




A New Generation of Commodities


- Everyday objects meet Information & Communication Technologies -> INTERACTIVE COMMODITIES
 - Devices get **smaller**, screens lose importance, **overload** of the visual channel
 - Sound conveys **information**, **meaning**, supports **performance** and affects the **experience** of interactive artifacts or systems

Exploring narrative and performative sound design strategies


Fast and inspiring iterative prototyping




Shoe




Sensor




iPod




Receiver




Wave



Point

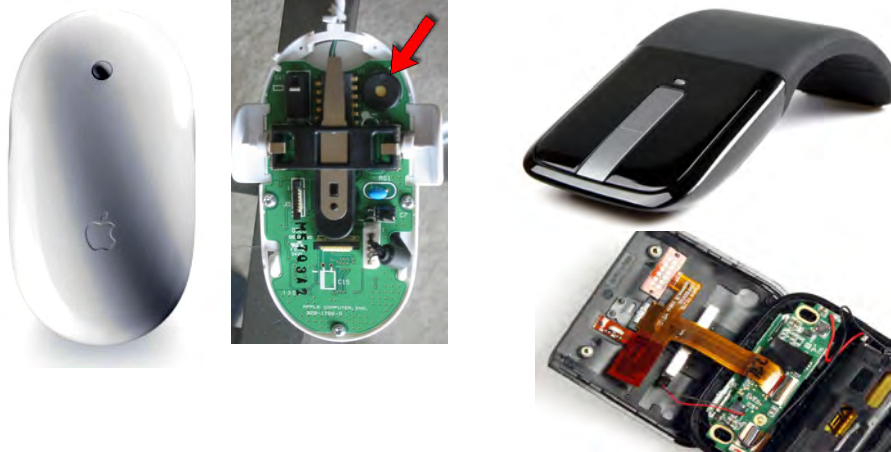


Rumble



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An „authentic“ mouse?



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Samsung Smartwatch: Wearable Commodity

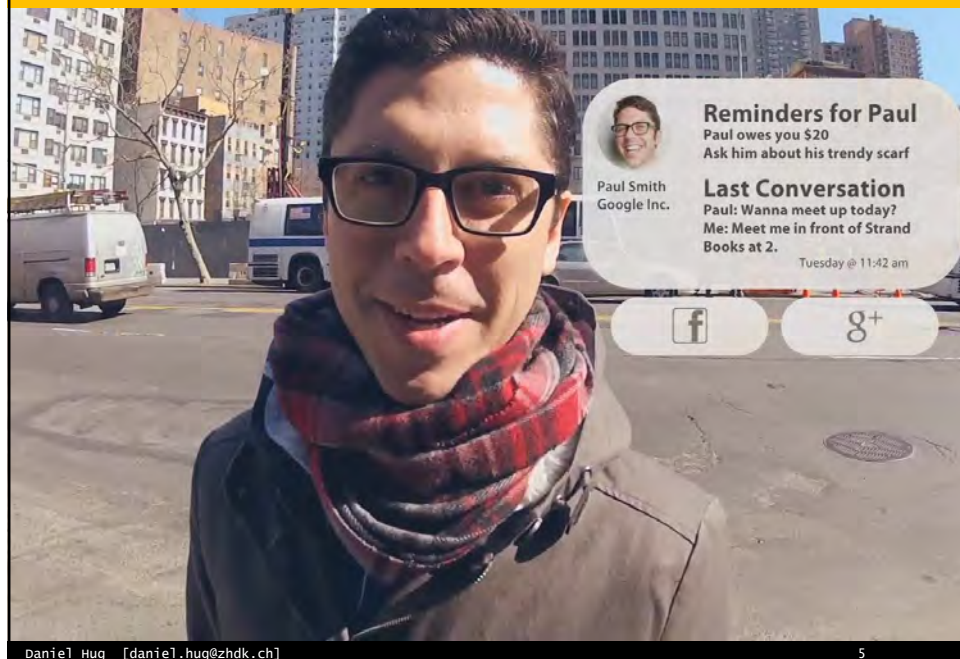
SAMSUNG
PROXIMA



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Google Glass: Here's Looking at You, Kid



Philips MIME Tags – Augmentation and Extension



Philips Nomads – Intimate, Fashionable Technology



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Philips Plugged – Polyvalent Spaces



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EV, HEV, PHEV – How Does this Car Sound?

NZZ, am Sonntag • 23. November 2008



Summ-summ macht der Sportwagen

Der Tesla-Zweisitzer fährt schnell und mit Strom. Eine Testfahrt mit dem «Auto der Zukunft»

Der Anlasser hält die erste Überraschung bereit. Eine kurze Melodie lässt erkennen, dass man den Zündschlüssel in die richtige Richtung gedreht hat und der Wagen startbereit ist. Die



solche Ladung im Niedertarif in der Stadt Zürich 4 Franken 30 – ein Schnäppchen, verglichen mit den derzeitigen Preisen an den Tankstellen. Das Batteriepaket soll laut den Tesla-Herstellern erst nach 150 000 Kilometern ausgewechselt werden müssen.

Der Strom für ihr derzeit einziges Modell soll wenn immer möglich aus erneuerbaren Quellen wie Sonne, Wind und Wasser kommen, heisst es bei Tesla. Die Firma hat denn auch vorgerechnet, dass man mit 25 Quadratmetern Solarzellen eine Strommenge produzieren kann, die für jährlich 20 000 Kilometer Fahrt mit dem Tesla genügen soll. Das Unternehmen plant, seinen

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Roles of Sound in SID (Franinovic, Hug, Visell 2007)

Supports new functions or display possibilities for products

- Displaying new informational possibilities (e.g. Nike+)
- Displaying invisible affordances of an ICT-enhanced artifact
- Providing the possibility of displaying more information using multimodal channels

Shape the sonic “appearance” of an artifact

- Improving the aesthetic experience and sonic quality
- Extending the emotional aspects of the design
- Enhancing the interplay between material, form and action

Improve the performance in interaction processes

- Feedback supports the use/control of interfaces, device, tool or a physical activity
- Sonification of processes and states
- Improvement of focus and flow during task execution

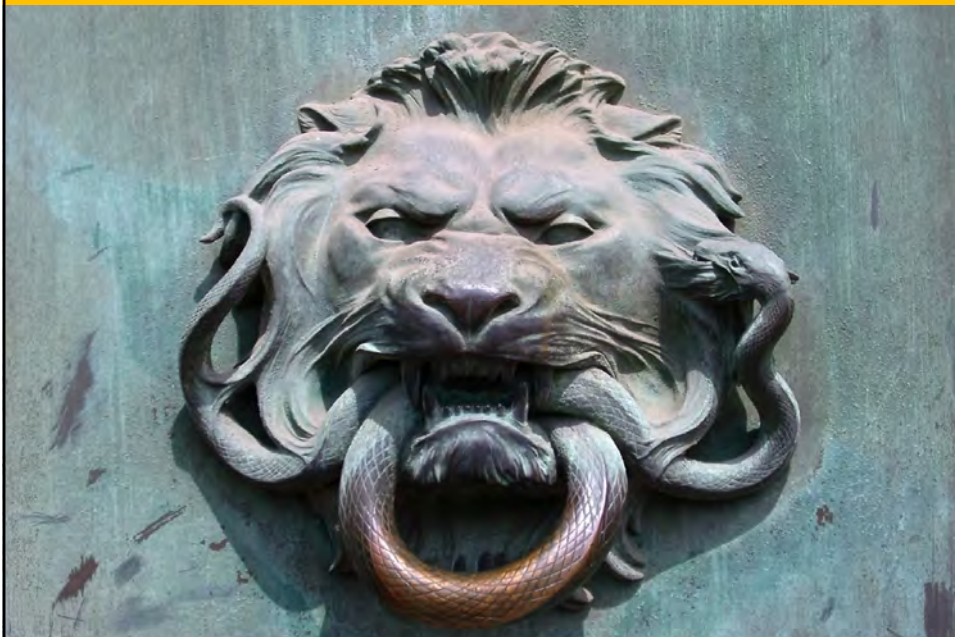
Surrounded by Functional, Meaningful, Expressive Objects



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Animated Artifacts, Expressive Sounds



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Sound and Action: Who's in Charge Here?

„Every sufficiently advanced technology is indistinguishable from Magic.“

Arthur C. Clarke



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Sound as Manifestation of People Doing Things with Things



Sources of Noise,
New York, ca. 1907

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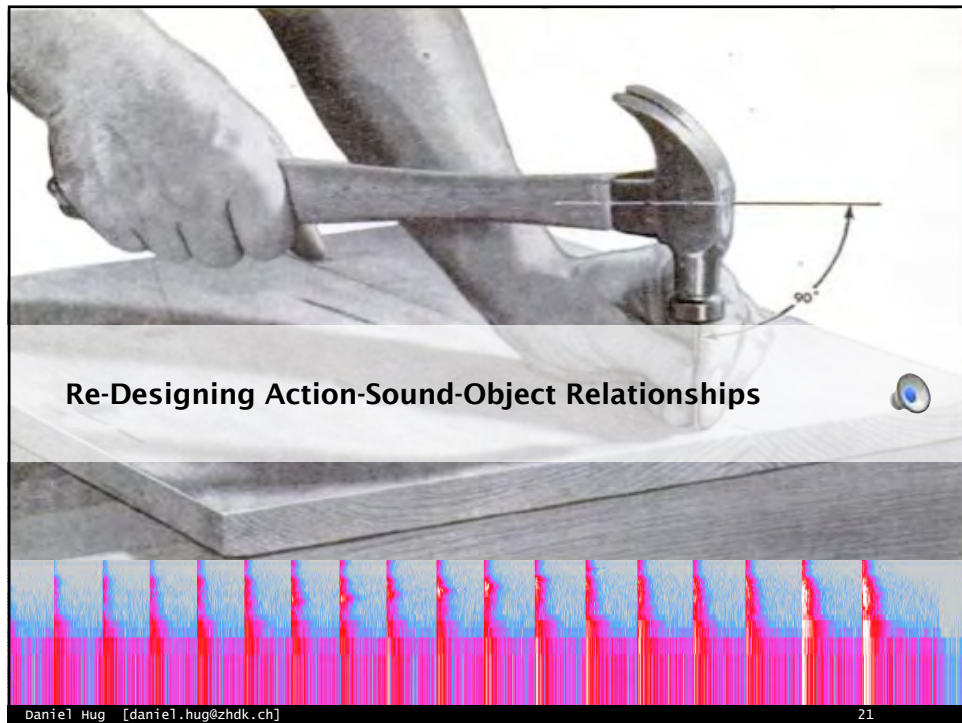
Relationship of Sound and Objects

- **Sound and physical properties**
 - Direct relation to, and evocative of, **material properties** and **processes** of an object (and the related meaning potential)
 - Sonic and haptic experience similar 🧠👂
 - -> 1st order sound semantics: Information about artifact & use: Feedback, notification, (mechanical) processes 🧠
 - Several sounds can be combined to basic „narratives“ 👂🧠
- **Beyond sonic causalism and naturalism**
 - Sound can give presence to a inexistent object or process - mental models
 - Upon recording, sound develops a quality independent from it's original source
 - Abstract sounds may carry “traces” of physical processes (*indices sonores matérialisants*, Chion 1998)
 - **Dialectical relationship:** “Immaterial corporeality” (Connor 2004)
 - Association of sounds with soul or voice of things (Connor, Fischinger, Cage)
- **Goodbye authenticity, welcome schizophonía**

Expressive Performance, Sound – Action Relationships

- Specific **relationships** between actions, movements, object qualities and sonic structures can be observed / designed
- **Not necessarily isomorphous!** 3 relationships (Chion 1998)
 - Isomorphous / direct link: Turning the throttle on a motorcycle
 - Link indirect, delayed or established through knowledge about it: Long, sustained tone of a violin
 - Not isomorphous, gesture triggers sound, which develops autonomously: e.g. hitting a gong.
- Manipulations vs. Trigger/hold relationships
- **Ergo-Audition** (Chion 1998):
 - Positive sign of own influence on world
 - More than just feedback: Meaningful, nuanced sounds evoke the „joy of hearing oneself“
 - „Differential of power“
 - Goal: design sustainable and meaningful sounds that are **enjoyed during interaction**.





Sonic Expressivity and Affect: Blendie (Dobson 2003)

Video Documentation of
Blendie (2004)

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Evoking Physical Processes: La Mocchi Sensibile
(Davide Rocchese et al., 2008)

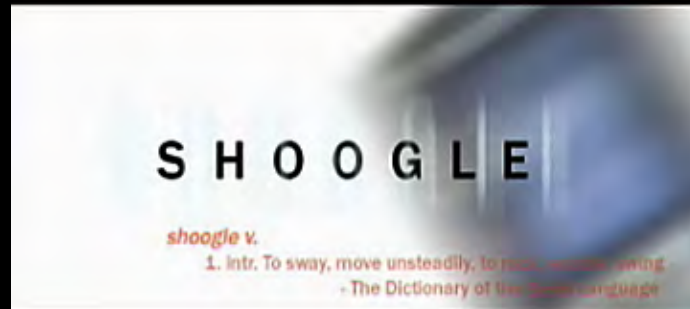


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Metaphorical Sounds and Gestural Affordances: Shoogle

(Williamson, R. Murray-Smith, S. Hughes, 2007)



MO: Musical Objects (Rasamimanana et al., 2011, IRCAM)

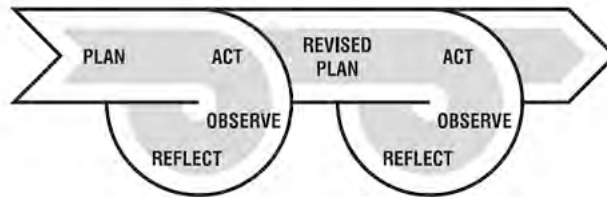


How To Get the Genie
Into the Lamp
(And Out Again)?

Design Process 0
“Formulating” Sound Ideas



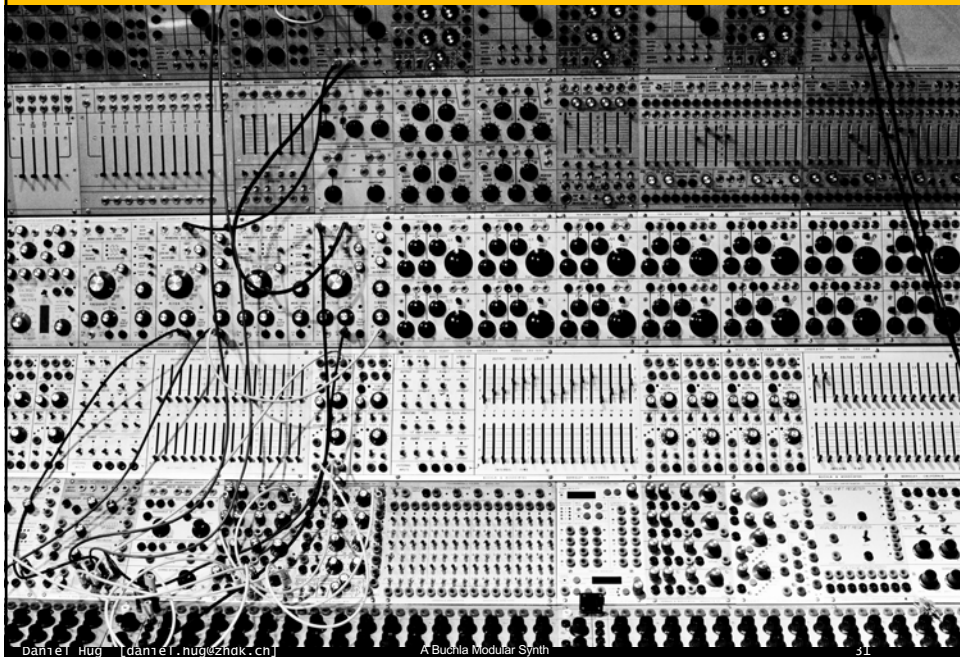
Design as Research as Design



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... in SOUND?!?



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A Buchla Modular Synth

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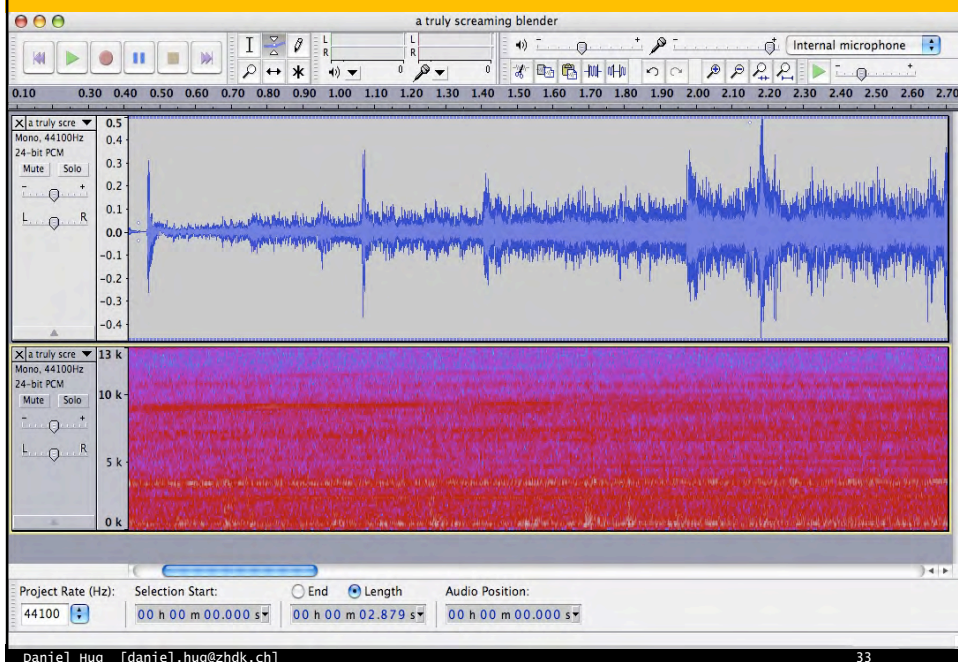
“Formulating” Sound Ideas



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“Formulating” Sound Ideas



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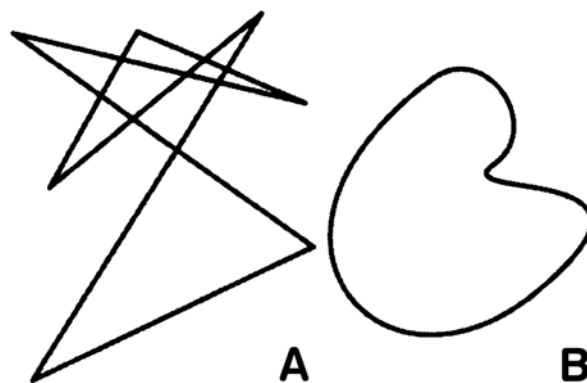
“Formulating” Sound Ideas



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“Formulating” Sound Ideas



“Bouba / Kiki” or “Maluma / Takete”

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“Formulating” Sound Ideas

Physical Description	Attack	Body	Decay
Duration	<i>sudden</i> <i>moderate</i> <i>slow</i> <i>multiple</i>	<i>non-existent</i> <i>brief</i> <i>moderate</i> <i>long</i> <i>continuous</i>	<i>rapid</i> <i>moderate</i> <i>slow</i> <i>multiple</i>
Frequency/Mass	<i>very high</i> <i>high</i> <i>midrange</i> <i>low</i> <i>very low</i>		
Fluctuations/Grain	<i>steady-state</i> <i>transient</i> <i>multiple</i> <i>transient</i> <i>rapid</i> <i>variable</i> <i>medium</i> <i>pulsation</i> <i>slow throb</i>		
Dynamics	<i>ff</i> <i>very loud</i> <i>f</i> <i>loud</i> <i>mf</i> <i>moderately loud</i> <i>mp</i> <i>moderately soft</i> <i>p</i> <i>soft</i> <i>pp</i> <i>very soft</i> <i>f>p</i> <i>loud to soft</i> <i>p<f</i> <i>soft to loud</i>		

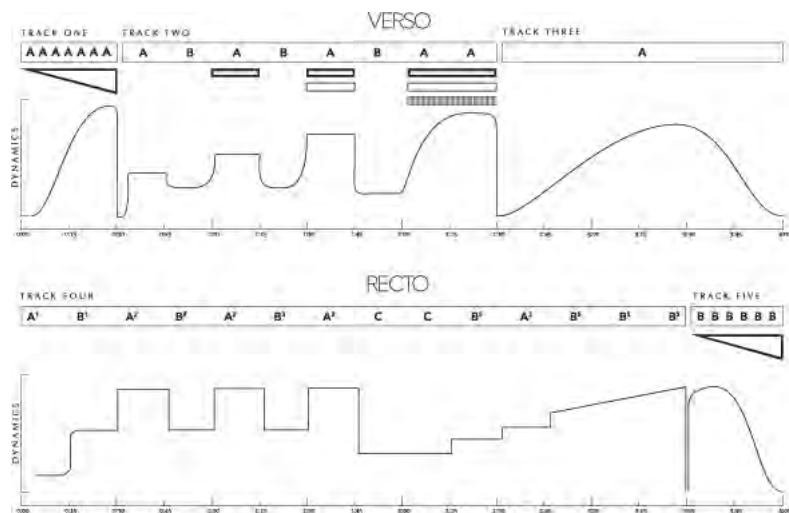
← Total Estimated Duration of Event →

Description of a sound event.

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“Formulating” Sound Ideas



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“Formulating” Sound Ideas

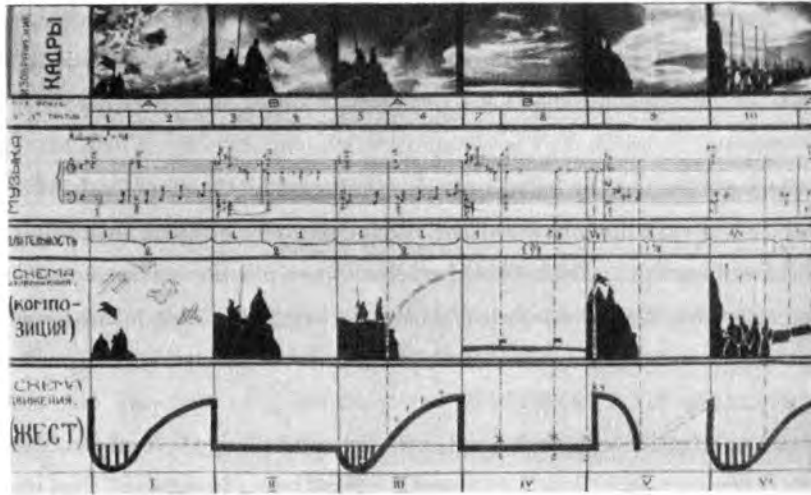
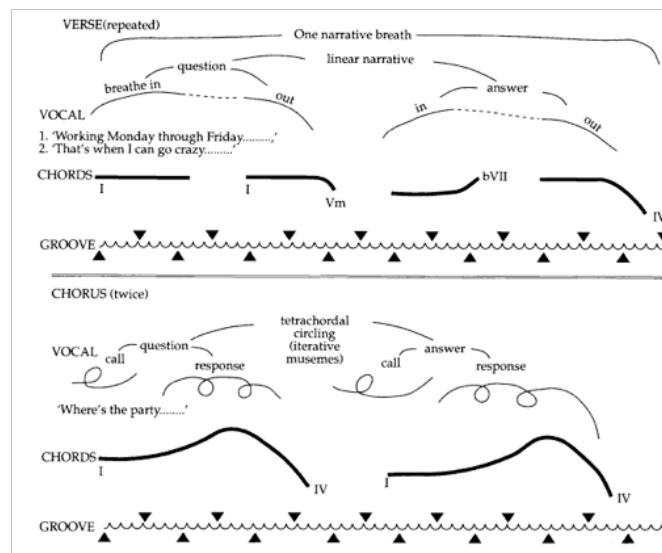


Abb. 2: Ausschnitt aus der Ton-Bild-Montage von „Nevskij“, Übersetzung der russ. Inschriften (von oben): Bildeinstellungen, Musik, Schema der bildlichen Darstellung (Komposition), Schema der Bewegung (Gestus)

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“Formulating” Sound Ideas



Middleton's gesture-analysis diagram of Madonna: *Where's the Party* (from: Zeiner-Henriksen, 2010)

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How To Get the Genie Into the Lamp (And Out Again)?

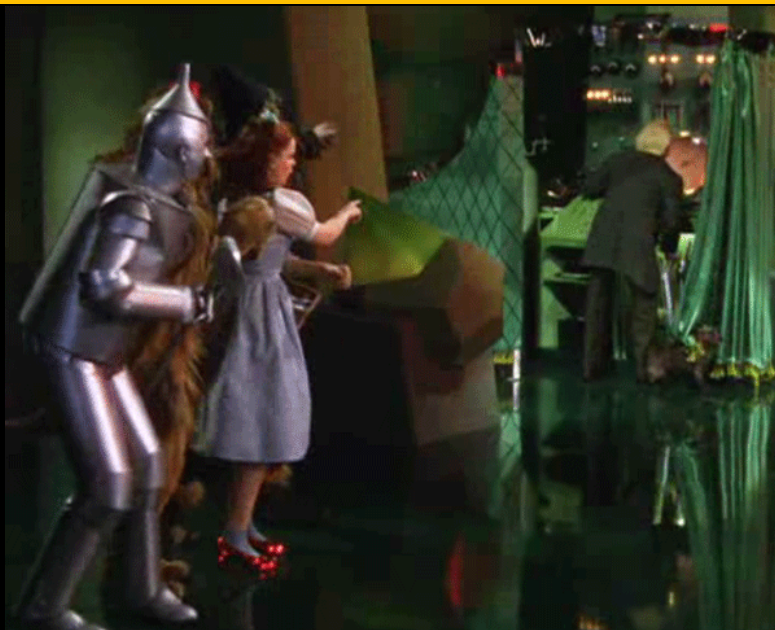
Design Process 1: Prototyping Sonic Experiences



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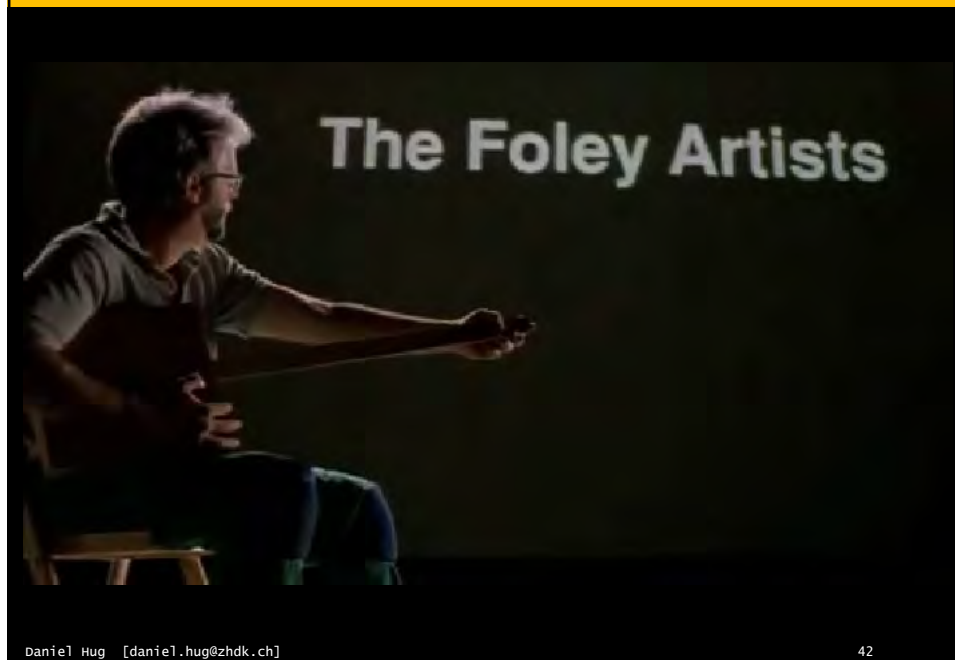
The Wizard of Oz



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Foley as Design & Prototyping Method (see server for more)



Project Example: Wizard of Oz Foley Mockup



Simon Morris, Irene Poutanen, Jari Suominen (Aalto University of Design)

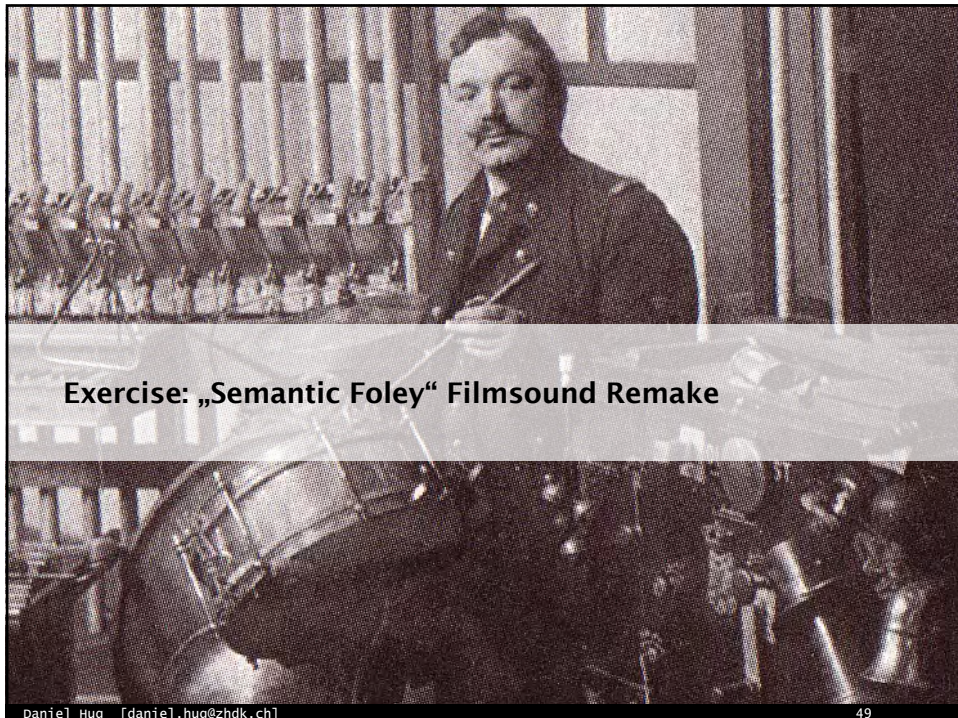
Project Example: Open Demo Session, Audience Tryout



Gregor Falk, Christian Knuchel (Interaction Design, Zurich University of the Arts)

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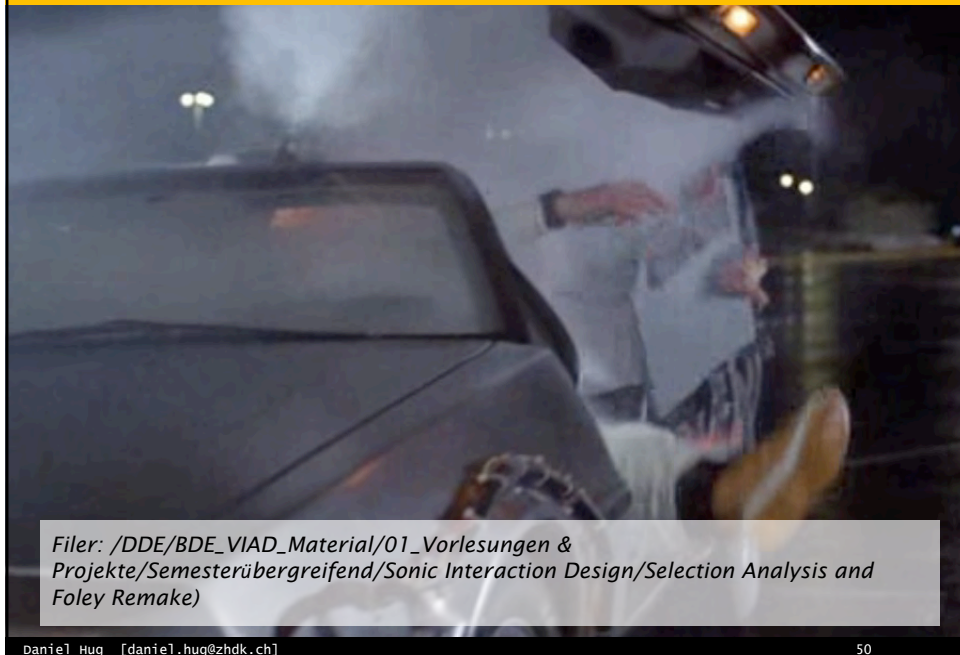


Exercise: „Semantic Foley“ Filmsound Remake

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Filmic Sound Narratives



Exercise: Semantic Foley Sound Remake

- Learning goals:
 - Listen closely to interaction related film sound fx
 - Understand effect of sound on our interpretation
 - Be inspired by the „masters of sound design“
 - Turn listening into soundmaking
 - Convey information sonically (micronarrative)

Assignment (35m, teams of 3):

- Watch the movie clip assigned to your team, focus on object interactions (3m)
- Describe the action / processes depicted and the related sounds (7m)
 - What does the sound tell us about **action** and / or **process**? What about the **object**?
- Try to mimick the **sound effects** from your clip using Foley techniques and voice (10m)
- Come up with a new interpretation of the interactions meaning and modify your sounds accordingly (e.g. friendly becomes dangerous, simple becomes complicated...) (10m)
- Perform your Foley Sound Remake live to the videoclip (practice)! (5m)

How To Get the Genie Into the Lamp (And Out Again)?

The Assignment



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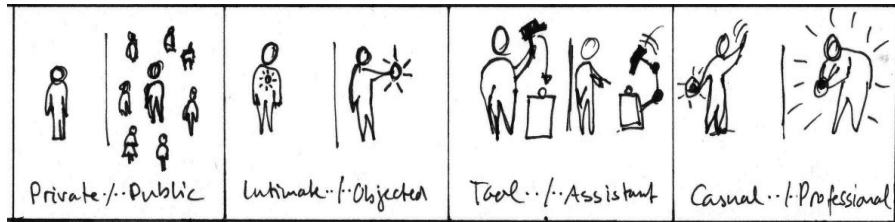
Starting Point „Sound Cube“

- Exploration von Klang und seiner Wirkung in Interaktionsprozessen als Ziel und Ergebnis
 - Plan – Act – Observe – Reflect – Revise... – in SOUND!
- Situationen im und um's Toni...
 - Interaktionen, interfaces etc.
 - „Potentiale“ und „Probleme“
 - Umdeutung, Gamification
- „Klangwürfel“: Simple geometrisches Objekt als Interaktionsobjekt
- 5 Ausgangsszenarien als Startpunkte

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Design Framework: Socio-Spatial Situation of Interaction



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Social interaction, public/private/casual... : Soci-O-Mat



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Quantified self, implant, intimat, privacy: Doc-o-Mat



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The Smart Home, shared, private, relax&produce: HomeMaid



Jacques Tati: Mon Oncle (1958)

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The Smart Home, shared, private, relax&produce: HomeMaid



Work Environments: Shared, time critical, productive: WorkIT



THX 1138, George Lucas

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Navigation, Transportation, Travelling, Space: MoveIT



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**Go
Create!**



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