PHILIPS

Contents

- A brief history
- Achievements
  - Research
  - Business
  - Outreach
- Challenges

Ambient Intelligence

A pictorial overview

Emile Aarts

AMBIENT INTELLIGENCE

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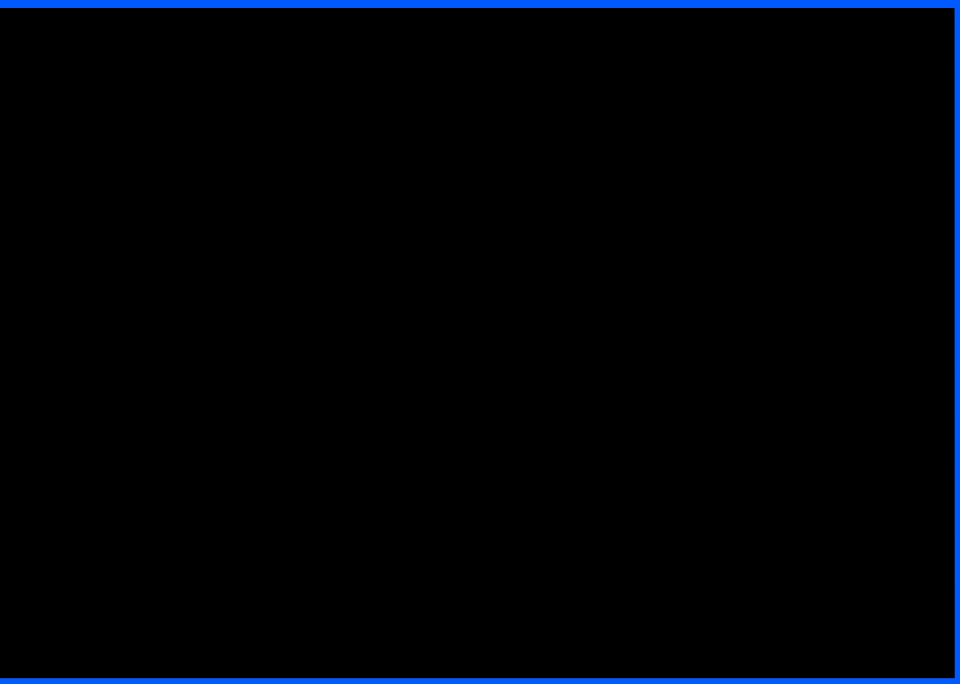
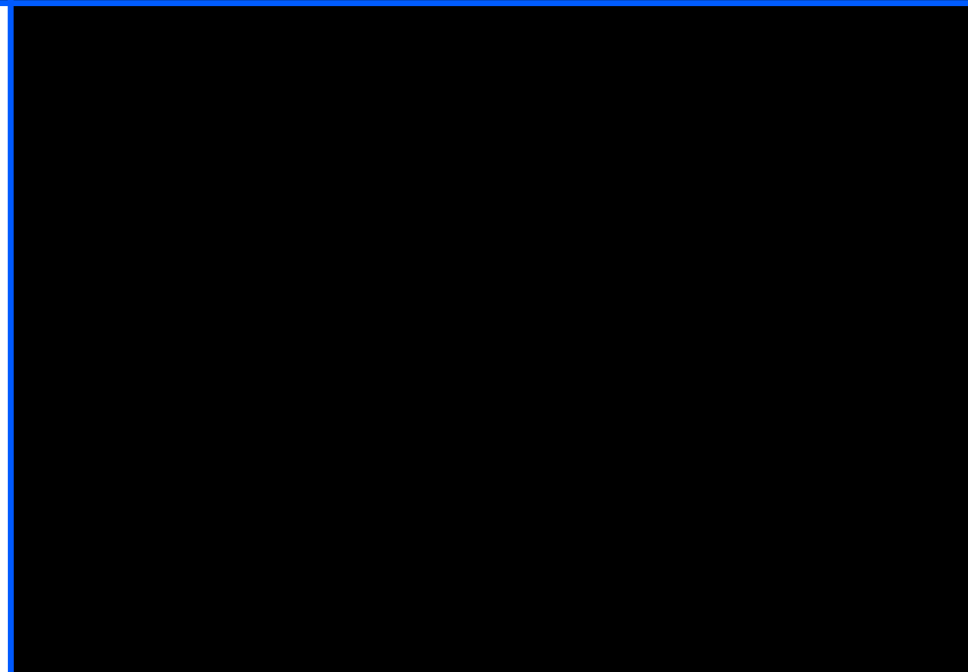
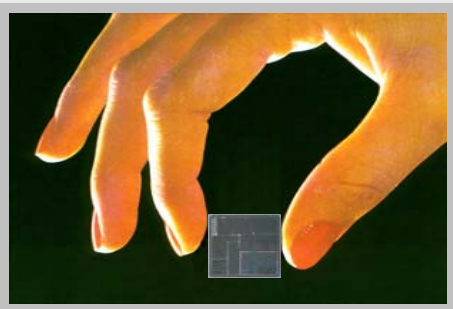


A brief history of Ambient Intelligence

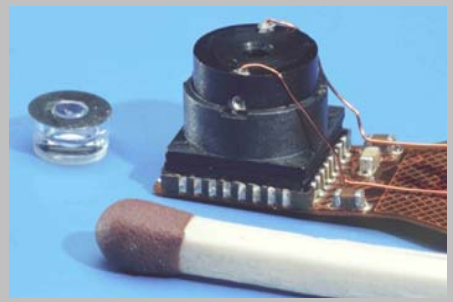


Technology
3D Moore



More Moore

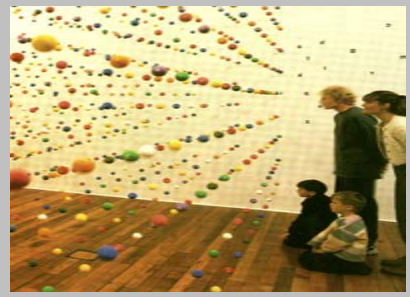
Large area electronics



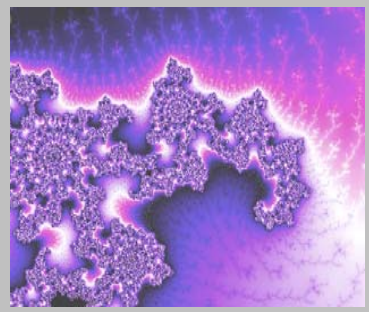
System in Package

Economy
3D Business

Globalization



Experience economy



Creative industry

Society
3D People

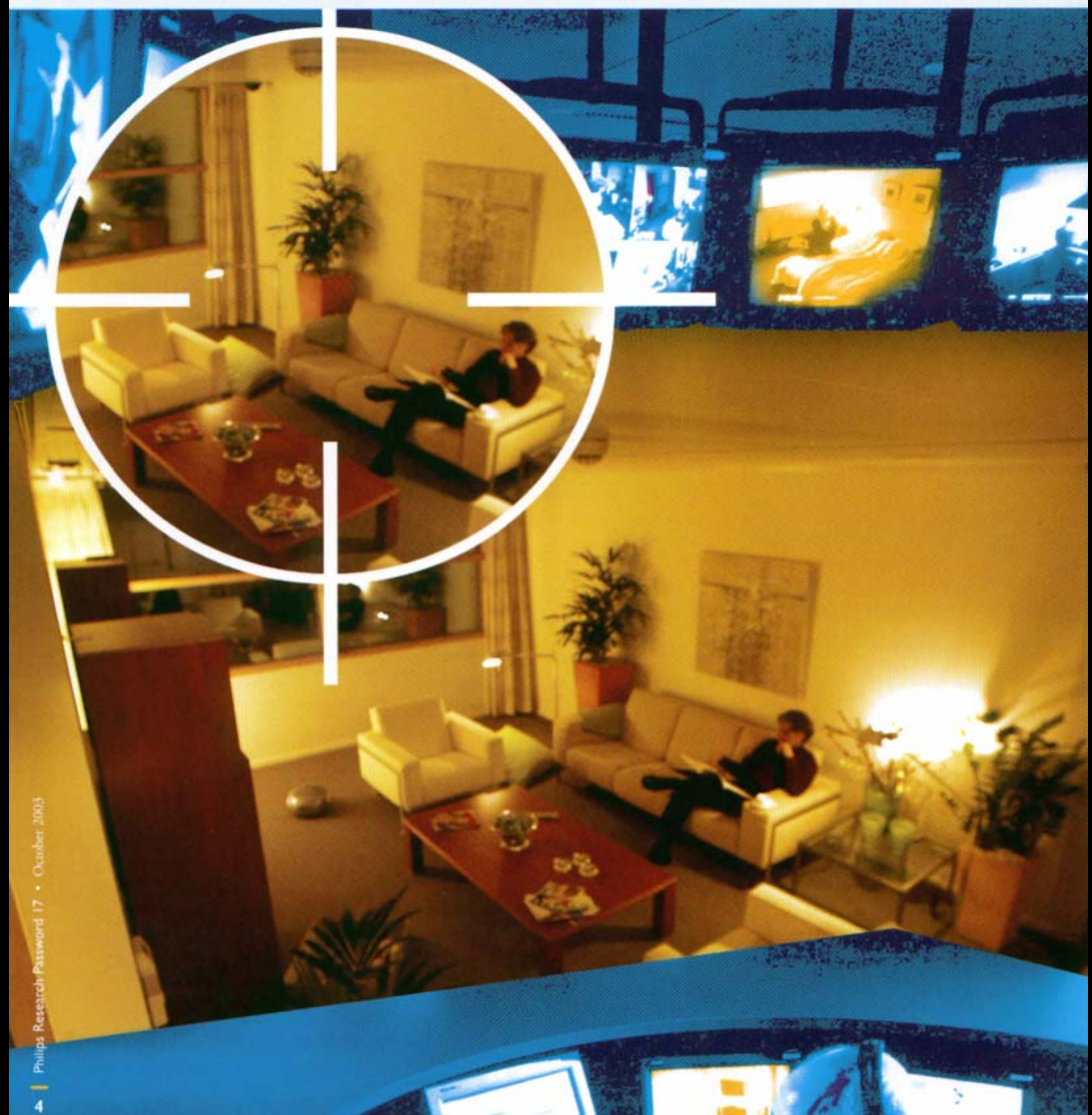
Freedom

Expression

Care

Ambient Intelligence

changing lives for the better



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Ambient intelligence

Digital environments that are sensitive and responsive to the presence of people

Smarter living

Technology for people

Embedded

Many invisible distributed devices throughout the environment,

Context aware

that know about their situational state

Personalized

that can be tailored towards your needs and can recognize you,

Adaptive

that can change in response to you and your environment, and

Anticipatory

that anticipate your desires without conscious mediation

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In the Mind

Mental

Comfortable

Easing and relaxing

Stimulating

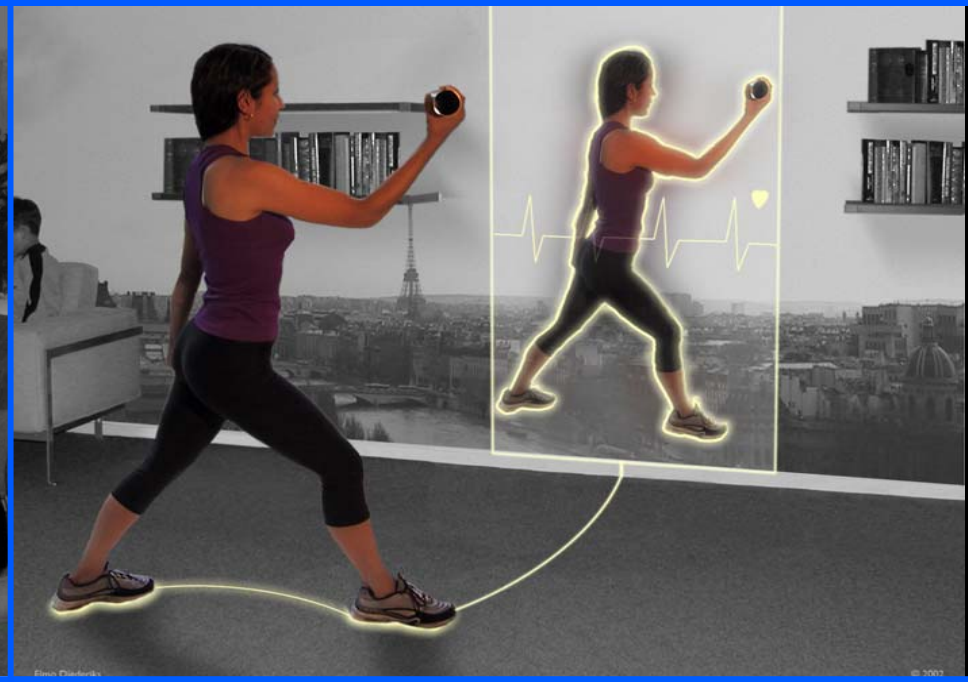
Exciting and fascinating

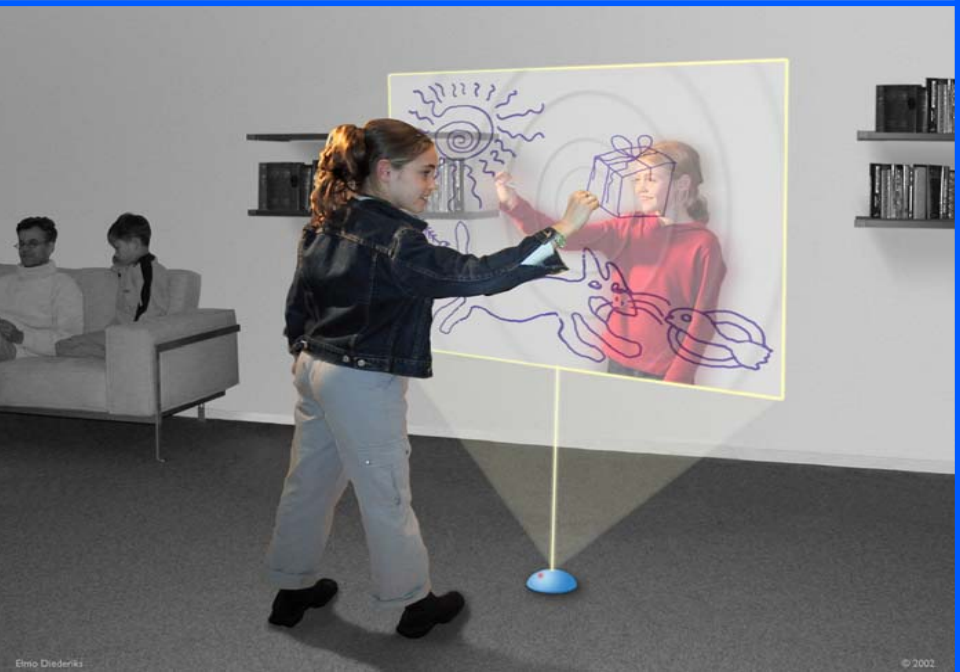
Sensorial

Through the Senses

PHILIPS


PHILIPS
PLAYER: van Bom
GOALS: 1
ASSISTS: 6
SEASON
GOALS: 12
ASSISTS: 67
Elmo Diederiks
© 2002


Elmo Diederiks
© 2002


Elmo Diederiks
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the LIMP BIZKIT star profile
Elmo Diederiks
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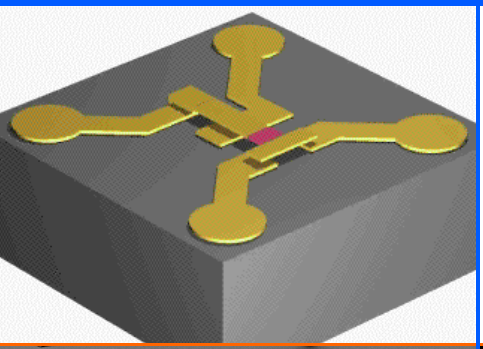
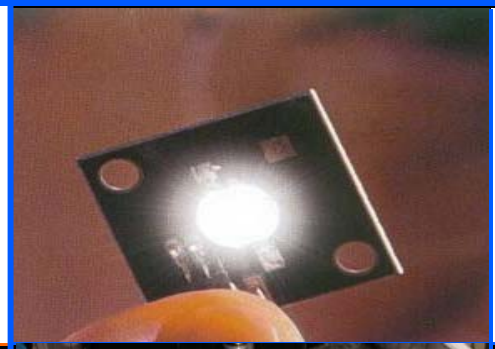
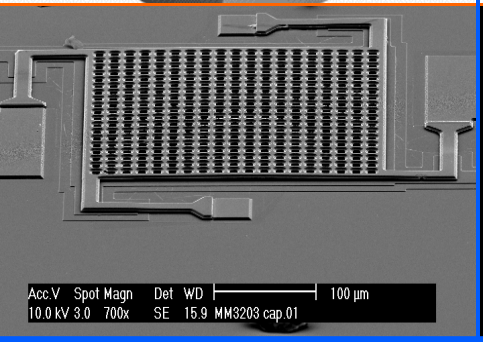


Materials

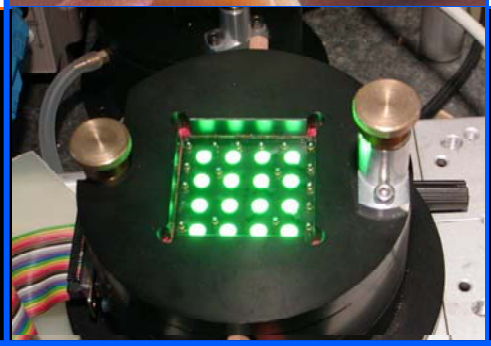


Lighting



Basic RF MEMS components

- Micro-electromechanical switches/relays
- Variable capacitors



Solid state lighting

LED to Incandescent Light

Efficacy 4 x
Life time 100 x

Displays

Blu-ray

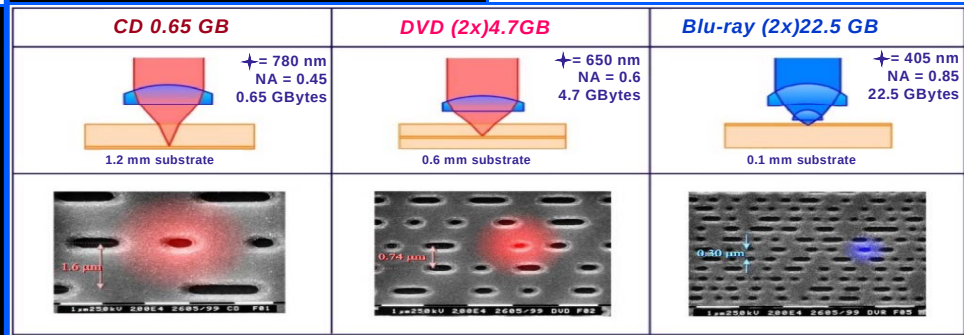
- Small read-out spot achieved by
  - Blue laser
  - Very strong lens (NA = 0.85)
  - Thin cover layer
- 22.5 GB on a single side RW disc

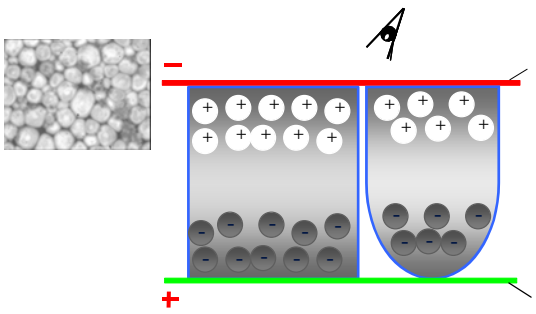
Storage

- World's first
  - working flexible matrix display
  - all-polymer active-matrix display
- Light, thin and roll-up capability
- Unlimited shape and form
- On any surface

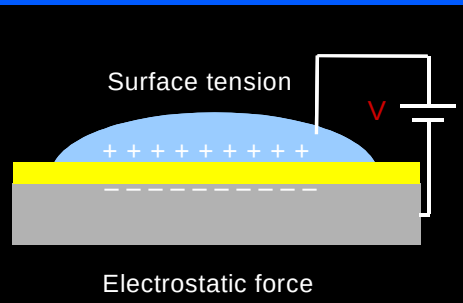
Cholesteric Texture LCD

- Passive matrix 64x64
- Thickness 250 micron
- Radius of curvature > 2 cm
- Size 12x15 cm





E-ink displays

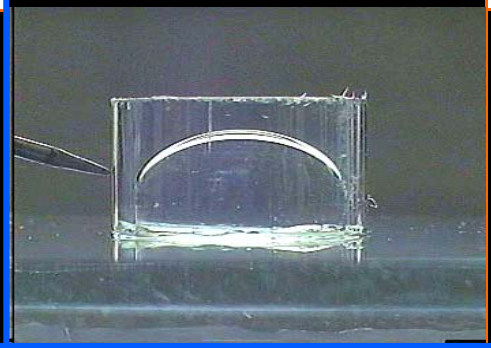


Capturing Images

Grey scales

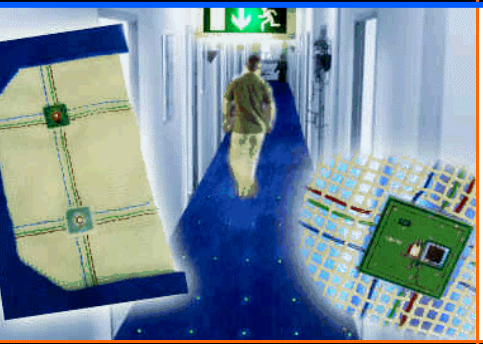
Electrophoresis

\+ clever switching strategies

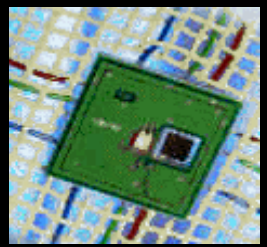


Electro-wetting lens

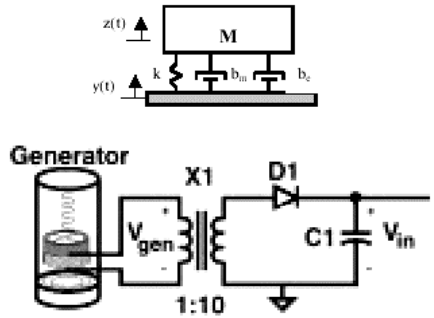
Low optical aberrations
Continuous adjustment of curvature
Zoom lens possible
No effect of gravity/accelerations



Textile Electronics



intelligent carpets
woven into fabrics
self-organizing network of chips
able to monitor *T*, *p*, or vibrations



Energy scavenging

Example: vibrational

Demonstrated:
a few µW

(source: UC Berkeley, J.M. Rabaey)

Vibration: 0.05-0.5 mW/cm³
acoustic 100 dB: 1 µW/cm²
Thermoelectric: 1-10 µW/C cm²
PV direct sunlight: 10 mW/ cm²
PV indoor: 10 µW/ cm²

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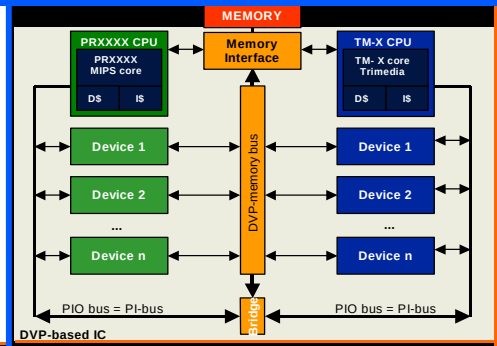
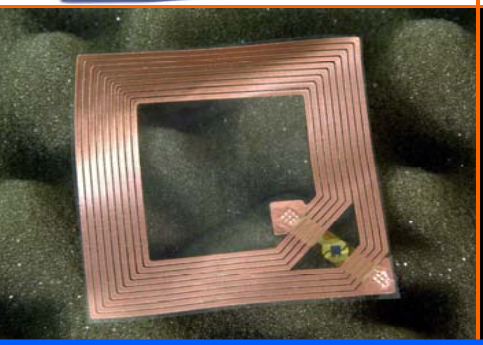
Connectivity

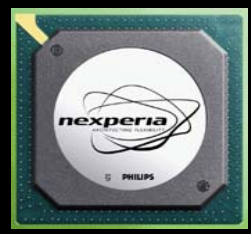


Computing platforms



Towards ubiquitous connectivity

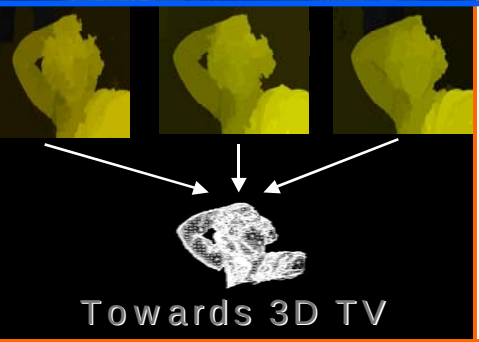
- All ranges are covered
- Wired and wireless



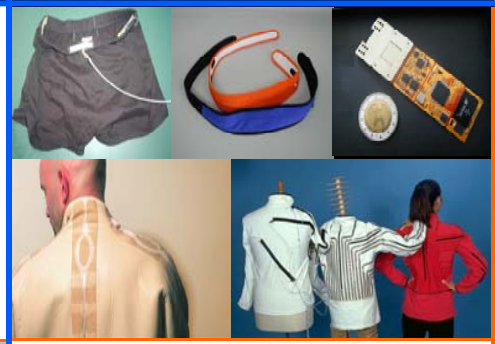
- ASB and DTV
- 0.18 µm / 8M
- 1.8V / 4.5 W
- 35 M transistors
- 75 clock domains

DVP Nexperia platform

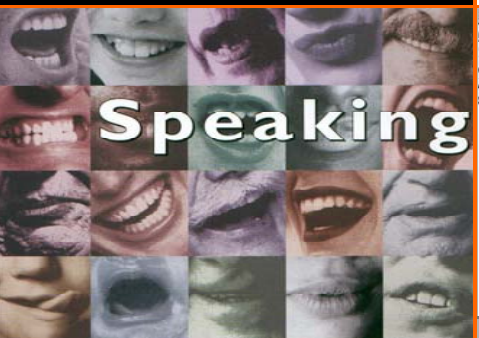
- Domain specific
- Programmable
- Fully integrated



Media processing

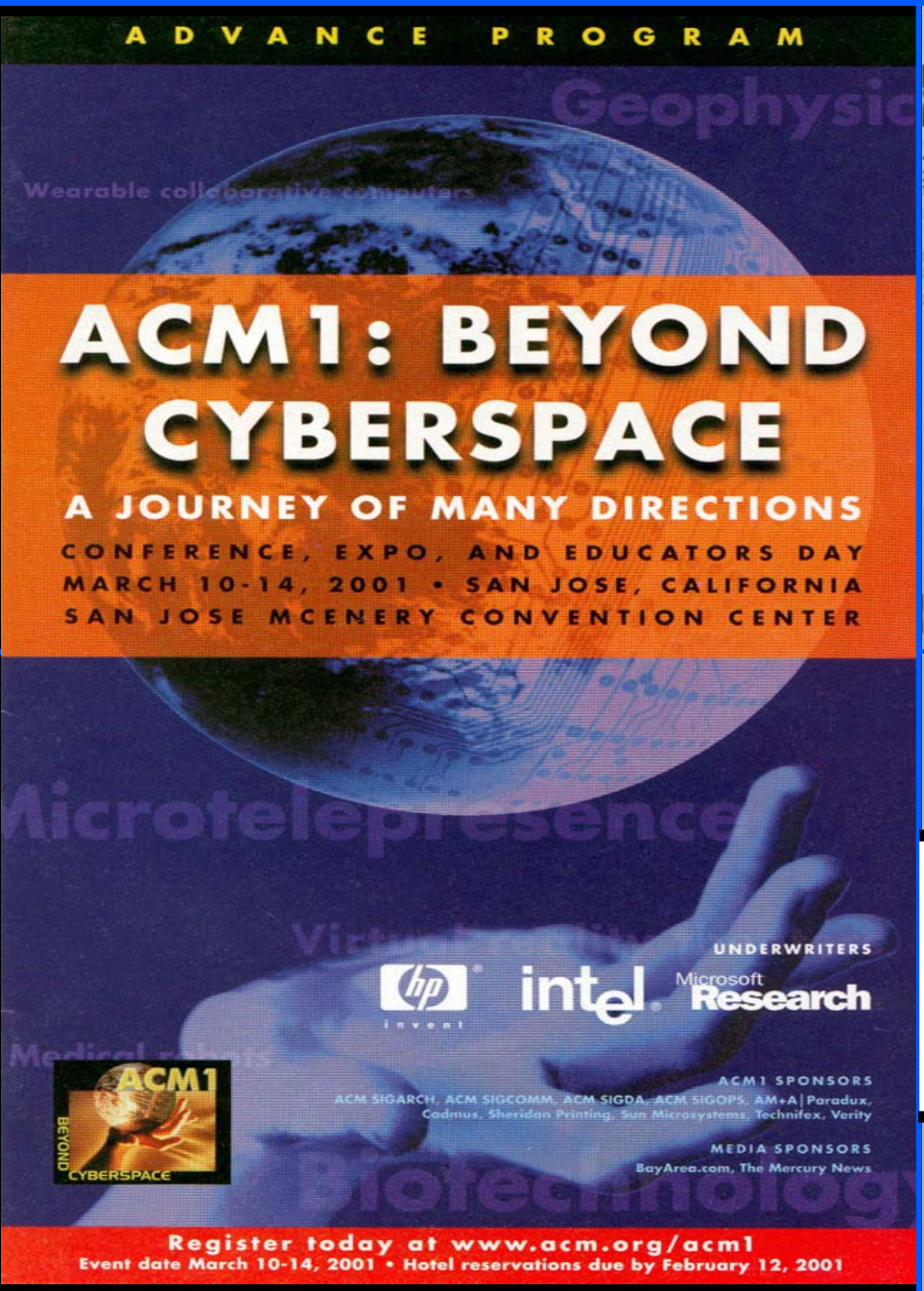


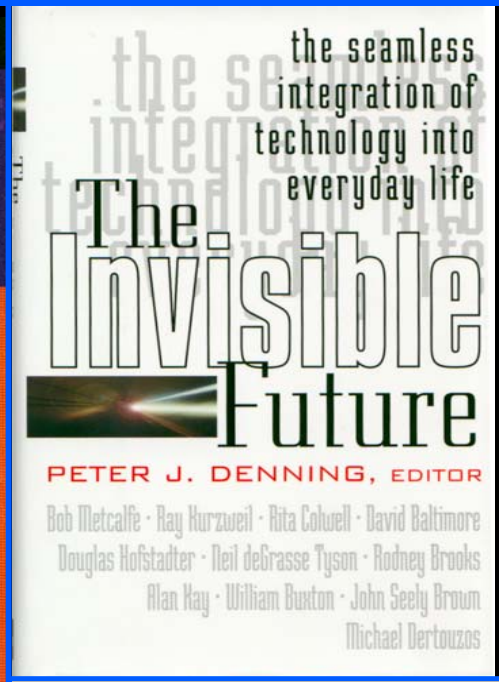
Wearable electronics



My heart

Wireless surveillance in cardiac arrests





2001: “Ambient Intelligence:
A new paradigm for
consumer electronics”

European Commission
Community Research

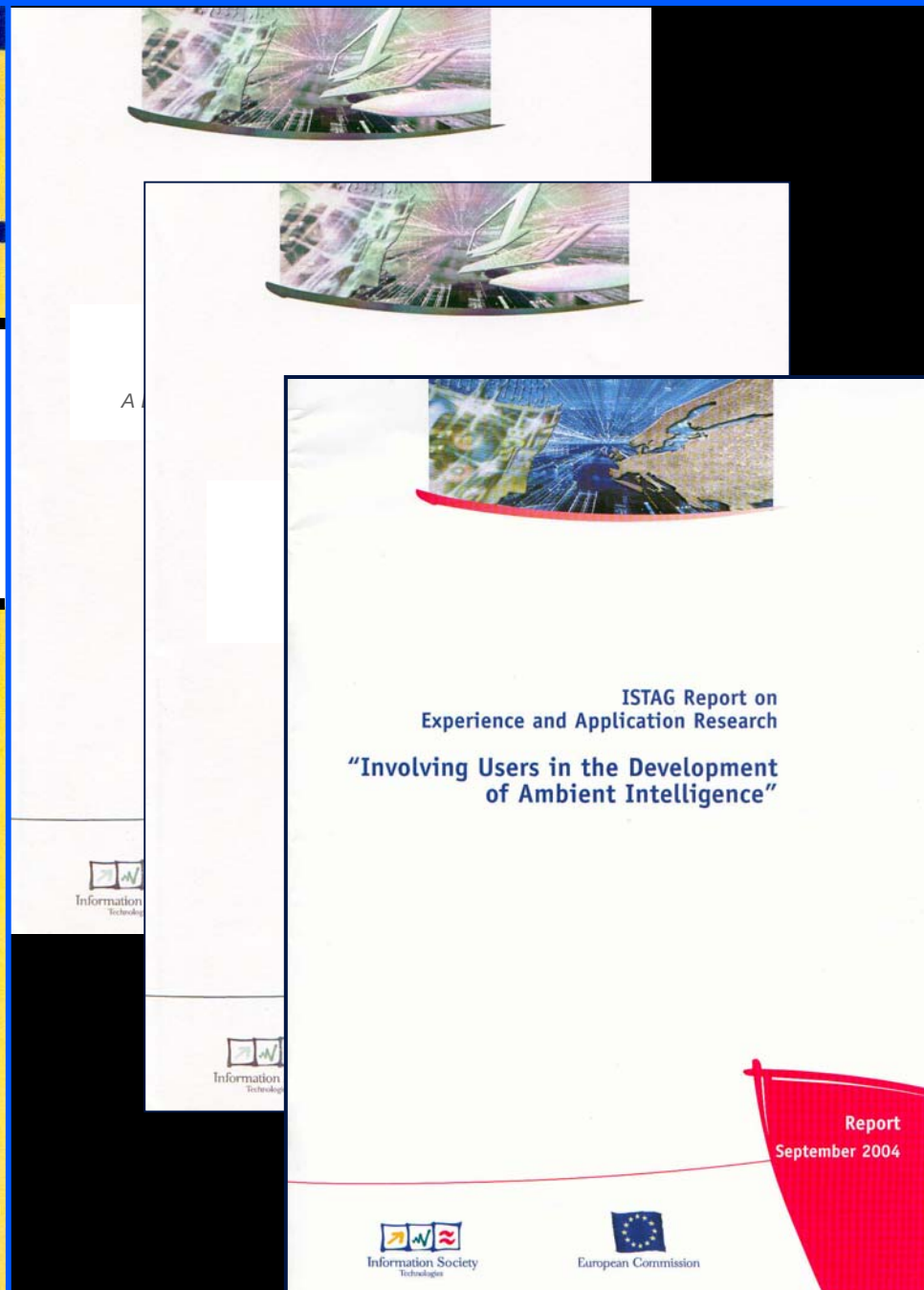
User-friendly Information Society

2001: “Europe will spend
3.7 billion Euro
on ambient intelligence
research in 2003-2006”

ISTAG

Scenarios for Ambient Intelligence
in 2010

www.cordis.lu/ist/istag.htm



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Research and Development

Achievements

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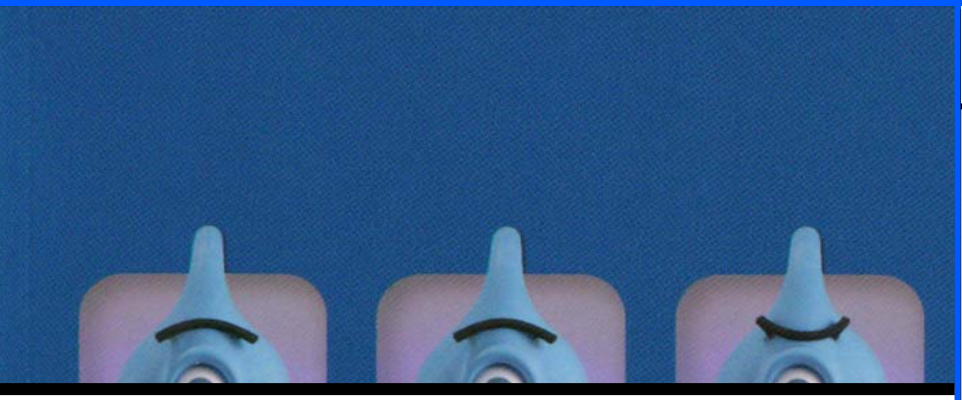
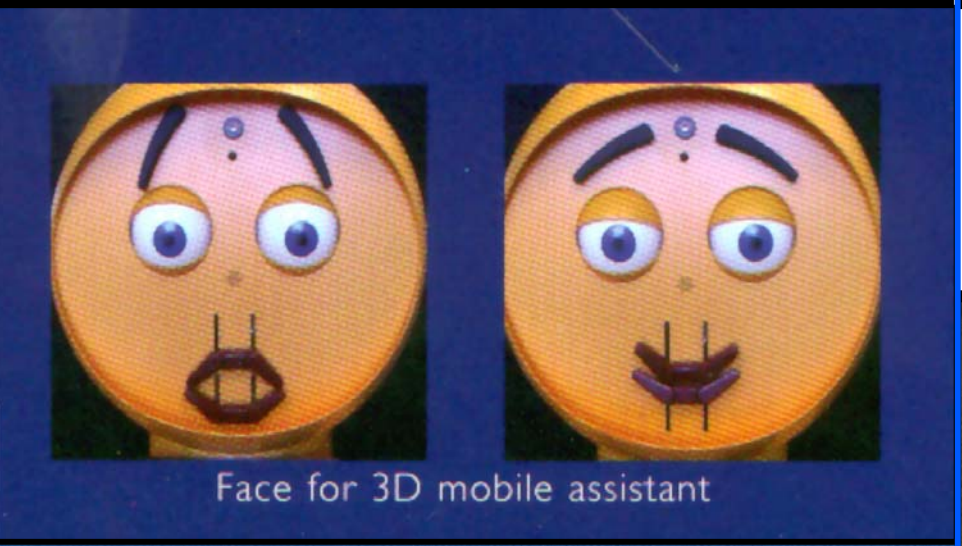


7 publications
4 invention disclosures
2 system prototypes



5 publications
4 invention disclosures
2 system prototypes

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Panos Markopoulos
Berry Eggen
Emile Aarts
James L. Crowley (Eds.)

LNCS 3295

Ambient Intelligence

Second European Symposium, EUSAI 2004
Eindhoven, The Netherlands, November 2004
Proceedings

Springer

Emile Aarts
René Collier
Evert van Loenen
Boris de Ruyter (Eds.)

LNCS 2875

Ambient Intelligence

First European Symposium, EUSAI 2003
Veldhoven, The Netherlands, November 2003
Proceedings

Springer

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CHI 2004 CONNECT

APRIL 24 – 29 | VIENNA, AUSTRIA

CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS

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WELCOME TO CHI2004

Welcome to CHI2004, the premier international conference for human-computer interaction. CHI2004 will be held in Vienna, Austria. Our conference theme is CONNECT, and we've created new opportunities for conference attendees to connect with technology, with each other, and with Vienna, a marvelous central European city of imperial tradition and modern creativity. Please join us in Vienna and take advantage of the many opportunities to network and showcase your research, design, and practice in a top international conference destination. We are pleased to announce five Special Areas for the conference, and especially encourage you to submit work on the following topics.

SPECIAL AREAS

AMBIENT INTELLIGENCE

In Europe the vision of Ambient Intelligence (AmI) has been adopted to guide and shape EC-funded research activities on information and telecommunication technologies for the coming 10 years. HCI will be one of the central building blocks of the upcoming AmI era.

MORE INFO

CALENDAR

Deadlines

Early Submissions	6 October 2003
Late Submissions	12 January 2004
Early Mentor Requests	21 July 2003
Late Mentor Requests	6 October 2003
Early Acceptance Notice	1 December 2003
Late Acceptance Notice	23 February 2004

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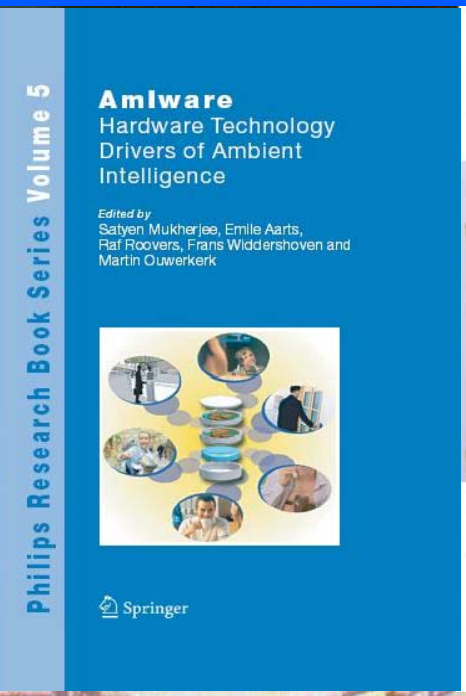
Philips Research Book Series Volume 5
AmIware
Hardware Technology Drivers of Ambient Intelligence
Edited by
Satyen Mukherjee, Emile Aarts, Raf Roovers, Frans Widdershoven and Martin Ouwerkerk
Springer


password
Philips Research technology magazine - issue 23 - May 2005
"Ambient Intelligence will bring us richer and more personalized experiences."
Ambient Intelligence
"System-in Package solutions will add eyes, ears, arms and legs to intelligent digital systems."
"We can provide immediate feedback to the patient while he is still lying on the examination table."
"The Smart Companion bridges the gap between you and the technology in your home."
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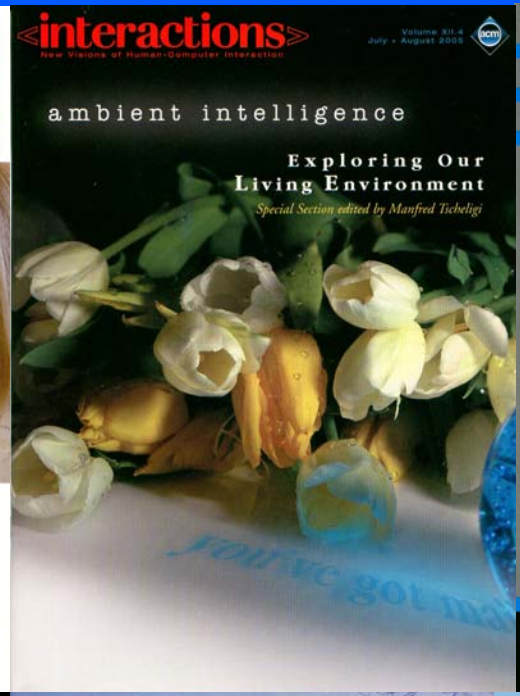
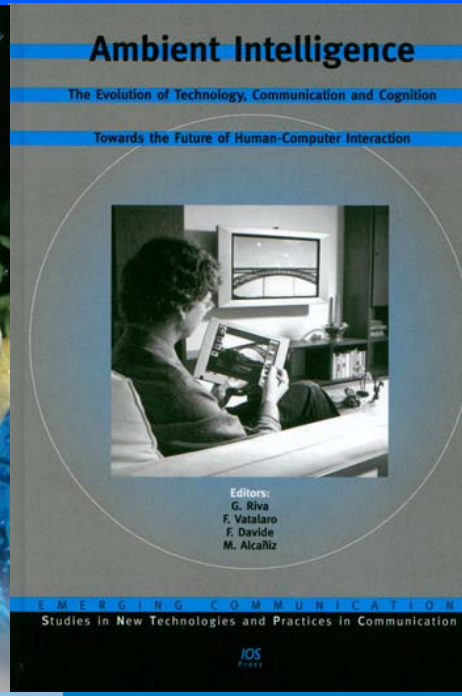
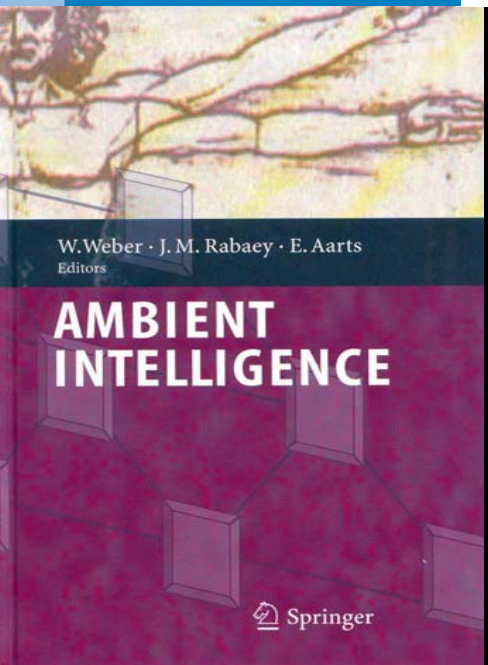
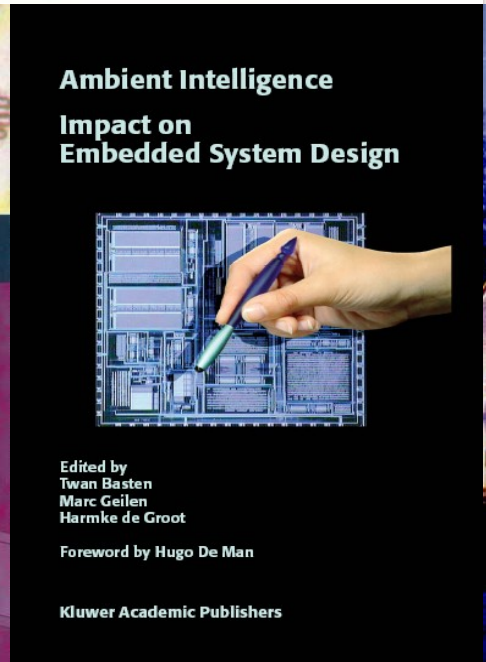
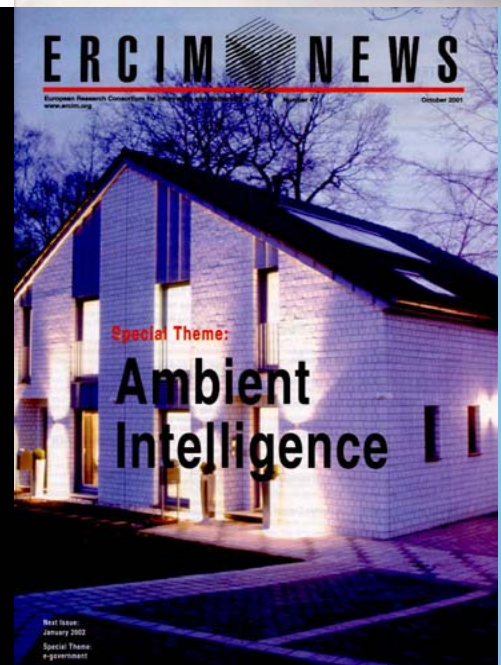
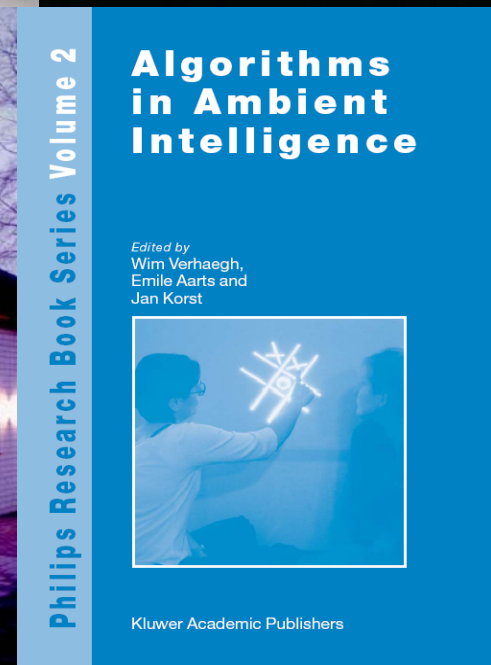

interactions
New Visions of Human-Computer Interaction
ambient intelligence
Exploring Our Living Environment
Special Section edited by Manfred Tscheligi


Ambient Intelligence
The Evolution of Technology, Communication and Cognition
Towards the Future of Human-Computer Interaction
Editors:
G. Riva
F. Vatalaro
F. Davide
M. Alcañiz
EMERGING COMMUNICATION
Studies in New Technologies and Practices in Communication
IOS Press


W. Weber · J. M. Rabaey · E. Aarts
Editors
AMBIENT INTELLIGENCE
Springer


Ambient Intelligence
Impact on Embedded System Design
Edited by
Twan Basten
Marc Geilen
Harmke de Groot
Foreword by Hugo De Man
Kluwer Academic Publishers


ERCIM NEWS
October 2001
Special Theme:
Ambient Intelligence


Philips Research Book Series Volume 2
Algorithms in Ambient Intelligence
Edited by
Wim Verhaegh, Emile Aarts and Jan Korst
Kluwer Academic Publishers

ITEA ACHIEVEMENT AWARD 2003

This is to certify that the **AMBIENCE project** has received this year's Achievement Award for outstanding contribution to the ITEA programme.

Project Leader

Evert van Loenen
PHILIPS RESEARCH

Work Package Leaders

Gilles Privat
FRANCE TELECOM

Rigobert Foka
THALES COMMUNICATIONS

Louis Chevallier
THOMSON

Paul ten Hagen
EPICTOID

As the mission of ITEA is for Europe to take the lead in software-intensive systems, effective industrial exploitation of the results of projects is crucial. The members of the ITEA Board consider AMBIENCE an excellent example of preparing for the future.

LEUVEN, 9TH OCTOBER 2003

Paul M. Mehring
Chairman of the ITEA Board

ITEA
INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

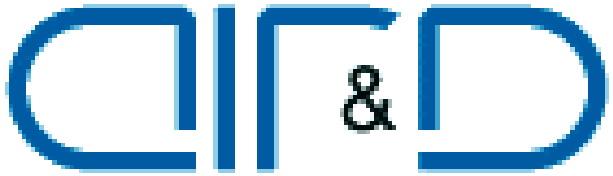
Amigo short list

Main objectives:

- R&D of interoperable middleware for a networked home environment which embraces current CE, PC, mobile and home automation domains
- Support for fast composition and integration of new devices and services
- R&D of intelligent user services which clearly show the benefits of home networking over what is available today applying a user-centric approach

Main external results:

- open source middleware
- application demonstrators
- publications



Ambient Intelligence related Joint Virtual Laboratory (JVL) of Fraunhofer Gesellschaft, Thomson, Inria & Philips that allows researchers to collaborate in an informal way covered by a formal IPR agreement

- Security architecture for AmI home system
- Development of framework and algorithms for combined distributed network and terminal QoS
- Combination of context awareness, user profiling and UI
- Ozone distributed middleware based on web-services implemented, using CSOAP as communication protocol
- First version of three complementary demos available:
  - Home environment (based on WWICE 2)
  - Away environment
  - To-The-Home delivery of content and services.
- 17 Publications (including one book: AI: Impact on Embedded System Design)

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Innovation and Business

Achievements

PHILIPS


copyright 2002 www.kennisinbeeld.nl


HOME LAB
copyright 2002 www.kennisinbeeld.nl


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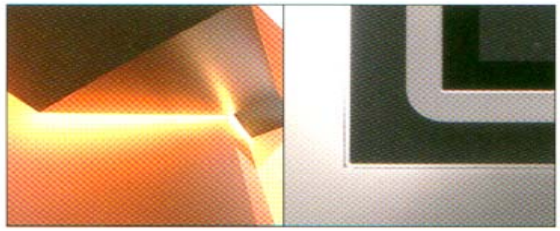
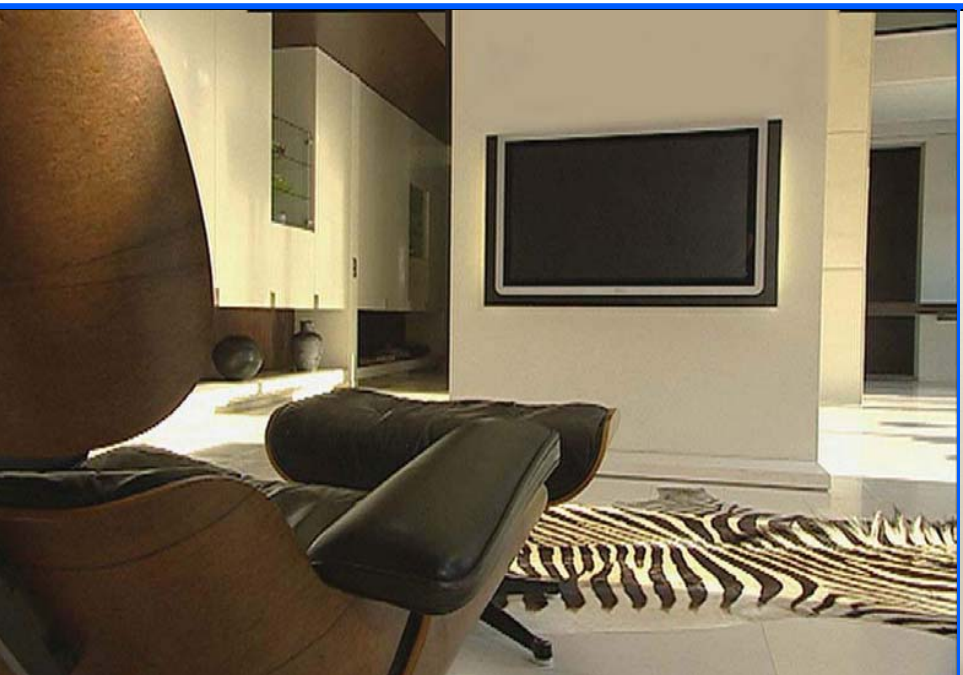
Get thrilled by a whole new dimension in Your viewing experience

Ambient Lighting

Ambient Intelligence

Smooting the passage from the bright picture on your Flat TV display to the lighter shade of your dimmed interior light when watchingTV, not only allows your eyes to relax while watching TV, but also offers colours, contrast and depth the final touch they deserve





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Volume 218, Number 00

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AN ADVANSTAR PUBLICATION

Special Show Issue

Hotel & Motel MANAGEMENT

The Leading Newsmagazine of the Hospitality Industry Since 1875 www.HotelMotel.com / hmm@advanstar.com April 2003

Mirror, mirror on the wall…

Philips introduces revolutionary Mirror TV that you must see to believe

View Philips' Mirror TV displays at Hospitality Design Expo Booth 4642

Philips Consumer Electronics, the largest worldwide provider of television display solutions for the hotel industry, has unveiled a breakthrough Mirror TV solution that reflects Philips' progressive innovation and hospitality industry leadership.

The Philips Mirror TV creates a high-quality video picture behind a mirror, using a patented polarized mirror concept that allows for close to 100 percent light transfer through the mirror's reflective coating. Other products that use semi-transparent mirror glass coating cannot achieve the optimal quality and balance between good mirror effect and 100 percent light transparency; hence, either the TV picture is too dark or the mirror is too transparent.

"Philips understands the unique requirements of the hospitality industry," says Mike Brooks, vice president of product strategy/planning. "By listening to our customers we translate their requirements into aesthetically pleasing and fully functional display devices."

Hoteliers can customize different Mirror TV applications based on the property's needs. Whether it is placed in a hallway lobby or elevator, as a guest-room centerpiece or above

a workstation, the Philips Mirror TV delivers high visual impact and can be customized to allow for full integration into any room design. The two-in-one application allows hoteliers to free space by eliminating either a stand-alone mirror or a traditional television, and the design hides the electronics to ensure a sleek display. This dynamic concept is a perfect complement to the ambiance that upscale and luxury hotels strive to provide their discriminating guests.

"Philips invests a great deal into research and development of television technology. Hoteliers and their guests will benefit from this innovation, which offers a unique viewing and visual experience," Brooks says.

Limited quantities based on custom orders are expected to become available in third-quarter 2003, with broader distribution and availability scheduled for the fourth quarter. Brooks expects the Mirror TV to make a big splash, particularly in the highly-competitive Las Vegas market.

"To really appreciate the viewing experience, you have to see these TVs. Once people see them in action, the concept will wow them. We're excited to be able to showcase this revolutionary concept during the Hospitality Design Expo," Brooks says.

Philips Mirror TVs can be customized to complement any hotel design. The three primary applications include:

- **Hallway** – Features a mirror in the top portion, with the bottom portion that includes a 17-inch LCD display. Perfect for lobbies, hallways and elevators.
- **Living room** – Film covers entire mirror and features a 30-inch LCD display. Place on the wall as a centerpiece, or above a fireplace. Speakers can be placed at aesthetically pleasing places according to the room decor.
- **Desktop/Workstation** – Film covers entire mirror and includes a 23-inch LCD display. Business travelers can connect their laptop into a special connector that allows the mirror to become a computer monitor.
- **Frames** – Customizable to deliver the appropriate look and feel of the room. Frames are designed to hide the electronics while delivering a clean appearance. Living room frames will be most ornate, followed by frames for the hallway application. Desktop/workstation frames are functional, not flashy.

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Let's make things better

Published by Hotel & Motel Management

MiraVision™

Interactive Display Mirror

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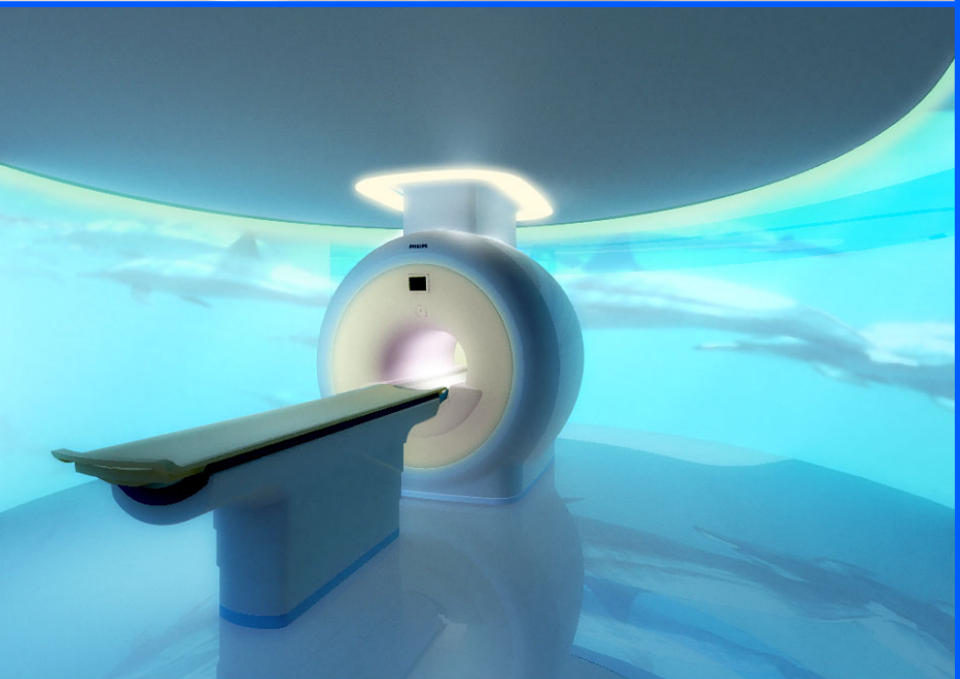
Ambient Experience
Advocate Lutheran General Hospital, Chicago



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Outreach

Achievements

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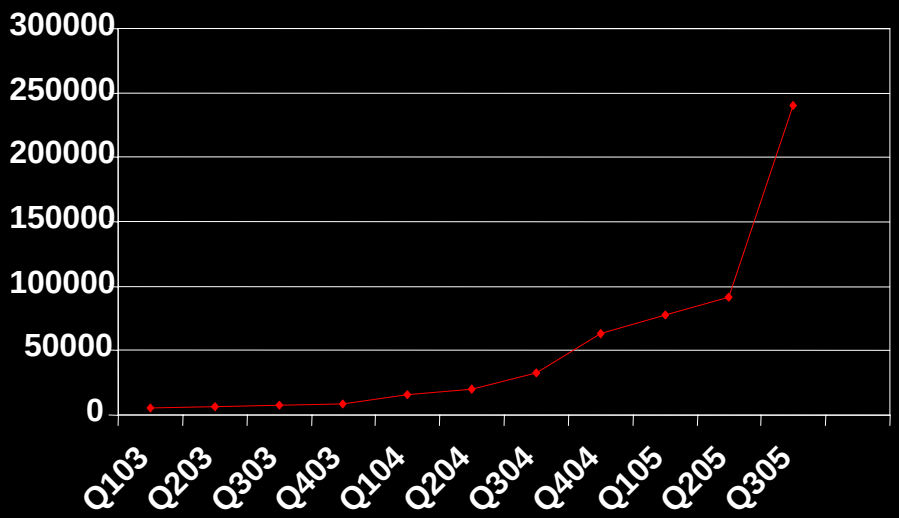
Google™

AmI: 248000

October 2005

Growth in the number of Google hits



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IBM:	26000	Berkeley:	13000
Siemens:	12000	MIT:	11000
Nokia:	11000	Stanford:	11000
HP:	11000	IMEC:	1000
Sony:	9100	TUE:	900
Thomson:	900	INRIA:	900
Samsung:	700	ETH:	700
Thales:	360	UCL:	400
BMW:	350	KUL:	400

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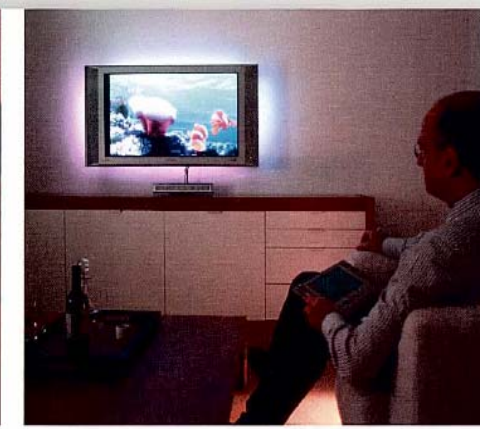
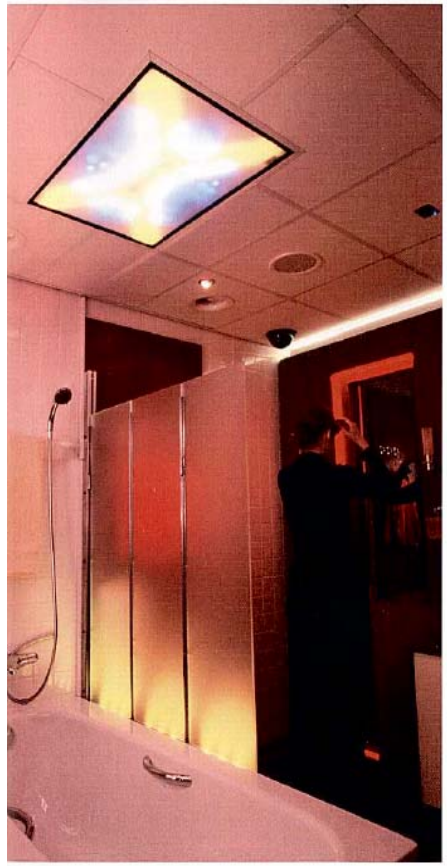
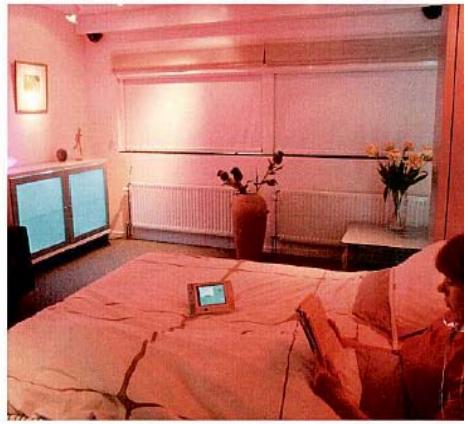
MIT'S MAGAZINE OF INNOVATION

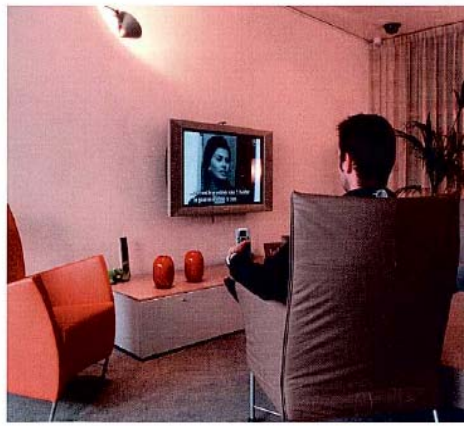
TECHNOLOGY REVIEW

BUSINESS • OPPORTUNITY • IMPACT









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of an installation than a store. The label's designer, Rei Kawakubo, handpicked industry colleagues like Lanvin's Alber Elbaz to help fill the shop's six floors. An assortment of skulls and taxidermy specimens provides the finishing touches for the space

>> ? Philips Ambilight Flat TV

A special backlight that changes color and intensity to match the screen tricks the eye so the picture seems bigger than it is

From $4,399 to $10,999 ***(philips.com)***

>> ?

EUROPEAN IMAGING AND SOUND ASSOCIATION

EISA

AWARDS

LCD TELEVISION 2004-2005

Philips 37PF9986

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IST 2004 Event – Participate in your future

Exhibits

In the **AMI: Tools for Ambient Intelligence** zone:

- **POEtic - POETIC**
- **Advanced RF Front-End Technologies using Micro-Machined SiGe**
- **BIRON - The Bielefeld Robot Companion - Cogniron**
- **Brain computer interface - Presencia**
- **Ecvision - ECVISION**
- **FET ECAgents exhibit embodied communicating agents - ECAgents**
- **Flexible displays - FLEXled project(IST-2001-34215) and the upcoming FPVI IP FLEXIDIS**
- **Intelligent intra-oral medical devices**
- **OCERA for development of real-time embedded systems - OCERA**
- **SENSATION: Past and Future on Advanced Sensor Technologies**
- **SWARM-BOT exhibit - SWARM-BOTS**
- **Saving Power on Mobile Devices using CAD-Tools - POET**
- **Self-assembling robots - HYDRA**
- **Smart Sensors from Integrated Microsystems (Europractice - INTEGRAM)**
- **The EYES project: Energy efficient sensor networks - EYES**
- **Total Life Cycle Web-integrated Control**
- **Towards Micro robot ecologies: MiCRoN and I-SWARM**
- **Two-Dimensional Optical Storage - TwoDOS**
- **Ultra-compact head-up display for automotive application - OEDIBUS**
- **VAMPIRE: Context Aware Scene Augmentation**
- **Visual Active Memory Processes and Interactive Retrieval**
- **the European EUVLithography Research cluster- more Moore IP**

Networking sessions

- **N 34 Ambient Assisted Living - preparation of an §169-initiative** (Breughel 4, 16/11/2004, 9:00-10:30)
  Coordinator: **Michael Huch**

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AAL
AMBIENT ASSISTED LIVING

Ambient Assisted Living - Preparation of an Article 169 Initiative

- Home
- Introduction
- Join us
- Members of the project
- Contact/Imprint

VDI|VDE|IT

Member Login

Username
Passwort
Login

Welcome to the AAL website!

The objective of the specific support action "**A**mbient **A**ssisted **L**iving " is to prepare an Art. 169 initiative in the field of "Small and smart technologies for ambient assisted living" to be submitted by the end of the 2-years duration.

AAL organised a networking session at the IST conference in The Hague, 16 November. Download the session report via the link above.

If you are interested, JOIN US!

AAL is funded under the IST priority

Information Society Technologies

SIXTH FRAMEWORK PROGRAMME

within the 6th European Framework Programme

The project duration is from September 1st, 2004 to August 31st, 2006.

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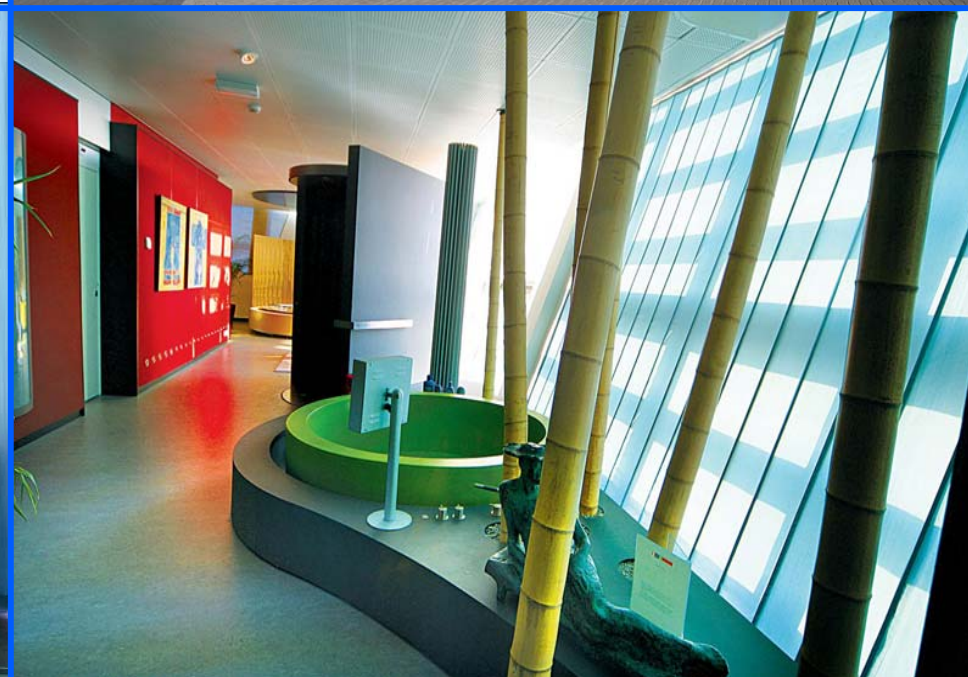
®LIVING TOMORROW

Amsterdam



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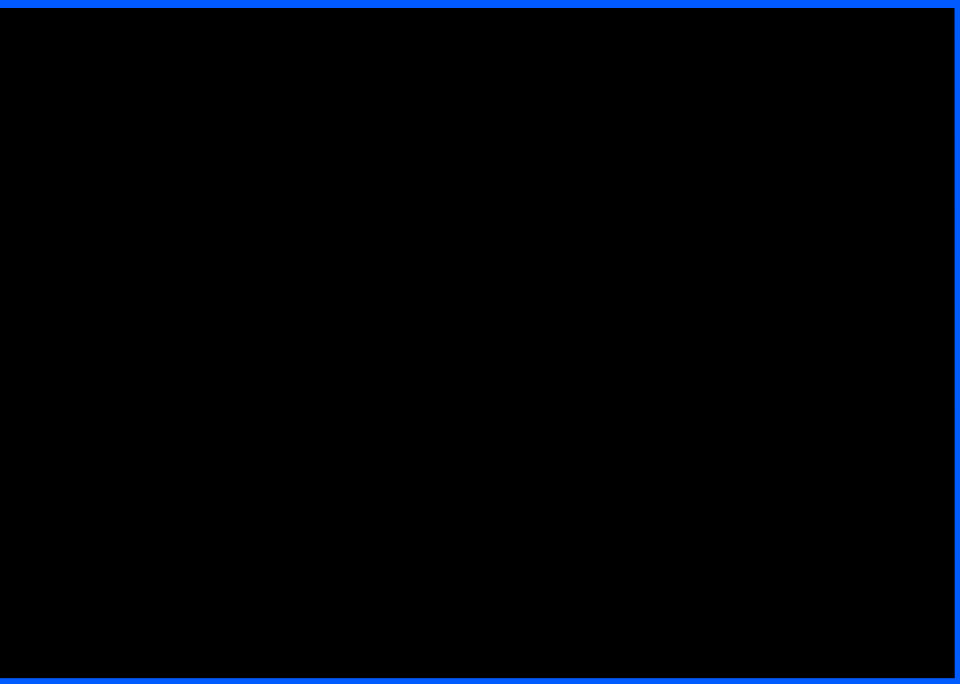
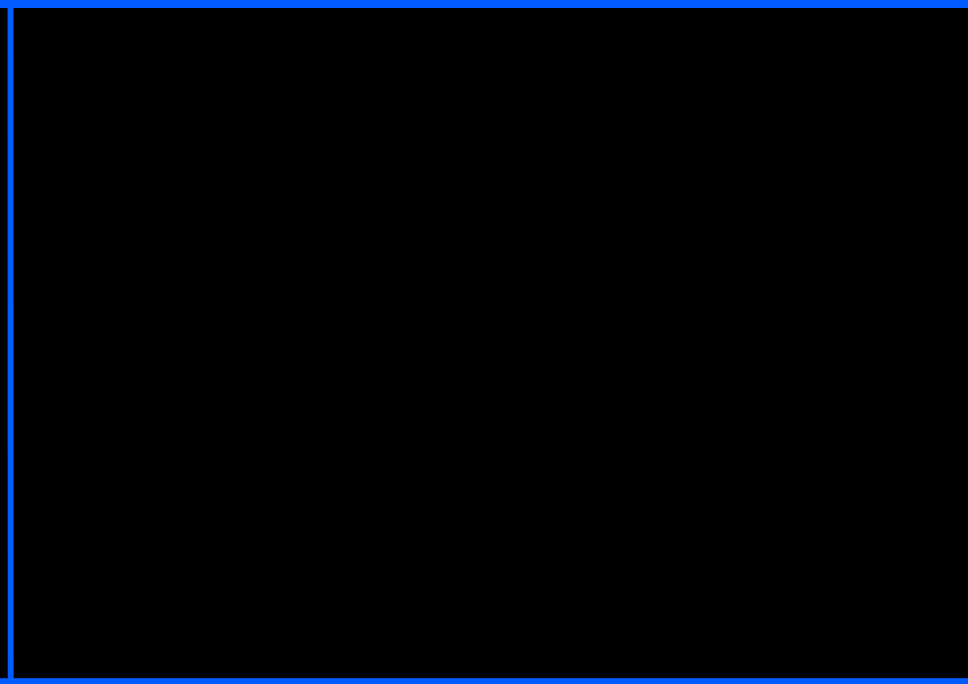
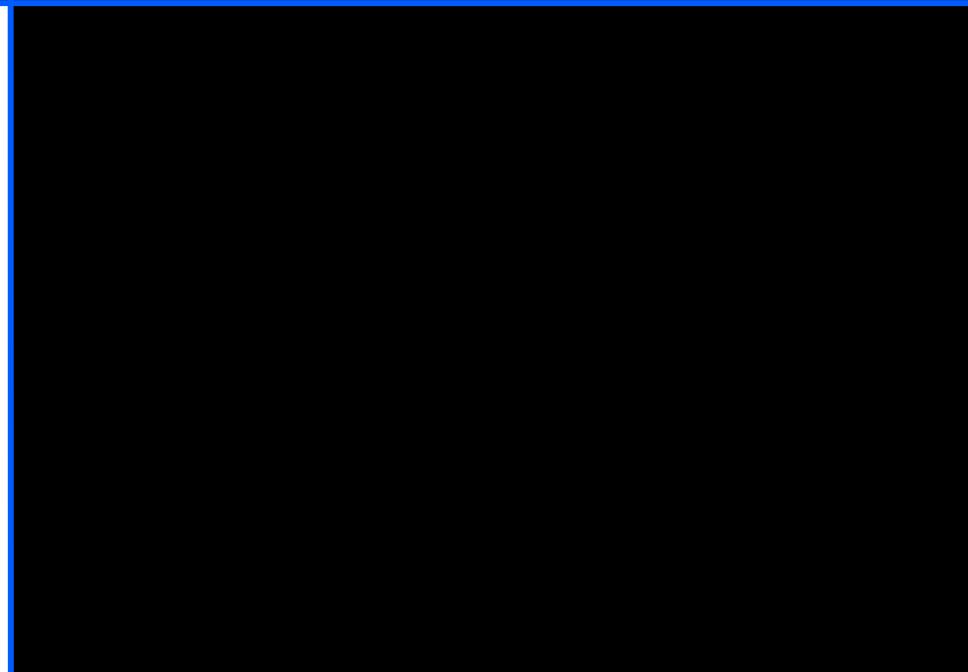




Challenges



Interaction technology

Develop ambient interaction concepts that are truly intelligent, simple, and intuitive

- Integrate multi-modality with context awareness and intuitive feedback mechanisms
- Integrate smart media access into surroundings (audio, video, and light)
- Develop interaction concepts for novel AmI technologies (photonic textiles, e-paper, polymer lighting, and uld's)

Challenges for Ambient Intelligence

Research

Innovation

Build an eco-system that uses co-creation as a model for open innovation

- Involve ordinary people in the user centered design cycle at large
- Concentrate on well-defined business domains (automotive, fashion, furniture, well-being, infrastructure)
- Develop new business models for AmI innovation

Challenges for Ambient Intelligence

Business

Involvement

Reach out to ordinary people so as to let them participate in the AmI effort

- Involve ordinary people in the user centered design cycle at large
- Let people experience the AmI future and live in it yourselves
- Make AmI part of education

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The story continues

The end