aprico software with Axel Springer's TV program information, thus allowing viewers to create their own Internet TV channels*

PHILIPS

**Intelligent Virtual Channels
Empower the Best TV
User Experience**

1st Outlet: CE

Focus on business case exploration with partners

Research, 8 June 2006

15

The slide features a blue background with a grid of small video thumbnails on the right and a photograph of a television set on the left. The text is in yellow and white.

[2006: Research]

APRICO

About How does it work? Technology

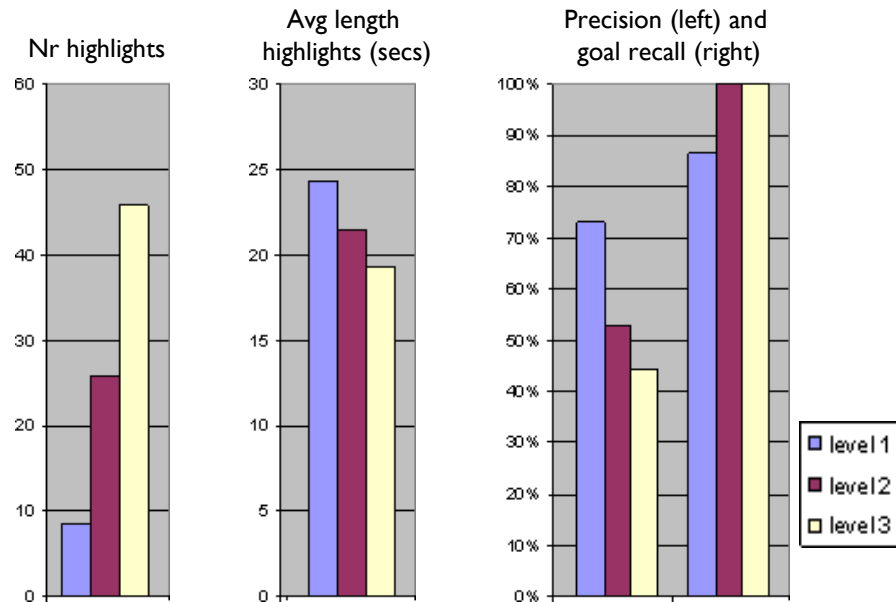
COMING SOON... PERSONAL TV

The banner has a white top section with the Aprico logo and navigation links, and a red bottom section with the main headline.

[2009: Business]

Get the essence

Sports highlight detection



Find similar internet videos

The system finds similar videos and orders them by how similar they are

The most similar video

LikeVideo
showing similar videos

The screenshot displays a grid of eight video thumbnails. A large grey arrow points from the top-right towards the first thumbnail, indicating it is the most similar. A white silhouette of a cameraman is on the left. A grey arrow points from the bottom-right towards the last thumbnail, indicating it is the least similar.

Thumbnail	Caption	Similarity
	My Lazy Eye and P. Monkey gets ...	Most similar
	First Blog Dorkiness Prevails	
	My First Kiss	
	Ranting about music	
	Rant on Nosy People	
	My K's Choice - Virgin State of Mind	
	Top 20 football misses	
	how to be awesome at skateboard...	Least similar

The least similar of the selected videos

Consumer Lifestyle – Growth Platforms

Healthy life



Personal care



Consumer Lifestyle



Home living



Interactive living

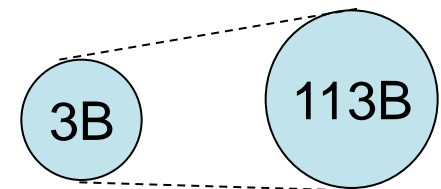
Growth platform **Healthy life**

A holistic approach to consumer health and wellbeing



*Current
addressed
market (EUR)*

*Potential
market size
(EUR)*

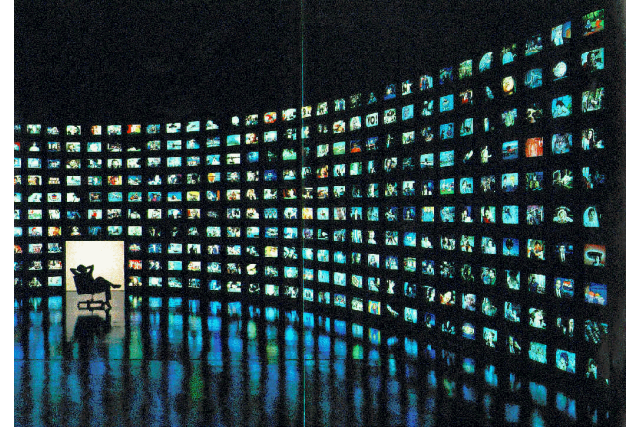


Health is not merely a matter of the body anymore. Health increasingly needs to be approached in a **holistic** way. It involves **mental** and **physical** health and having healthy and caring **relationships**, as well as people's daily habits and **behavioral** patterns.

The next step in *Experiences*

From

One-size Fits Most

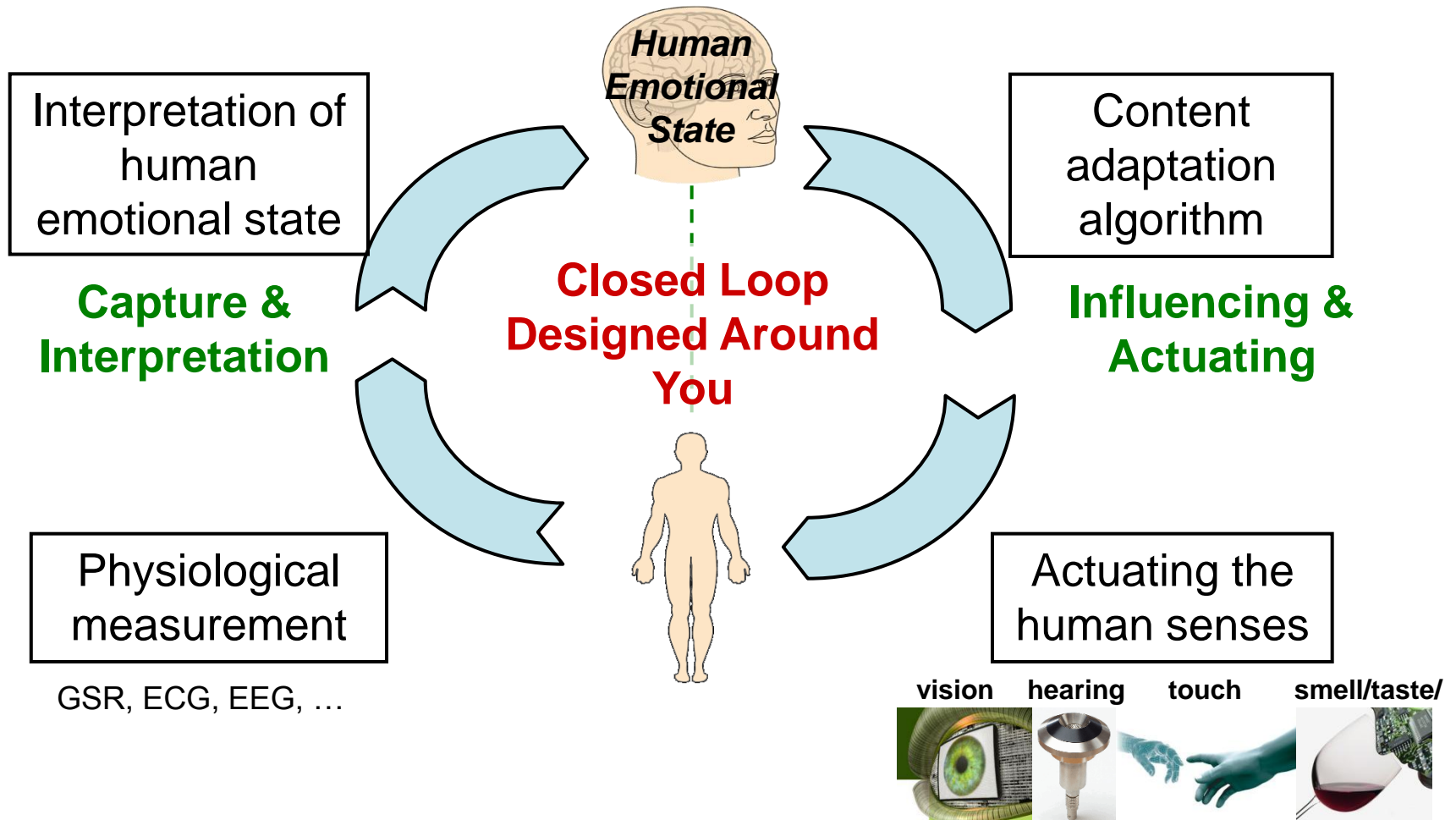


To

Truly Personal



Taking people into the loop



Monitoring

Measure biosignals which can quantize the properties of a cognitive process or a mental state

Open loop, influencing

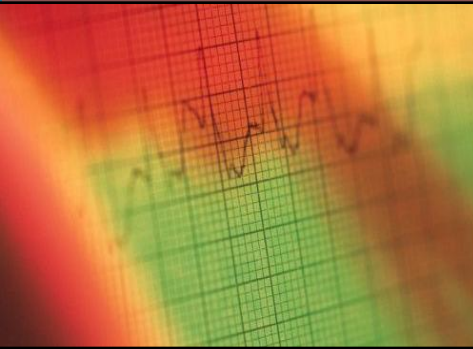
Influence cognitive processes or mental states without personalization

Closed loop, training

Influence cognitive processes or mental states by taking the user's state into account; requires dedication (in time, effort) by the user

Closed loop, passive

Influence cognitive processes or mental states by taking the user's state into account; *does not* require dedication or effort by the user



Relaxation

Help relaxing and emptying the mind



Cognitive improvement

Improvement of mental processes, and mental states; solutions for 'quick-fix' and for prolonged effects



Stress Relief

Help to cope with increased work-load



Interaction

Brain-computer interfaces, interface enrichment with brain functions, non-critical brain-controls



Examples



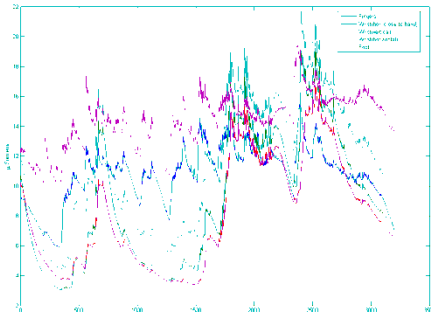
Thrill vest



Brain-computer interfaces



Guided breathing



Emotion sensing



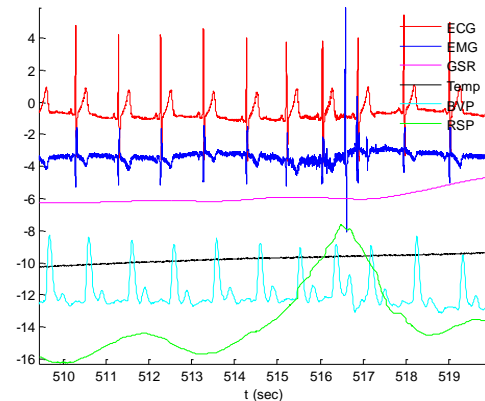
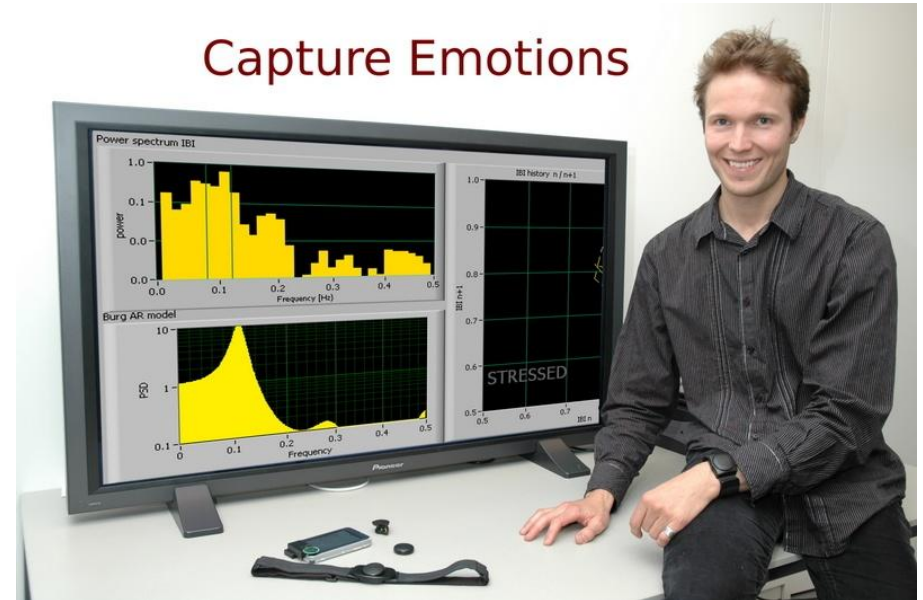
MindSpheres



reddot design award

Emotions Sensing & Interpretation

- Body sensing challenges:
 - Sensor embedding in lifestyle applications
 - Interpretation of noisy signals
 - Multitude of modalities
 - ECG
 - EEG
 - Respiration
 - Body temperature
 - ...
 - Sensor data fusion



**ECG,
Respiration,
Temperature,..**

Touch as extra sense

A new step in the evolution of immersive TV experiences



Immersion through Sound



Immersion through Light



Immersion through **Touch**



Personalized perception of the new dimension



Thrill vest

Brain-computer Interfaces

- Establishment of a solid scientific basis in cognitive neuroscience to develop practical solutions for: compelling interaction, and mental performance enhancement



NeuroSky
Brain-Computer Interface Technologies



[Competition]

Relaxation: guided breathing



[Competition]

Relaxation and flow



MindSpheres



reddot design award

Conclusions

Philips is on a journey ...

- From *Technology* to *People*
- From *Electronics* to *Health & Well-Being*
- From *Audio and Video* to *Healthy Life & Interactive Living*
- From *One-size fits most* to *truly personal*



