

# sensory modulation

SPACES / DEVICES / STRATEGIES

Research project / synopsis

March 2008

Rogério Lira

rog@rogérolira.com

## SUMMARY

I propose to conduct a research project that will combine cultural critique and design research to address issues of sensory overload in normal and special populations.

My assumption is that sensory disorders such as Attention Deficit / Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), and the more general issue of information overload can be understood and made less problematic with the help of design thinking and skills.

The overarching goal is to investigate how external environmental conditions affect internal mental processes, such as the ability to regulate finite attentional resources. The more specific goal is to explore potential scenarios, products and services within this context. Insights generated by this project will be applied to the design of spatial experiments and serve as material for future design research.

## Fuzzy territory

Controversy surrounds the definitions, diagnosis and treatment of ADHD and ASD. Much has been written about the issues but much remains unknown. The stigma of 'fashion diseases' and the fuzzy area that exists between real or imagined pathology provide excellent raw material for the critical designer. Although there are enough concrete data and findings to inform serious investigation, shifting scientific opinions lend themselves readily to cultural critique and imaginative speculation.

## Changing focus

In what ways has our involvement with digital media in the past decades changed the nature of human attention?

As a species, are we in a transition phase between two radically different ways of thinking and operating? When is a scattered mind a bug and when is it a feature? Is a fragmented form of attention more suitable for the way we now live, work and communicate? If so, how will we handle old tasks such as reading or writing linear texts? Will we need to create new protocols? Will we need special sensory aids? How will these aids work? What will it feel like to use them?

## I/O errors

The body has mechanisms designed to regulate its autonomous functions, such as temperature, sleep and hunger. Social and cultural interactions also require self-regulation. Ideally, we should be able to sense the point when we've had enough talking, shopping, socialising or browsing the web. In reality, we can't always tell when a saturation point has been reached. Rather, we seem to have a deep desire to probe (and to surpass) the limits of our interactions with technology and with others.

How can design be used to address the issues around sensory craving and satiety, over-stimulation and the sense of being overwhelmed? Is there an optimal range of functioning for our biological self-regulating mechanisms? Do these mechanisms malfunction as a result of extreme increases in stimulation, or can they auto-adjust to new conditions? How can we design better regulating systems? Should these be placed inside our bodies or be part of smarter living or working spaces?

Self-regulation and impulse control are especially problematic for people with ADHD, as is oversensitivity to stimulation for people with ASD. Consequently, these populations are particularly interesting in the context of this project.

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## Regulating interfaces

Because environmental factors directly affect the intensity of some of the symptoms of sensory disorders, it is safe to assume that controlled changes in the environment can help to regulate internal states.

The boundary between what is internal or external – between ourselves and the world – is fluid and a matter of focus. At one moment it is the sensory organs or their digital extensions. At others it is the skin, the clothes we put on or off, the vehicles we drive or the buildings we occupy. All are semi-permeable membranes and can be manipulated and redesigned to suit our needs for more or less exposure to external stimulation.

The Turkish hammam or Finish sauna offer an example of a temporary renegotiation of one's bodily boundaries – physical environments with their own set of rules and protocols designed traditionally to modulate sensory input. One is physically and mentally stimulated through specific properties of space and one engages in intimate physical contact with the architecture and with the bodies of others. By following the prescribed steps a specific sensory state can be reached. Based on this example other spaces and protocols / strategies can be developed.

The work of the late Brazilian artist Lygia Clark (1920-1988) addresses the topic of sensory boundaries in intriguing ways. In this research I intend to deepen my understanding of her 'relational objects' and 'phantasmagoria of the body' projects (see attached references) and use them as reference points for the design of devices and spaces with therapeutic potential.

## Concrete output

Possible output from this research include the design of environments that promote a temporary increase in focus and concentration for reading and writing, the design of 'thermostats' and other feedback systems to help regulate sensory input and the establishment of interior design guidelines for the spaces in which people dealing with sensory disorders live and work.

## METHOD

- Collecting and analysing qualitative data from literature, art and design; organising these in a database that can later be published
- Establishing a small network of mental health workers, people dealing with sensory disorders and interior designers/architects to provide feedback and serve as sounding board
- Designing experiments and building prototypes based on the collected data and on dialogues with the people from the network
- Rounds of testing and feedback
- Reporting conclusions

## DESIGN BACKGROUND

I began designing in the early 90s, first by creating broadcast graphics for MTV in Brazil and later for a similar music channel in Hong Kong. The standard MTV editing style can be a force-feed of visual stimulation – at times, a difference of a single frame determines what can or cannot be seen. After settling in the Netherlands, I began experimenting with much slower and quasi-hypnotic motion graphics. The contrast between these two forms of video editing was stark and thought-provoking as they emphasized the limits of the viewer's attention. As I became acquainted with interaction design and the web, attention spans of users/viewers were a constant topic of interest.

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While continuing my design work for the screen, in 2001 I began a loosely organised research project about swimming pools and public baths. In contrast to the online communities where I spent much of my time, pools and baths are places where socialising is essentially physical. I travelled around Europe visiting and experiencing – in the flesh – the social and architectural pleasures of communal bathing. Some of these experiences ended up in my weblog ([latenightpool.net](http://latenightpool.net)). Others were incorporated into lectures I gave about nudity, privacy and the internet.

In the past years my applied work turned to projects with a higher degree of social participation. Among these were sexual health campaigns and two government-initiated design projects about social integration of the mentally handicapped (see visual documentation). My involvement in one of these projects led to an invitation in 2006 to participate in a debate at the RCA about inclusive design, which, in turn, brought new insight into these interests and led eventually to this research proposal.

## REFERENCES / literature

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- Bachelard, Gaston. *The Poetics of Space*. Beacon Press, 1994
- Crary, Jonathan. *Suspensions of Perception: Attention, Spectacle and Modern Culture*. MIT Press, 2001
- Crossley, Nick. *The Social Body (Habit, Identity and Desire)*. Sage Publications, 2001
- David, Catherine and Carvajal, Rina. *The Experimental Exercise of Freedom: Lygia Clark, Mathias Goeritz, Helio Oiticica and Mira Schendel*. Museum of Contemporary Arts, Los Angeles, 2000
- Dunne, Anthony and Raby, Fiona. *Design Noir: The Secret Life of*

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March 2008

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- Electronic Objects*. August/Birkhauser, 2001
- Foucault, Michel. *History of Sexuality vol.2: The Use of Pleasure*. Vintage Books, 1985
- Grandin, Temple. *Thinking in Pictures and Other Reports From My Life With Autism*. Vintage Books, 2006
- Johnson, Steven. *Emergence: The Connected Lives of Ants, Brains, Cities and Software*. Penguin Books, 2002
- Kira, Alexander. *The Bathroom Book*. Penguin Books, 1976
- Koren, Leonard. *Undesigning the Bath*. Stone Bridge Press, 1996
- Maté, Gabor. *Scattered: How Attention Deficit Disorder Originates and What You Can Do About It*. Penguin Books, 1999
- Merleau-Ponty, Maurice. *The Visible and the Invisible*. Northwestern University Press, 1969
- Nadeau, Kathleen and Kolberg, Judith. *ADD-Friendly Ways to Organize Your Life*. Brunner-Routledge, 2002
- Rolnik, Suely. For a State of Art: The actuality of Lygia Clark

## REFERENCES / art and design

- Lygia Clark. *A Casa é o Corpo*, 1967; *Fantasmática do Corpo*, 1974; *Objetos Relacionais (Estruturação do Self)*, 1976-1988
- Archigram. *Living Pod, Cushicle*, 1966
- James Turrell. *Heavy Water*, 1991; *Gasworks*, 1993
- Olaf Arndt and Rob Moonen. *Camera Silens*, 1994
- Lawrence Malstaf. *Shrink*, 1996
- Atelier van Lieshout. *Sportopia*, 2002; *Satellite des Sens*, 2003
- Olafur Eliasson. *The Weather Project*, 2003; *Sonne statt Regen*, 2003
- Rosalie Monod de Froideville. *HideAway*, 2006
- Chris Woebken, Kenichi Okada. *Animal Superpowers*, 2007

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Honeywell Aerospace Engineering 

## DARPA Augmented Cognition Program

To help keep U.S. troops safer by improving the information processing capability and battlefield performance of military units operating in stressful environments, Honeywell is developing technology for the U.S. Army's Augmented Cognition (AugCog) program. AugCog technology identifies soldiers facing information overload and prompts real-time tactical changes by allowing commanders to redirect that information and any required action to other soldiers.

The portable system uses body-mounted electrocardiogram (ECG) and electroencephalogram (EEG) sensors to monitor cognitive activity in the brain and blood flow in the body. Brain pattern and heart rate data from system-equipped soldiers will be transmitted wirelessly to commanders in real-time to improve overall battlefield information management and decision-making.

"In the future, technology advances will force networked soldiers to have greater information processing responsibilities than ever before," said Bob Smith, Vice President, Advanced Technology, Honeywell Aerospace. "We are developing our augmented cognition technology to help soldiers and commanders manage the increasing barrage of data that exists on the net-centric battlefield. AugCog is going to help keep Americans safer during demanding combat missions."

Honeywell has already developed a prototype AugCog helmet that monitors various brain states including those associated with distraction, fatigue and information overload. The system then uses that data to produce a visual readout for combat commanders showing the cognitive patterns of individual soldiers.

## SENSORY OVERLOAD

Honeywell AugCog Program

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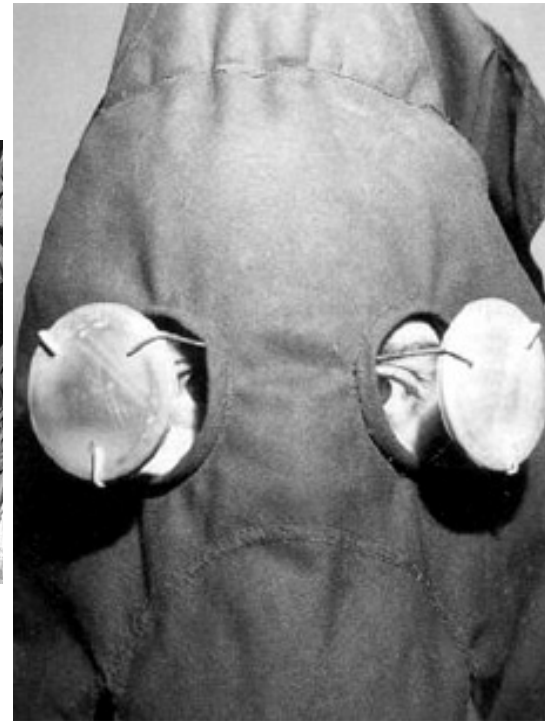
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## SENSORY MODULATION

Lygia Clark. *Óculos (Glasses) / Sensory Masks*

Lee Miller. *Models Wearing Fire Masks*

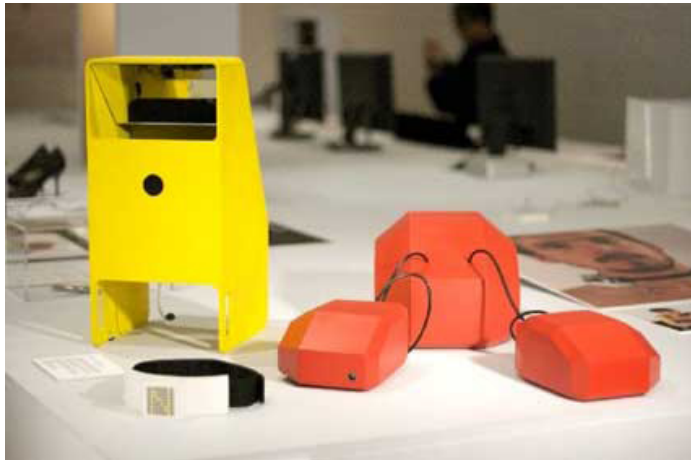


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## SENSORY MODULATION

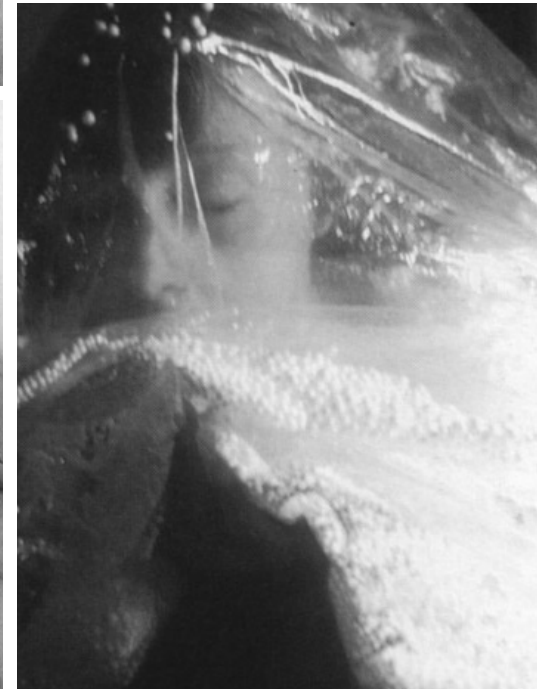
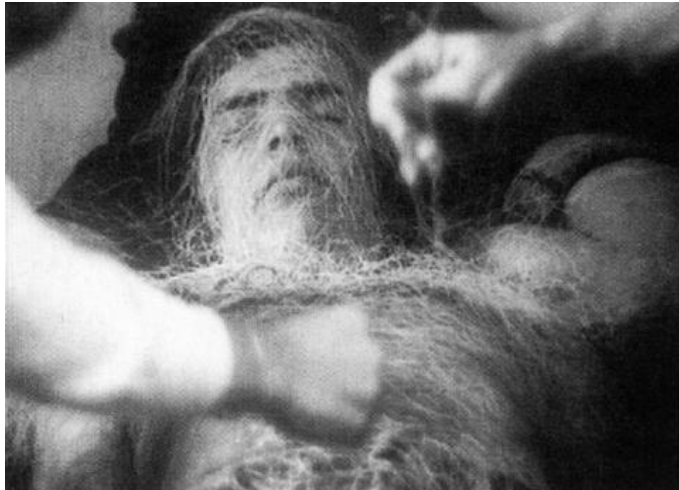
Chris Woebken, Kenichi Okada. *Animal Superpowers*

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## EXTERNAL / IMAGINARY ORGANS

Lygia Clark. *Antropophagic Drool*

Lygia Clark. *Sensory Objects*

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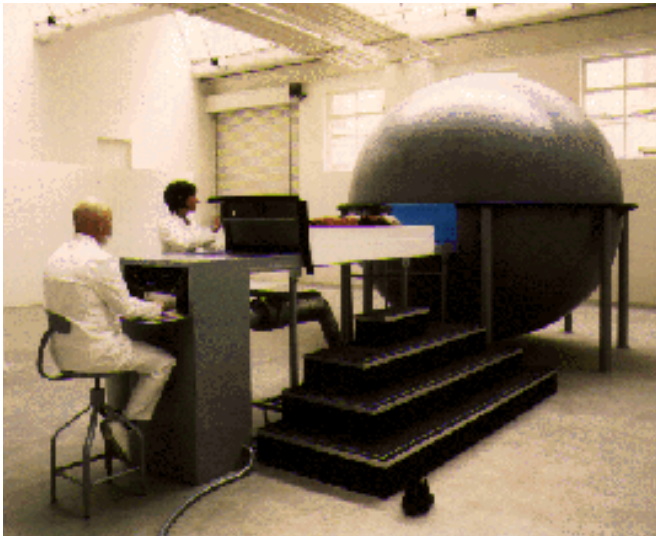
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## OPTICAL STIMULATION

James Turrell. *Gasworks*

Olafur Eliasson. *Weather Project; Sonne statt Regen*



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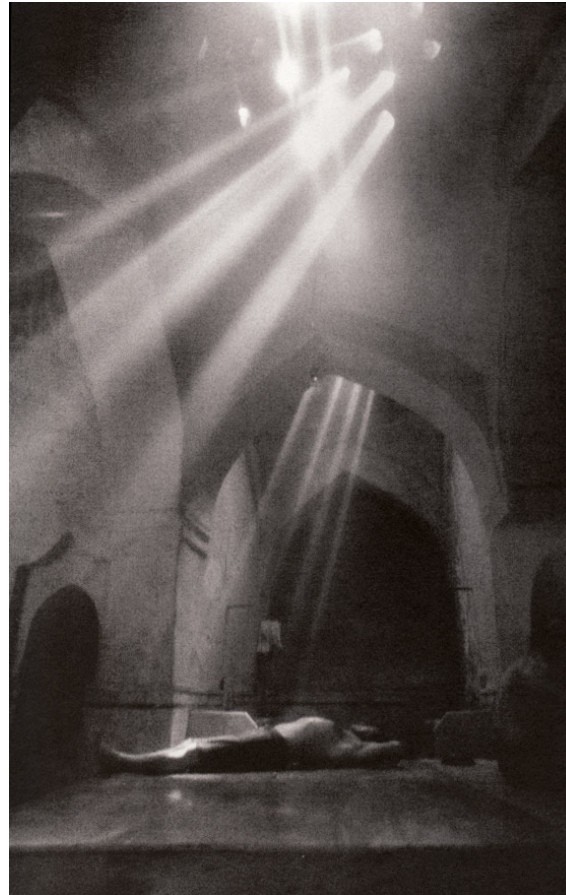
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## THERMAL STIMULATION

Japanese Onsen  
Islamic Hammam  
Arctic sauna

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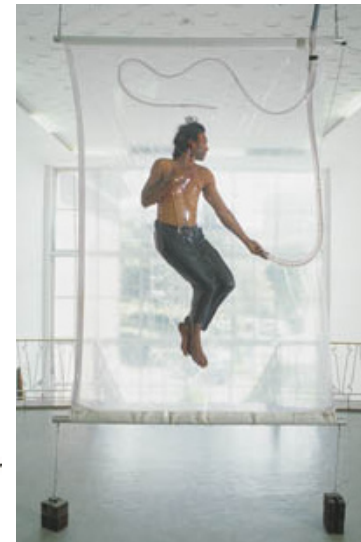
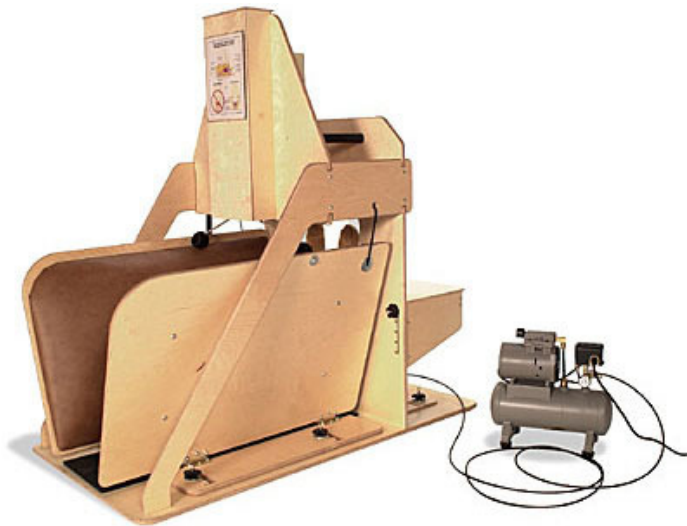
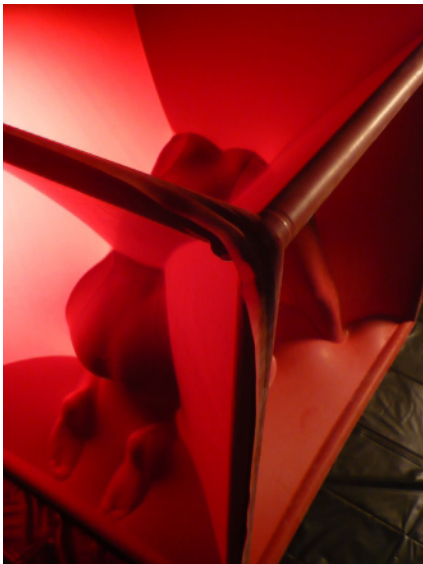
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## PRESSURE STIMULATION

Fort Troff. *Vacuum Cube Kit*

Temple Grandin. *Squeeze Machine*

Lawrence Malstaf. *Squeeze*

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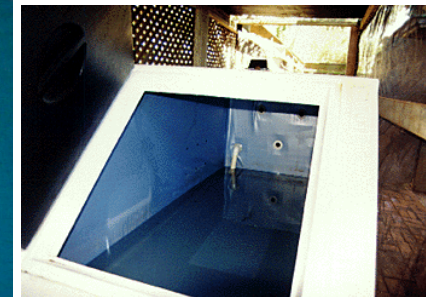
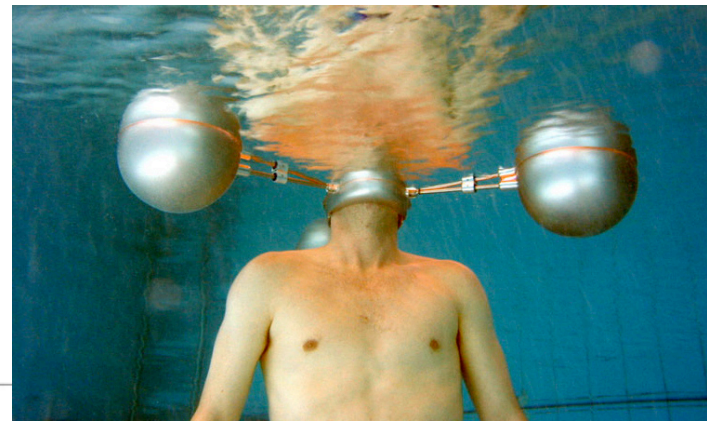
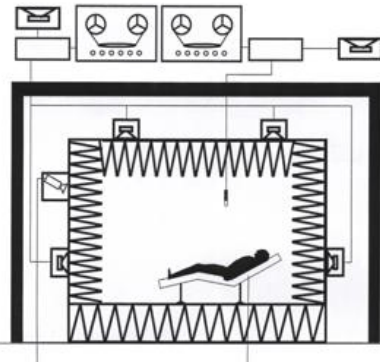
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## SENSORY DEPRIVATION

Olaf Arndt and Rob Moonen. *Camera Silens*

Auger-Loizeau. *Isophone*

John C. Lilly. *Isolation Tank*

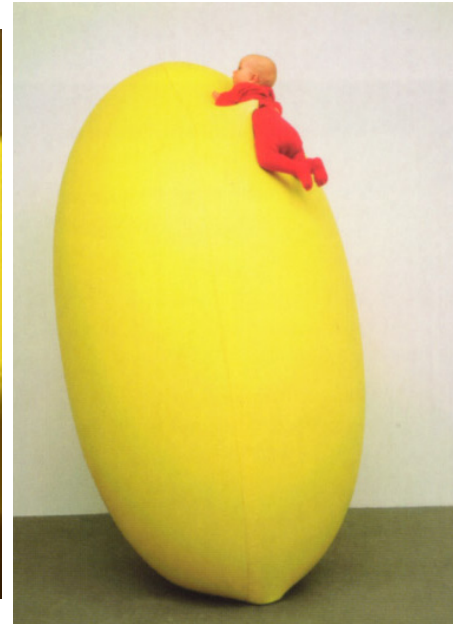


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## ISOLATION AND CONTACT

Hans Hemmert. *Inflatables*



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## ISOLATION AND CONTACT

Rosalie Monod de Froideville. *HideAway*  
Archigram's *Portable Cushicle*

# curriculum vitae

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ROGÉRIO SIMÕES LIRA

## NATIONALITY

1966 Born in São Paulo, Brasil,  
2000 Naturalized Dutch

## EDUCATION

1997-1999 Master's Degree in Graphic+Interaction Design  
Sandberg Instituut (Gerrit Rietveld Academy)  
Amsterdam, The Netherlands

1992 Bachelor's Degree in Art Education  
Fundação Armando Álvares Penteado  
São Paulo, Brasil

1984-1986 Advertising and Marketing  
Escola Superior de Propaganda e Marketing  
São Paulo, Brasil

## LANGUAGES

Portuguese: fluent  
English: fluent  
Dutch: good  
French, Spanish: fair

## ACADEMIC and RESEARCH ACTIVITIES

2005 - present  
FONDS BKVB  
Advising member, design committee.  
Funds for the Visual Arts, Design and Architecture, Amsterdam

February -June 2008  
DIGITAL MEDIA @ WdKA CROSSLAB  
Lector in digital media  
Willem de Kooning Academie / Crosslab dept.  
Rotterdam

January 2008  
MODULATING SENSORY INPUT  
Workshop about digital media, information overload and sensory disorders. APT/Advanced Performance Training. Antwerp, Belgium.  
Commissioned by Constant (Laurence Rassel, Femke Snelting)

March-April 2007  
WEB 2.0  
A six-week course on recent developments in online services and communities. Guest lecturer, Design Academy Eindhoven (Man and Communication dept.)

November 2006  
LOVE-WORK, a time-based map of creative Amsterdam.  
Proposal for a research project about the network of romantic ties among Amsterdam creative professionals over the years. Presented during My Creativity, a conference on the creative industries held in Amsterdam. Institute of Network Cultures (Geert Lovink) and Sandberg Institute (Mieke Gerritzen).

# curriculum vitae

■ see visual documentation

Rogério Lira  
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2005- 2006

DIGITAL MEDIA @ maHKU EDITORIAL DESIGN

Lector in digital media, supervisor of graduate students  
Masters programme, Editorial Design department  
maHKU, Utrecht (Henk Slager / Chris Vermaas / Max Buinsma)

October 2005

NAKED SELF (It's not porn, it's me)

A lecture about the origins of Flickr and how an online experiment involving nudity was affected by the physical relocation of the Flickr servers during the Yahoo! takeover. Presented at the conference The Art and Politics of Netporn.  
Institute of Network Cultures (Katrien Jacobs and Matteo Pasquinelli)

August 2004

FLOODED AUDITORIUM / THE LOGE

A project investigating the physical role of the audience and of the auditorium during a theatrical experience. Presented at Gent University and at the Cultural Centre Vooruit. In cooperation with Stefan Kunzmann. Universiteit Gent (Bart Verschaffel / Wouter Davidts)

2000-2002

AUDIO-VISUAL DESIGN @ ARTEZ Arnhem

Lector in audio-visual design , Graphic Design academy, 3rd year  
Artez / HKA Hoogeschool voor de Kunsten Arnhem (Rein Houkes)

Since 1999

OTHER LECTURES AND TALKS

Guest lecturer / speaker at several design academies and events:  
Jan van Eyck Academy/Maastricht, DeBalie/Amsterdam, HKU/Utrecht, Mediamatic/Amsterdam, RCA/London.

## SELECTED DESIGN WORK

Ongoing

ARCHINED

Redesign of the Dutch architecture news website.  
Commissioned by Archined (Piet Vollaard)

Ongoing

HOE DURF JE / HOW DARE YOU

Co-authorship and design of a book about offending and being offended in Amsterdam. In cooperation with maartje Nevejan (to be released early 2009).  
De Harmonie Publishers, Amsterdam

March 2007

AT5 TELEVISION

Restyling of the local news channel of Amsterdam.  
Logo, station calls, programme titles, website and set design.  
(in cooperation with Oskar Luyer) Commissioned by AT5 television

February 2007

COUSCOUS & COLA

Title sequence and motion graphics for two documentary series about immigrant teenagers in the Netherlands. Broadcast also by Al Jazeera internationals. Commissioned by Maartje Nevejan / IDTV / BNN.

September 2006

■ TAKE CARE CAMPAIGN

Strategy, concept and graphic design for the yearly national campaign for HIV awareness in the Netherlands. Posters, video animation, advertisements. Commissioned by Schorer Stichting / AIDS Fonds / HIV Vereniging Nederland

# curriculum vitae

July 2006

- Laan van Spartaan / NIEUWE BUREN, NIEUWE RELATIES  
Design and co-editing of a book about design innovation for a new neighbourhood in Amsterdam that integrates people with different levels of mental and physical handicap, senior citizens and students. Commissioned by Cordaan and Young Designers & Industry

November 2005

- ACX AMSTERDAM CREATIVITY EXCHANGE  
Graphic identity and website for a new social network founded to establish innovative connections between Amsterdam's creative and business sectors. Commissioned by ACX/Young Designers & Industry.

March 2005

- POSTAGE STAMPS: 100 YEARS NATUURMONUMENTEN  
Eight stamps commemorating the Jubileum of the Dutch Natural Monuments Foundation. In cooperation with Gabriëlle Marks and Aldje van Meer. Commissioned by TPG Post (Julius Vermeulen)

July 2004

10 YEARS OF THE SANDBERG INSTITUTE  
Catalogue for the 10-year exhibition of the Amsterdam design institute. In cooperation with Gabriëlle Marks and Aldje van Meer  
Commissioned by Mieke Gerritzen / Rob Schroder / Aaf van Essen

■ 2000 - 2004

AMSTERDAMPRIJS  
Design of the award ceremony of the Amsterdam Prize for the Arts. Printed matter, video graphics and interior design.  
In cooperation with Gabriëlle Marks, Aldje van Meer.  
Commissioned by Amsterdams Funds for the Arts /AFK

■ see visual documentation

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January 2003

NOVA  
Graphic identity, title sequence, motion graphics, and website of the news show presented nightly on the Dutch public channel NED3. In cooperation with Oskar Luyer and Kees Veling (Captain Video)  
Commissioned by NPS television + Vara

March 2001

- BOS - Boeddhistische Omroep Stichting  
On-air identity for the unique Dutch Buddhist Broadcasting Foundation  
Commissioned by BOS (Babeth van Loo)

January 2001

EXPLODING CINEMA / CINEMA ONLINE  
Design of an online exhibition that was part of the programme of the International Film Festival Rotterdam.  
Commissioned by IFFR / Submarine (Femke Wolting)

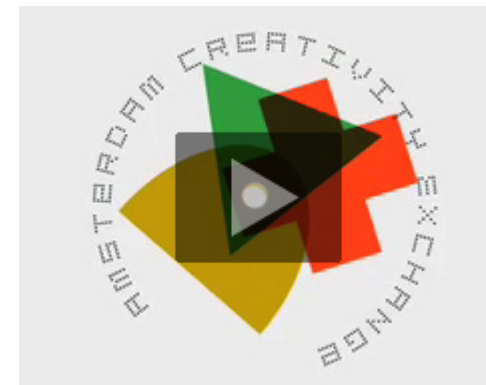
1999

- KALENDER  
A graphic translation of data from an Islamic prayer calculator into a printed calendar that displays the changes in the lengths of day, night and twilight in Amsterdam throughout the year. The calendar is circular and has a diameter of 1,4 m when unfolded. In cooperation with Fred Inklaar.  
Sandberg Institute (Rob Schroder) and Calff & Meischke printers.



# visual documentation

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## VIDEO SAMPLES 1994 - 2005

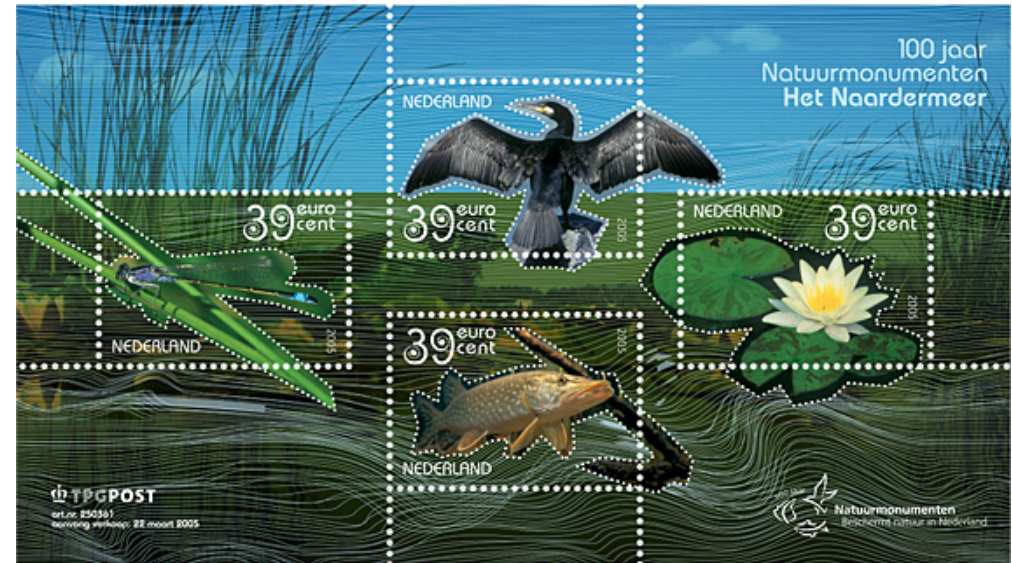
Click on images to watch on-line samples of video work:

Classic Concert (1994) | E-CO (1994) | Buddhist Broadcasting Foundation (2001)

AT5 (2001) | Amsterdamse Kunstprizen (2002) | ACX (2005)

# visual documentation

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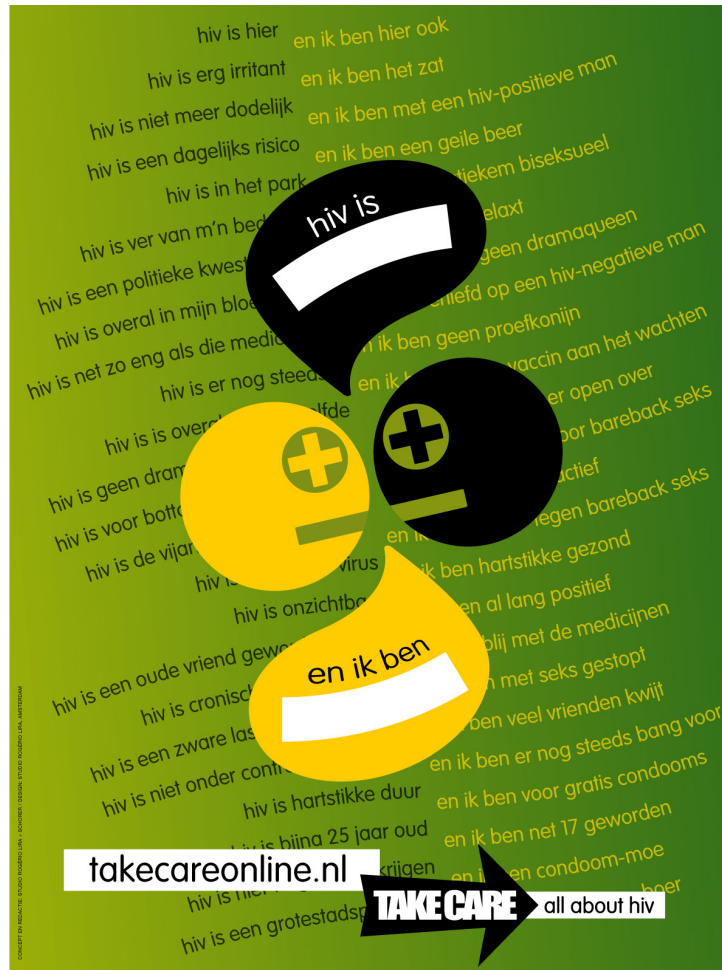


## POSTAGE STAMPS: 100 YEARS NATUURMONUMENTEN (2005)

Eight stamps commemorating the Jubilee of the Dutch Natural Monuments Foundation. In cooperation with Gabriëlle Marks and Aldje van Meer. The layer of thin lines translates the water and breezy properties of the nature area celebrated in the stamps.

# visual documentation

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 **schorer**

Take Care - all about hiv is een initiatief van Schorer  
in samenwerking met Aids Fonds, Hiv Vereniging en CDC Nederland  
Abbott steunt Take Care



## TAKE CARE CAMPAIGN (2005)

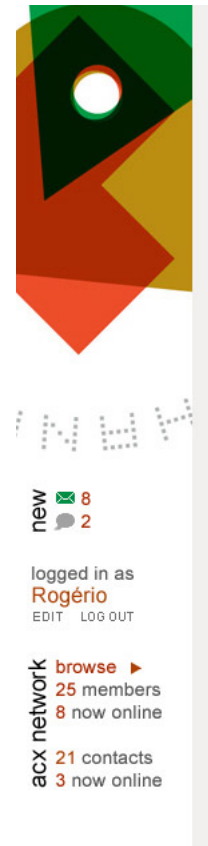
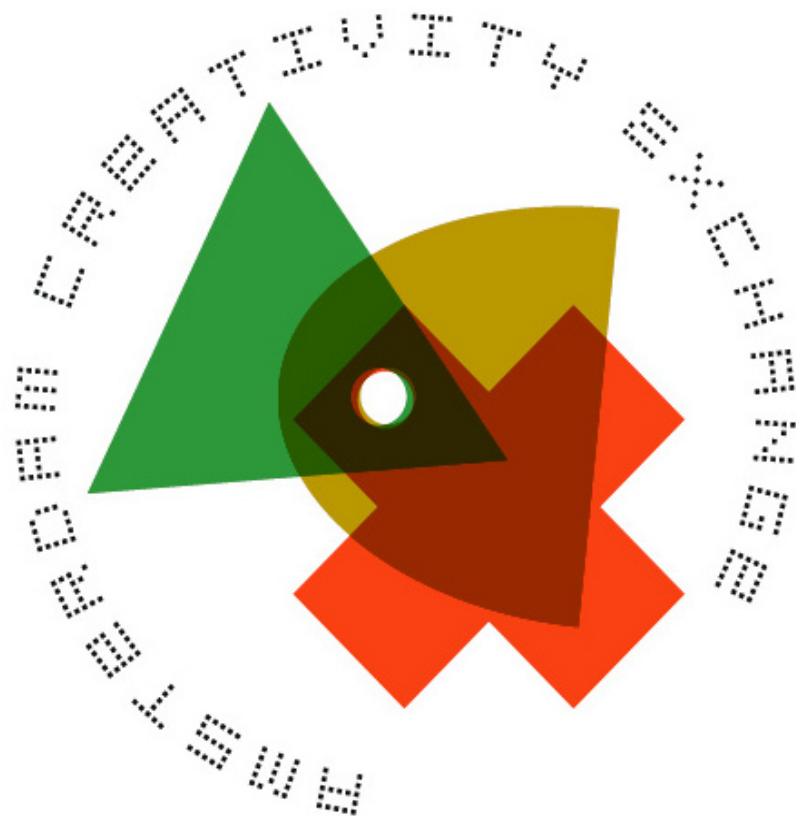
Strategy, concept and graphic design for the yearly national campaign for HIV awareness in the Netherlands.

The poster includes a wide range of hiv-related statements collected during informal interviews with hiv+ and hiv- men. The wallpaper was used inside toilets of gay venues.



# visual documentation

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AMSTERDAM  
CREATIVITY  
EXCHANGE



HOME ABOUT ACX NEWS PROJECTS NETWORK AGENDA ACX MAIL

#### About the ACX

##### The ACX Strategy

The Amsterdam Creativity Exchange wilde een platform zijn voor de ontwikkeling van de Creatieve Stad, een ontmoetingsplaats voor de creatieve en de zakelijke wereld van Amsterdam en omgeving

#### Newest members



Lucas Hendricks

Een podium creëren waar mijn passie ligt ...



Tarik Yousif

it's not how good you are, it's how good you want to be.



Suzanne De Wit

#### Most active projects

##### Design Duel / part 3



Luna Maurer vs. Roel Wubters: a discussion about machines and all the mistakes they make

► Martijn van Nieuwenhuizen

##### Research meets Business Opportunities

Max Planck Institute and UvA introduce new plans to intensify business output of creative research projects

► Janet Abrams

##### Stads Kunstbank



Nieuwe vormen van microkredieten, Venture Capital en informal investment.

► Walter Amerika

#### Agenda highlights

17 April / Mon  
**ACX Bijenkomst: Geld**  
5e Netwerkbijeenkomst van de ACX, de ontmoetingsplek...

19 April / Wed  
**Urban Screens**  
A conference that investigates how the currently commercial use of outdoor screens can be broadened with cultural content...

19 April / Wed  
**Take Away Museum**  
What is the best way to get people talking about a museum collection?...

21 April / Fri  
**Het ondergronds orkest**  
Heddy Honigmann, Nederland/Frankrijk, 1997

## ACX Amsterdam Creativity Exchange (2005)

Graphic identity and website for a new social network founded to establish innovative connections between Amsterdam's creative and business sectors. In Amsterdam there is remarkably little contact between these sectors; the logo suggests infinite overlapping combinations between them.



# visual documentation

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## INTEGRATED LIVING (2005)

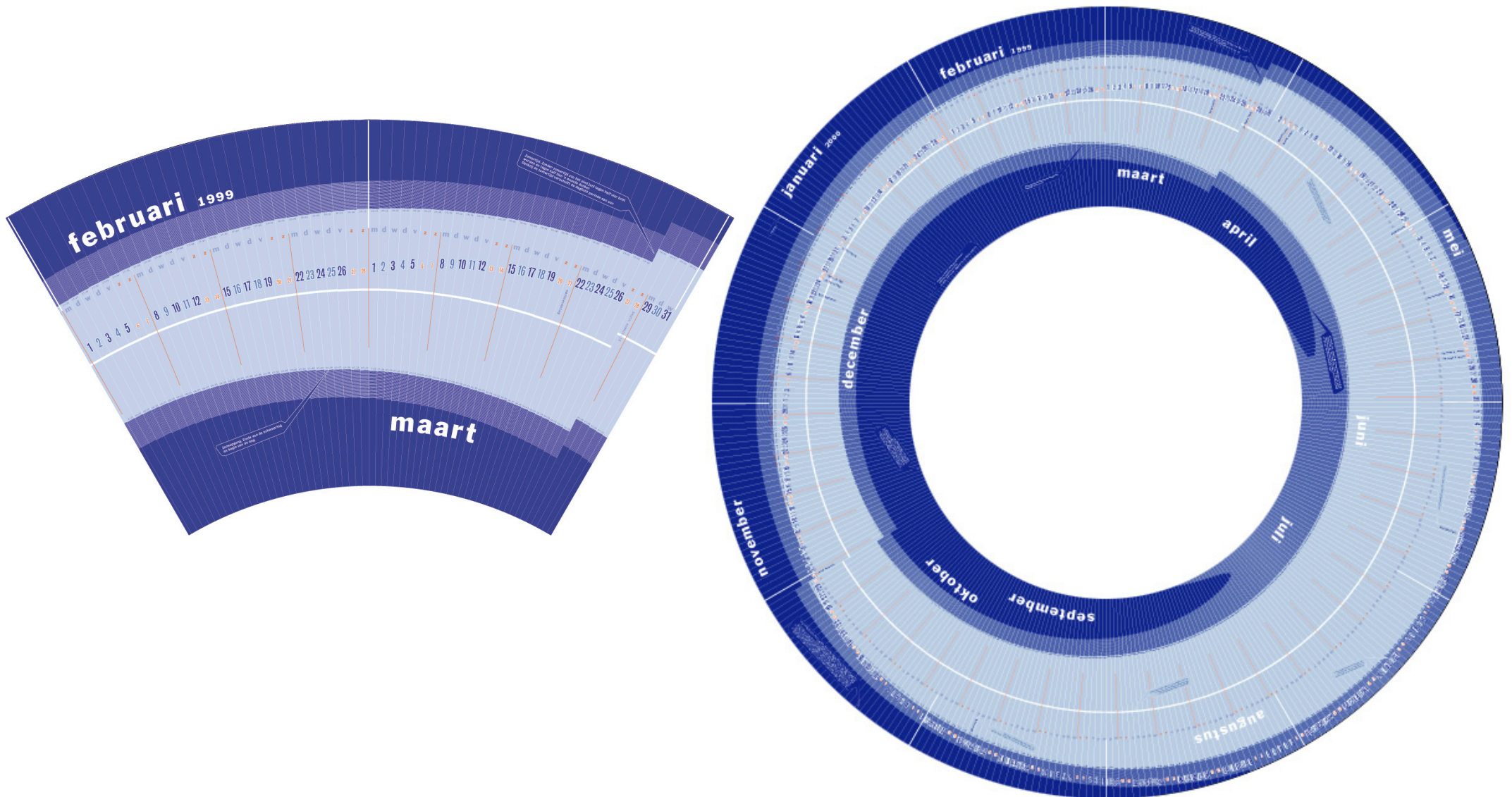
Book design and participation in a government-initiated design discussion about the living conditions of people with light mental handicaps.

Based on the notion that autistic patients aren't able to infer meaning, I re-wrote the book title and all project names into clearer, unambiguous statements.



# visual documentation

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## KALENDER (1999)

A graphic translation of data from an Islamic prayer calculator into a printed calendar that displays the changes in the lengths of day, night and twilight in Amsterdam throughout the year. The calendar is circular and has a diameter of 1,4 m when unfolded. In cooperation with Fred Inklaar, whose PostScript knowledge made it possible to design using a non-orthogonal grid.