

## **The Medialogy education - AAU Copenhagen**

*Where art and creativity meet technology. Special focus on interactive systems design, programming and evaluation in problem based learning.*

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# The Medialogy education

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- **Stefania Serafin**, age 33
  - Ph.D. From Stanford University
  - M.Sc. from IRCAM, Paris
  - Bachelor in Computer Science from Ca'Foscari.
  - Currently Associate professor in sound modeling at Aalborg University Copenhagen



- **Rolf Nordahl, age 33**

- M.Sc. from Aalborg University
- Multimedia designer
- 4 years of film and music studies
- Currently Ph.D. student at Aalborg University Copenhagen + coordinator of medialogy studies
- Teaches courses on film, theory of science, audio analysis and synthesis, virtual reality
- Supervises bachelor and master students

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## What is Medialogy?



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## Aim of Medialogy

- To develop and educate problem solvers in a digital media age independent of task

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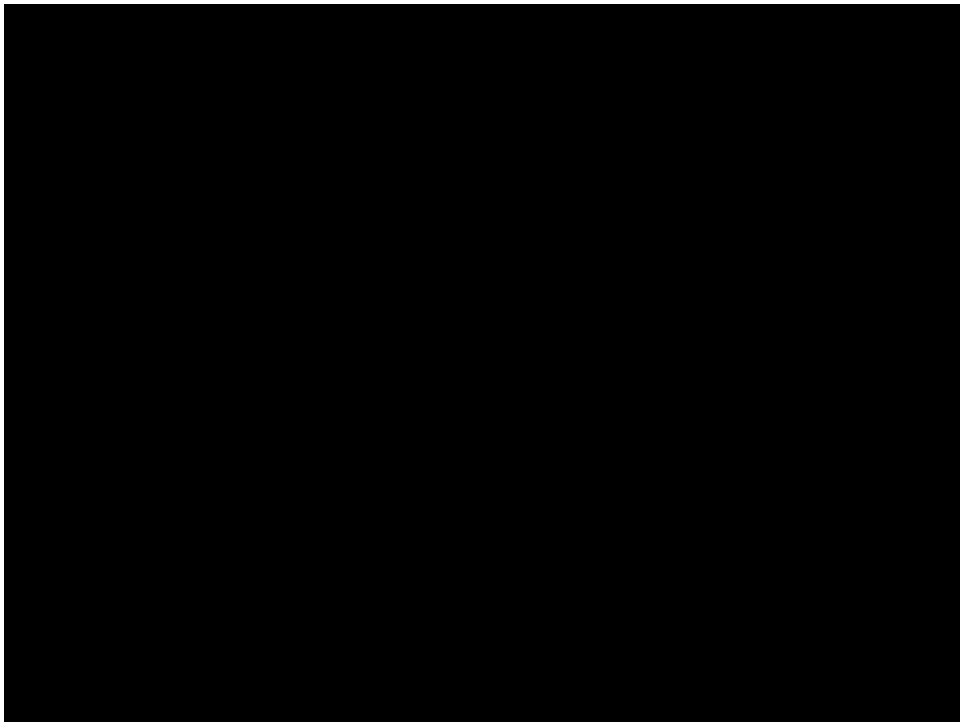
## PBL

- Each semester: half course-work, half-project.
- 1) Define a problem
- 2) Design an application which relates to the problem.
- 3) Test the application

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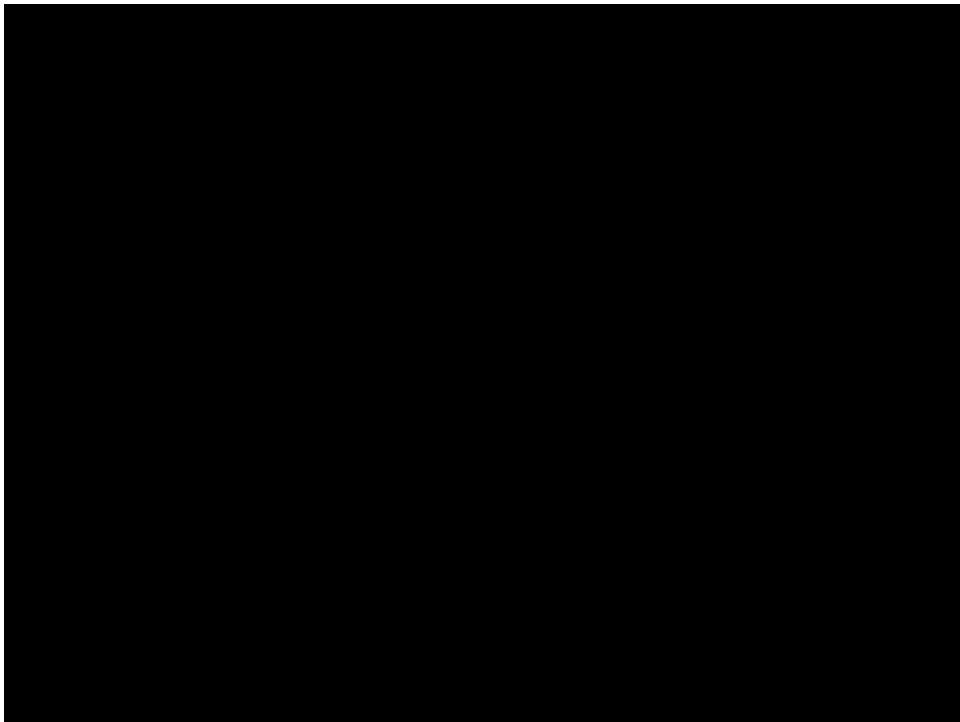
## Bomberman evolved

- 3rd semester, bachelor
- *To what extent computer games can facilitate exertainment?*



## Wobble Active

- *How can we, through the use of available sensors and computer technology, enhance the experience while training/rehabilitating the ankles through both audible and visual interfaces?*



## Sound in VR

- How does sound affect immersion and presence in VR?



- Rolf Nordahl, Master thesis, 2006

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## Presence test

- 140 subjects
- 6 different conditions
- Presence and motion increase with use of self-sound

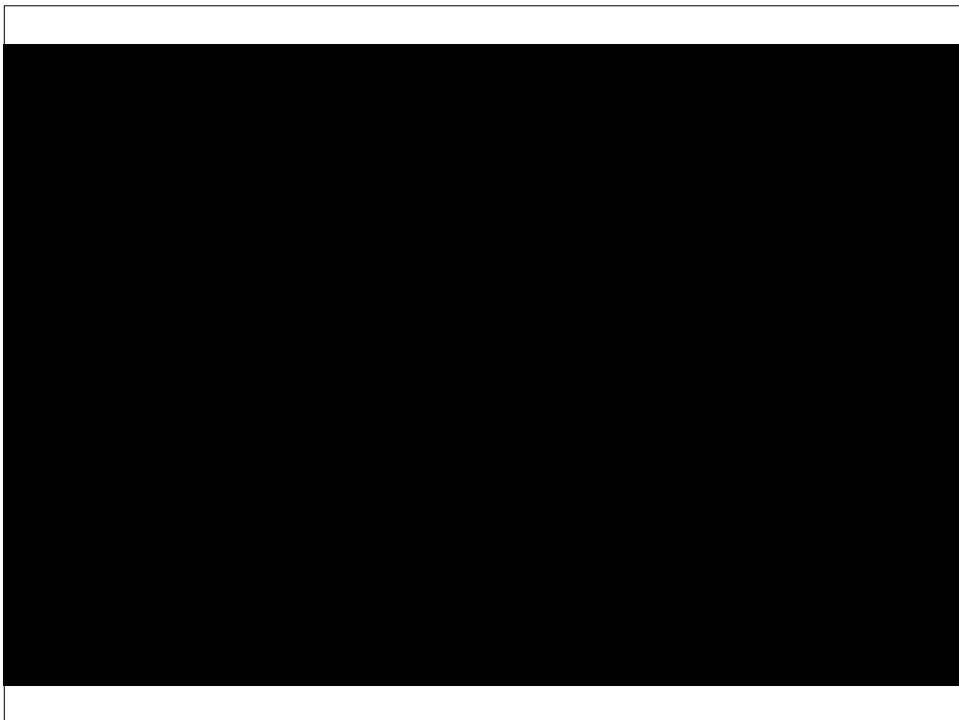
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# Soundgrabber

- Spring 2007



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## Problem

- *To what extent can sound be made tangible by means of an intangible sensor-based physical interface?*

## Questionnaire

- I felt that I was able to grab a sound
- I felt that I was able to relocate the individual sounds.
- Questions inspired from sensory-substitution presence questionnaire.

# Artistic Conventions

- What are artistic conventions based on?
  - Tradition?
  - Myth?
  - Fact?
  - Experience?
  - Intuition?
- Are the conventions true?
  - Let us see some examples of conventions first

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## Common Conventions in Film

- Widescreen is better than standard 4:3
  - Possible motivation
    - Resembles the natural, human field-of-view
    - Allows more of the scene to be in the image

**4:3**



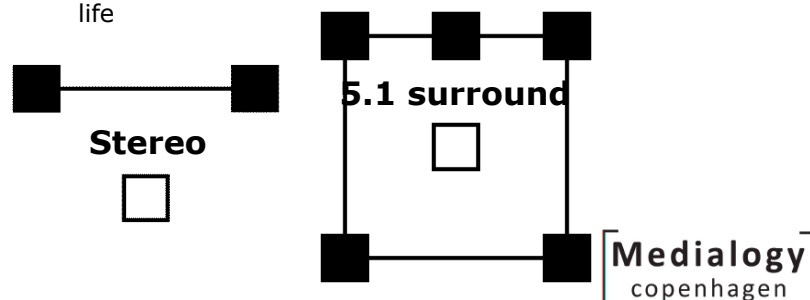
**16:9**



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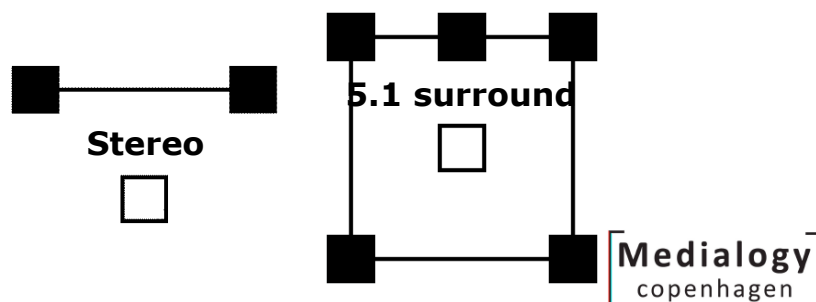
## Common Conventions in Film

- Surround sound is better than stereo
  - Possible motivation
    - Surround sound adds the front-back dimension to the left-right dimension of stereo
    - Surround sound is closer to the sonic input from real life



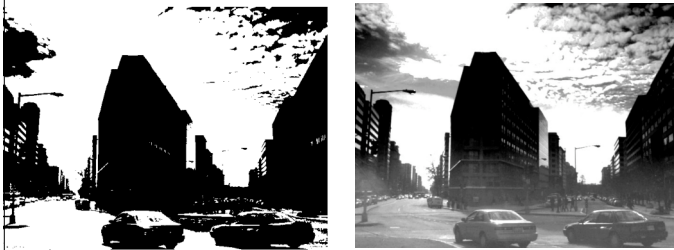
## Common Conventions in Film

- Stereo is better than surround sound
  - Possible motivation
    - "Less is more"
    - Stereo has been successful for decades



## Common Conventions in Film

- Black and white is the same as greyscale
  - Possible motivation
    - Allows for more detailed shading
    - “More is better”



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## Common Conventions in Film

- Stereo imaging is a thing of the past, not to be reintroduced
  - Possible motivation
    - Colours are degraded
    - Images look poor without proper glasses



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## Common Conventions in Film

- An artists opinion
  - Artistic intuition and conventions are superior to hard, tested facts

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## Common Conventions in Film

- An artists opinion
  - Artistic intuition and conventions are superior to hard, tested facts
- A natural scientists opinion
  - One should question, test, and attempt falsify any convention

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- Problems
  - How to combine these views? Is there a gap?
  - Some of the conventions are in conflict. How is this possible?

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# Common Conventions in Film

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**Someone must be wrong!**

**Or ...?**

**Objectivity vs. subjectivity**

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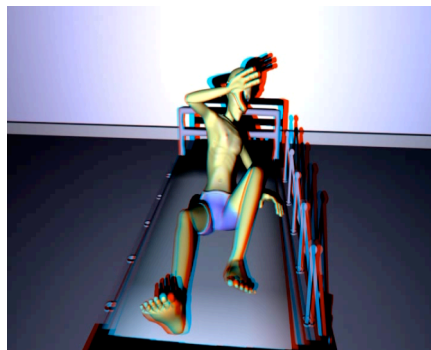
# Testing the Conventions

- Bachelor student projects
  - Get students to **explore** the conventions **open-mindedly** through short film projects
  - **Challenge** students to **study** and **test** the **problematic** aspects of the conventions
  - **Allow and challenge** the students **to be creative** at making the material needed for the test cases

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# Testing the Conventions

- First project: The Abduction
  - Test the surround sound convention
  - Test the stereo imaging convention
  - Use the concept of *presence* for measurements



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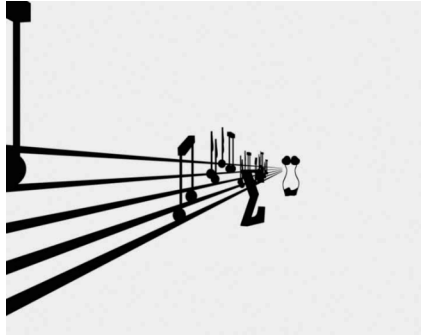
# Testing the Conventions

- The Abduction: Test conclusions
  - Surround sound positively affects *presence as perceptual immersion* and *presence as transportation*
  - Stereoscopic imagery positively affects *presence as transportation*
- If these results can be validated, the use of technologies such as stereo and surround sound contributes to giving the viewers a better experience
- Results accepted for publication and presented at international conferences.

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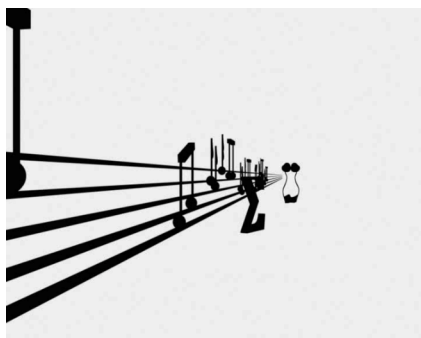
# Testing the Conventions



- Second project:  
Syntax Error
  - Test the black and white convention
  - Test if surround sound can compensate for lack of image shading

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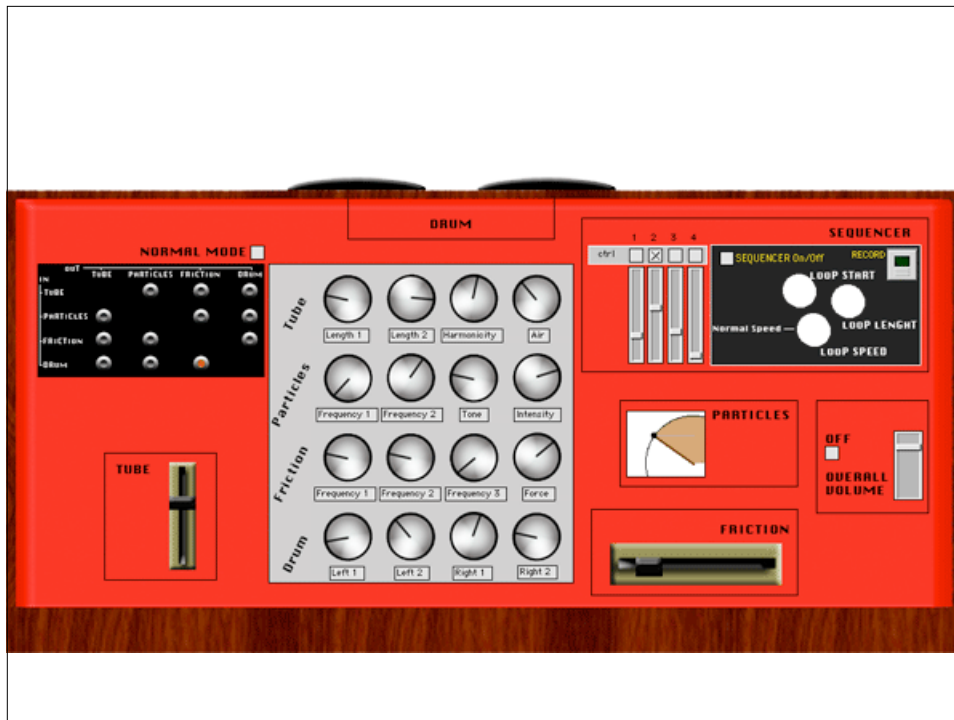


## Physmism

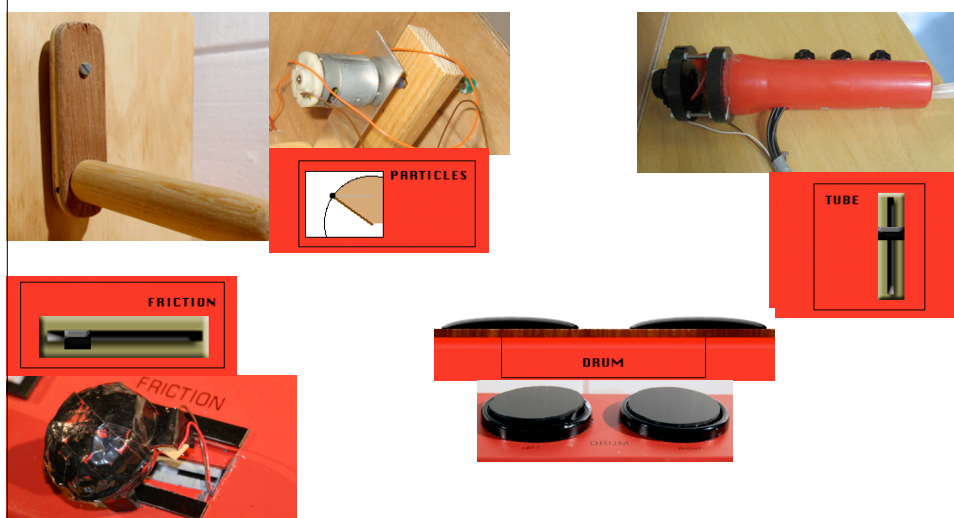


Niels Boettcher, Steven Gelineck and Stefania Serafin

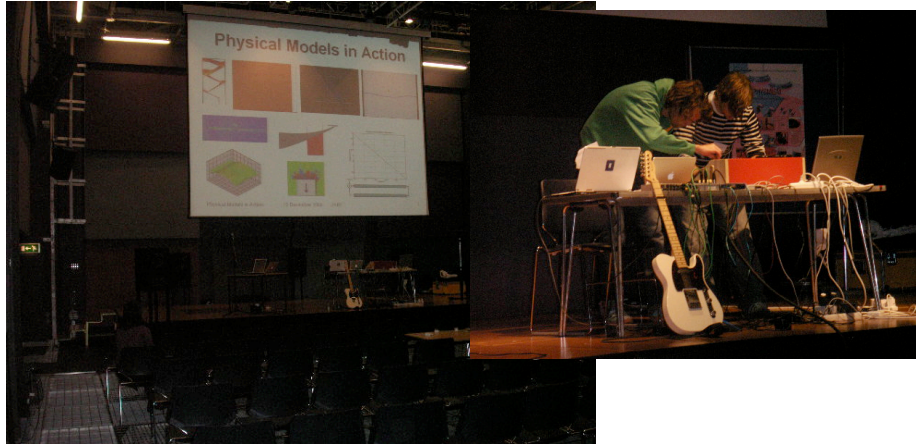
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## Control



# Events



- Physical models in action, december 2007
- NIME 2007 (yesterday)

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## Problem

- *To what extent is it possible to improve the creative use of physical modeling sound synthesis?*
- *How could a possible interface intended for this use be designed and implemented?*

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## Methodology

- 11 professional musicians tested



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# Observations

Positive	Negative	Application
Many parameters		Friction
	Few parameters Predictability	Impact Impact
Unpredictability Low frequencies		Friction impact
Combined models		Friction+impact
Bi-manual control		Physical interface
Natural interaction		Physical interface
Clear interaction		Crank

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# Conclusions

- The students succeeded in making a creative project set in a technical, academic framework
- The open-minded approach allowed the students to gain insight into both the artistic and the engineering worlds
- Challenging the conventions in a quantitative manner provided results that artists can choose to make use of

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