



CENTRE FOR
INNOVATION
Leiden University



Universiteit
Leiden

Eine audiovisuelle Sprache – Wissenstransformation durch Bewegtbilder

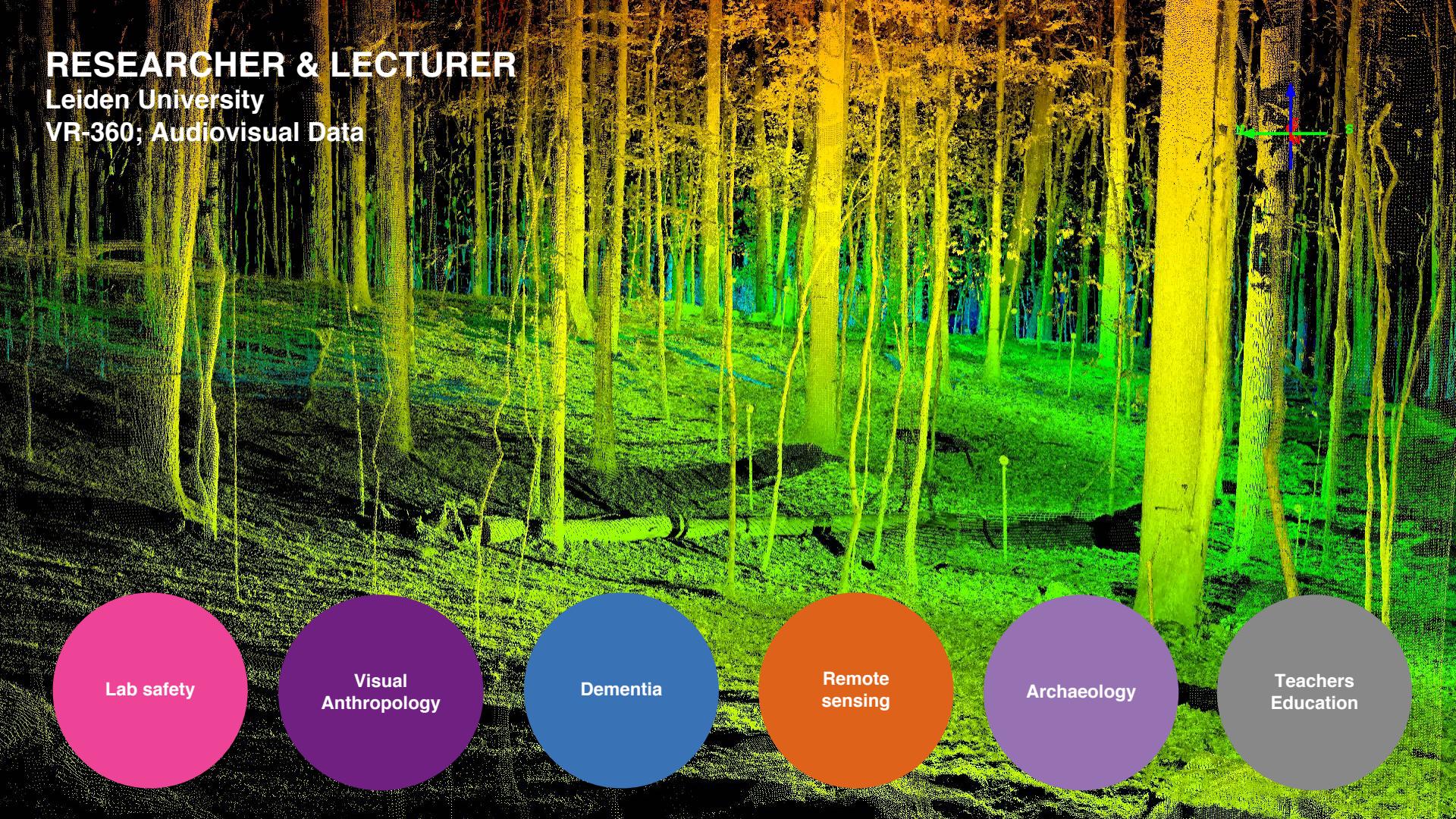
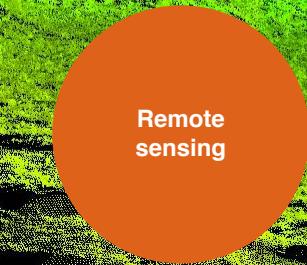
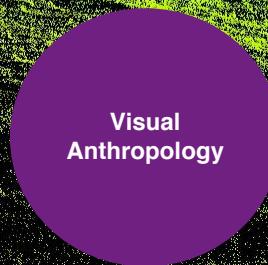
**12.02.2019, Keynote Worms
Videos in der Hochschullehre**

**Jeanine Reutemann
audiovisualresearch.org**

RESEARCHER & LECTURER

Leiden University

VR-360; Audiovisual Data





DIGITAL MEDIA PRODUCER ; FILMMAKER
ETH Zürich; Universität Osnabrück;
Swiss National Science Foundation





RESULTATE

448 Lecture Videos







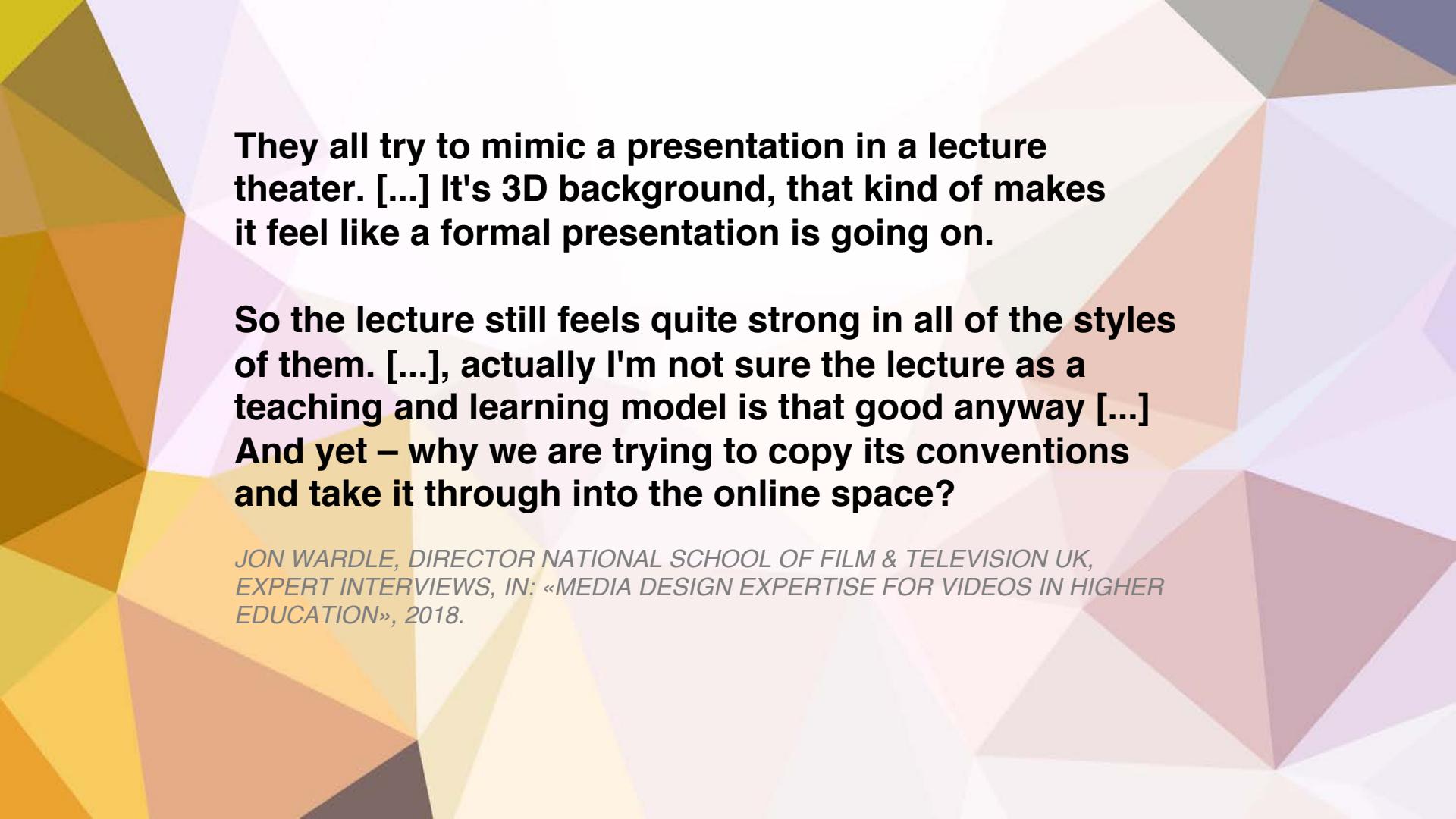
Principles of Electrical Circuits

L18 Operational Amplifier Op Amp

presented by Guiping
dubbed by Xinjie

Principles of Electric Circuits by Tsinghua University

A woman in a striped polo shirt stands next to a man in a purple shirt. The man has a beard and glasses. The background is a gradient from light blue to white.



They all try to mimic a presentation in a lecture theater. [...] It's 3D background, that kind of makes it feel like a formal presentation is going on.

So the lecture still feels quite strong in all of the styles of them. [...], actually I'm not sure the lecture as a teaching and learning model is that good anyway [...] And yet – why we are trying to copy its conventions and take it through into the online space?

*JON WARDLE, DIRECTOR NATIONAL SCHOOL OF FILM & TELEVISION UK,
EXPERT INTERVIEWS, IN: «MEDIA DESIGN EXPERTISE FOR VIDEOS IN HIGHER
EDUCATION», 2018.*

protein basics

Outline:

- Polymers of amino acids
- Order specified by bases in mRNA
- Fold spontaneously into catalytic structures, driven by hydrophobic effects and hydrogen bonds

Learning Objectives:

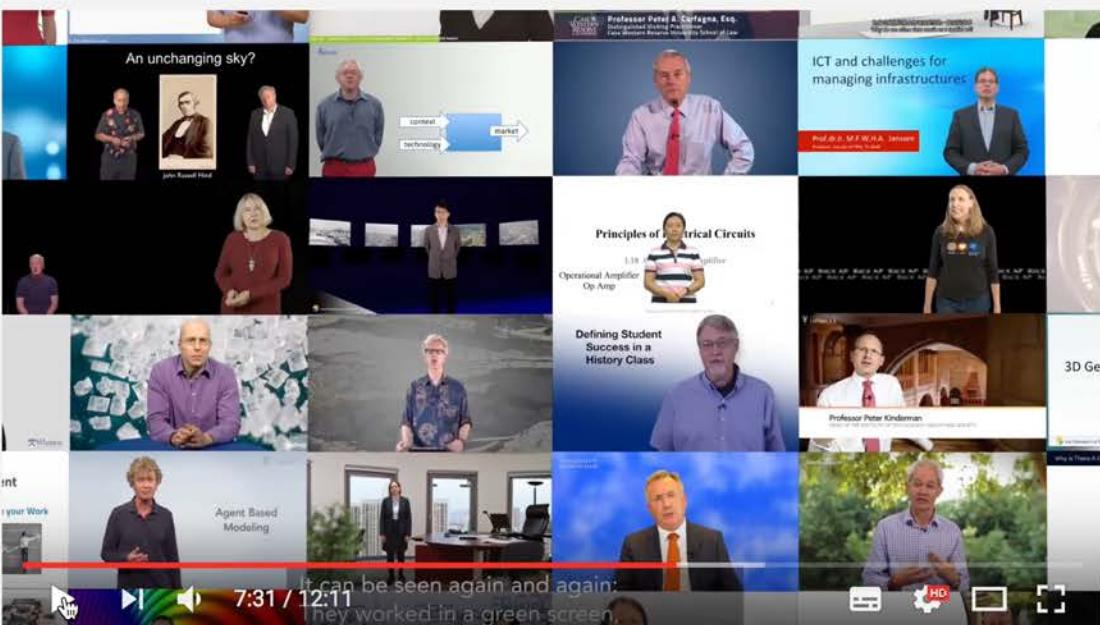
- Describe protein 1° and 2° structure
- Relate to gene structure

A screenshot of a computer desktop. On the left, there is a terminal window with the following code:

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What Does Scalable Mean?

- Operationally:
 - In the past: “Works even if data doesn’t fit in main memory”
 - Now: “Can make use of 1000s of cheap computers”
- Algorithmically:
 - In the past: If you have N data items, you must do no more than N^M operations – “polynomial time algorithms”
 - Now: If you have N data items, you must do no more than $N^{1/k}$ operations, for some large k .
 - Polynomial-time algorithms must be parallelized
 - Soon: If you have N data items, you should do no more than $N^{log(N)}$ operations
 - As data sizes go up, you may only get one pass at the data
 - The data is streaming – you better make that one pass count
 - Ex: Large Synoptic Survey Telescope (30TB / night)



Analytics

Video-Manager

Video Styles in MOOCs – A journey into the world of digital education



Jeanine

Kanaleinstellungen

Download ▾

2.322 Aufrufe

Hinzufügen

Teilen

••• Mehr

19 0

Nächstes Video

Autoplay

MOOCs on BBC Newsnight

Bernard Horan
1.793 Aufrufe

MOOCs – something needs to be done!

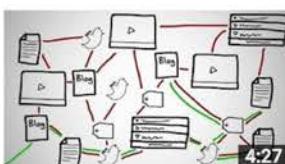
Jeanine
156 Aufrufe

DER MOOC 2008 – 2014

MOOCs und Bildung: Neun gelernte Lektionen

Jörn Loviscach
3.380 Aufrufe

What is a MOOC?

dave cormier
541.284 Aufrufe

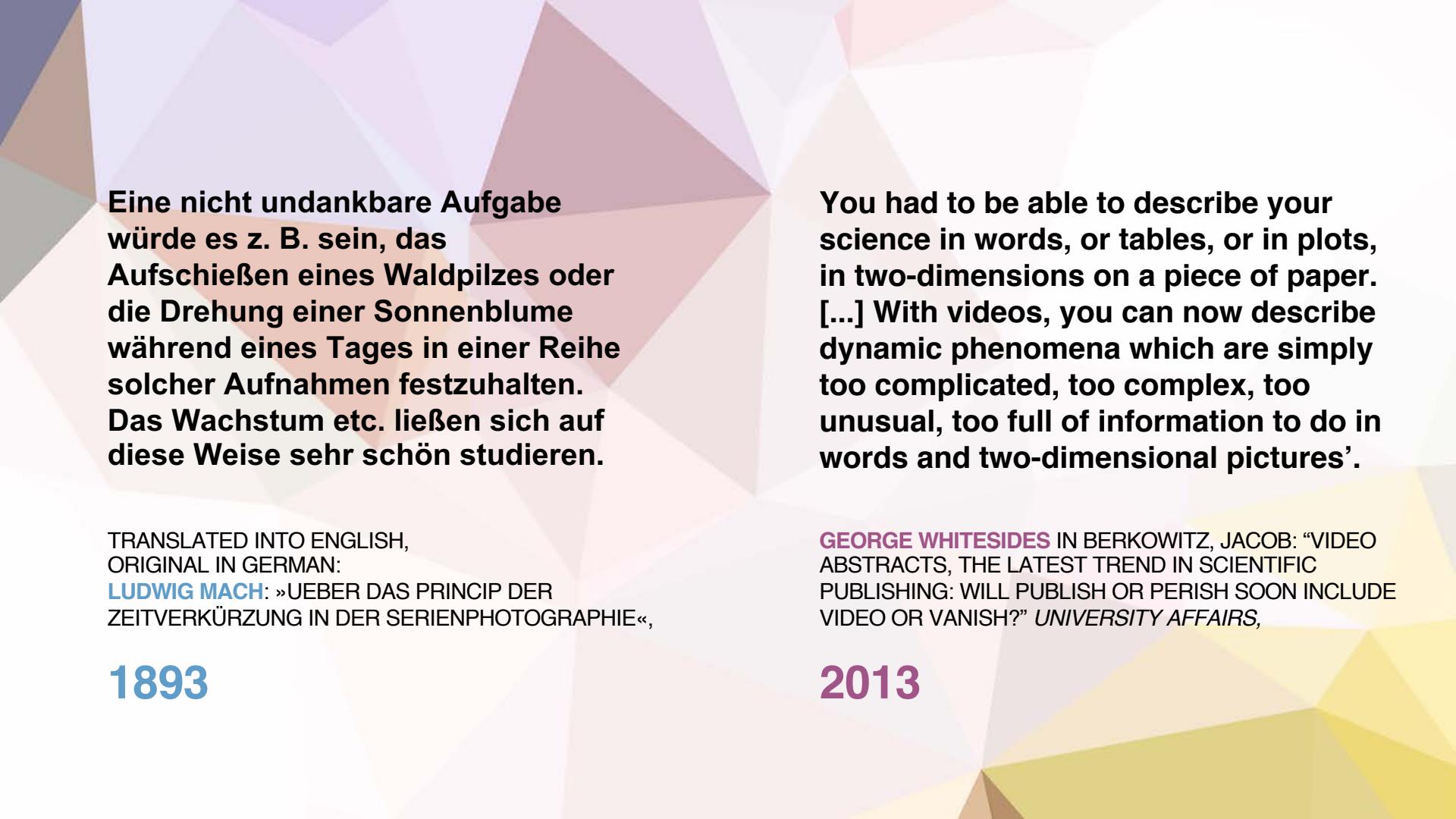
MOOCs Turn 4: What Have We Learned

UWTV
565 Aufrufe

**Eine nicht undankbare Aufgabe
würde es z. B. sein, das
Aufschließen eines Waldpilzes oder
die Drehung einer Sonnenblume
während eines Tages in einer Reihe
solcher Aufnahmen festzuhalten.
Das Wachstum etc. ließen sich auf
diese Weise sehr schön studieren.**

GEORGE WHITESIDES IN BERKOWITZ, JACOB: "VIDEO ABSTRACTS, THE LATEST TREND IN SCIENTIFIC PUBLISHING: WILL PUBLISH OR PERISH SOON INCLUDE VIDEO OR VANISH?" UNIVERSITY AFFAIRS,

2013



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TRANSLATED INTO ENGLISH,
ORIGINAL IN GERMAN:

LUDWIG MACH: »UEBER DAS PRINCIP DER
ZEITVERKÜRZUNG IN DER SERIENPHOTOGRAPHIE«,

1893

**You had to be able to describe your
science in words, or tables, or in plots,
in two-dimensions on a piece of paper.
[...] With videos, you can now describe
dynamic phenomena which are simply
too complicated, too complex, too
unusual, too full of information to do in
words and two-dimensional pictures'.**

GEORGE WHITESIDES IN BERKOWITZ, JACOB: "VIDEO
ABSTRACTS, THE LATEST TREND IN SCIENTIFIC
PUBLISHING: WILL PUBLISH OR PERISH SOON INCLUDE
VIDEO OR VANISH?" *UNIVERSITY AFFAIRS*,

2013

RESULTATE

896 Intro & Lecture Videos

Results Visualization and Style

a1) Still Photography		a2) Moving Photography		a3) Additional Footage	
Intro	Lecture	Intro	Lecture	Intro	Lecture
0.23 (0.42)	0.42 (0.49)	0.37 (0.48)	0.13 (0.34)	0.62 (0.48)	0.18 (0.39)
t-test, p<10 ⁻⁹		t-test, p<10 ⁻¹⁹		t-test, p<10 ⁻⁵⁰	
a4) Animation		a5) Info Graphic / Diagram		a6) Visible Words	
Intro	Lecture	Intro	Lecture	Intro	Lecture
0.44 (0.50)	0.20 (0.40)	0.50 (50)	0.52 (0.50)	0.58 (49)	0.84 (37)
t-test, p<10 ⁻¹⁵		t-test, p<0.01		t-test, p<10 ⁻¹⁸	

J. REUTEMANN (2018): TO TEASE SOMEBODY – ADVERTISED EDUCATIONAL INTRO VS. LECTURE VIDEOS, ICEM INTERNATIONAL CONFERENCE FOR EDUCATIONAL MEDIA, OPEN ACCESS.



INTRO VIDEO

WIESO?



... Digitalisierungs-Trend



**... Digitalisierungs-Trend
... Hochschulstrategie**

- 
- ... Digitalisierungs-Trend
 - ... Hochschulstrategie
 - ... Technologische Entwicklung

- ... Digitalisierungs-Trend**
- ... Hochschulstrategie**
- ... Technologische Entwicklung**
- ... Disziplinär denken**

- ... Digitalisierungs-Trend
- ... Hochschulstrategie
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- ... Disziplinär denken
- ... Unwissenheit > reinventing the wheel

- ... Digitalisierungs-Trend
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- ... Sozio-kulturelle, selbstreferenzielle Darstellung
der «Institution» Wissenschaft

- ... Digitalisierungs-Trend
- ... Hochschulstrategie
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- ... Disziplinär denken
- ... Unwissenheit > reinventing the wheel
- ... Sozio-kulturelle, selbstreferenzielle Darstellung
der «Institution» Wissenschaft
- ... Pfadabhängigkeit der Produktionen

- ... Digitalisierungs-Trend
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- ... Technologische Entwicklung
- ... Disziplinär denken
- ... Unwissenheit > reinventing the wheel
- ... Sozio-kulturelle, selbstreferenzielle Darstellung
der «Institution» Wissenschaft
- ... Pfadabhängigkeit der Produktionen
- ... Departemente / Personal
- ... [...]



Wissen im Filmischen: Technoästhetik (Technologie & Ästhetik)

Kamera Technologie
UND
Bild / Ton Ästhetik



Kamera Technologie
UND
Bild / Ton Ästhetik





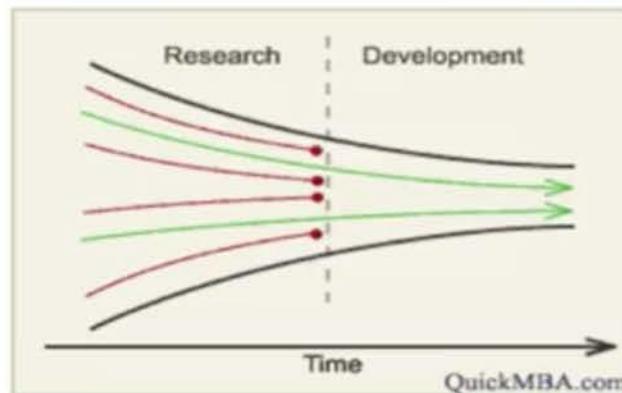
Object creation: basics

Bertrand Meyer



Closed Innovation Model

- Recruit top talent for internal R&D
- Innovate only within firm's boundaries
- Filter internal ideas for defined market





Sheffield.

Benjamin Short

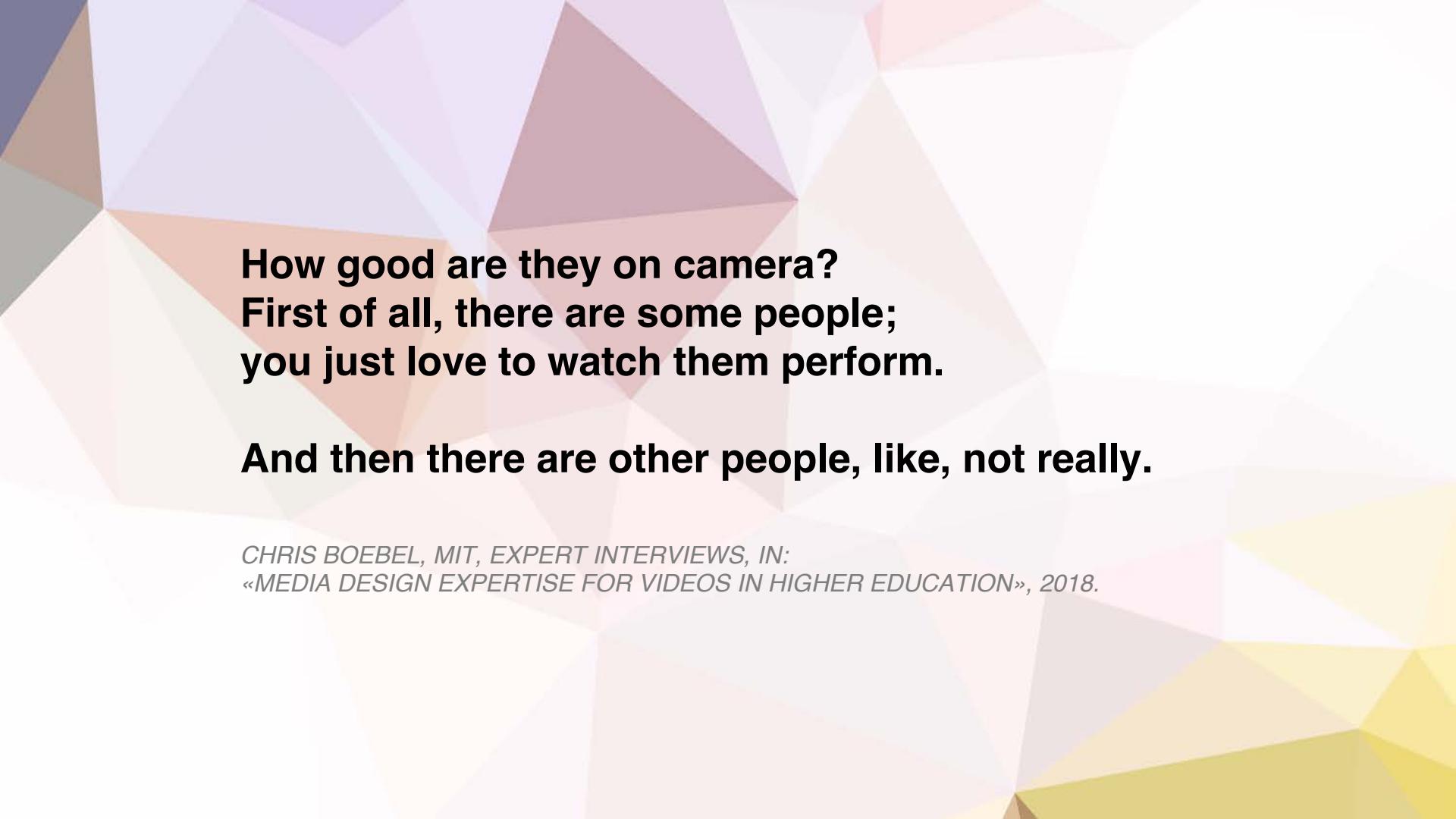
Head of Graduate Placement and Recruitment
Tata Steel



Interferenz des Mediendesigns mit dem Talking Head

CAMERAWORK PERFORMANCE

CAMERAWORK PERFORMANCE



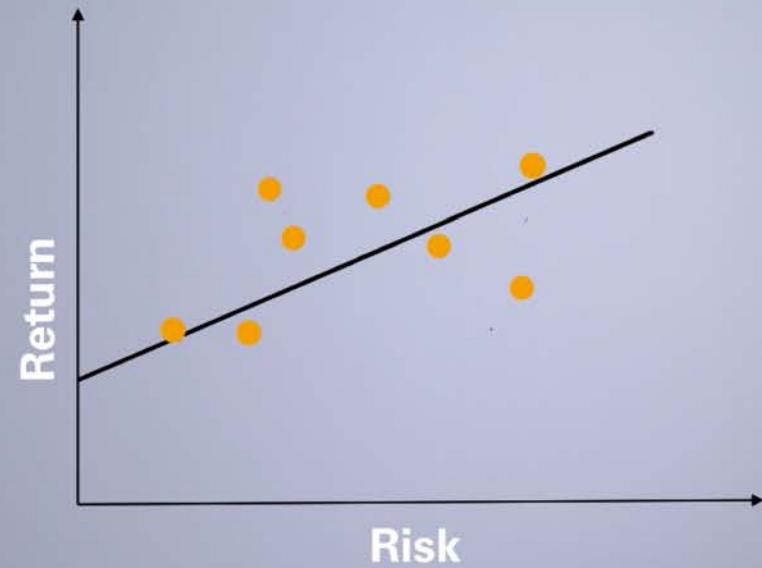
**How good are they on camera?
First of all, there are some people;
you just love to watch them perform.**

And then there are other people, like, not really.

*CHRIS BOEBEL, MIT, EXPERT INTERVIEWS, IN:
«MEDIA DESIGN EXPERTISE FOR VIDEOS IN HIGHER EDUCATION», 2018.*

RISK-RETURN RELATIONSHIP

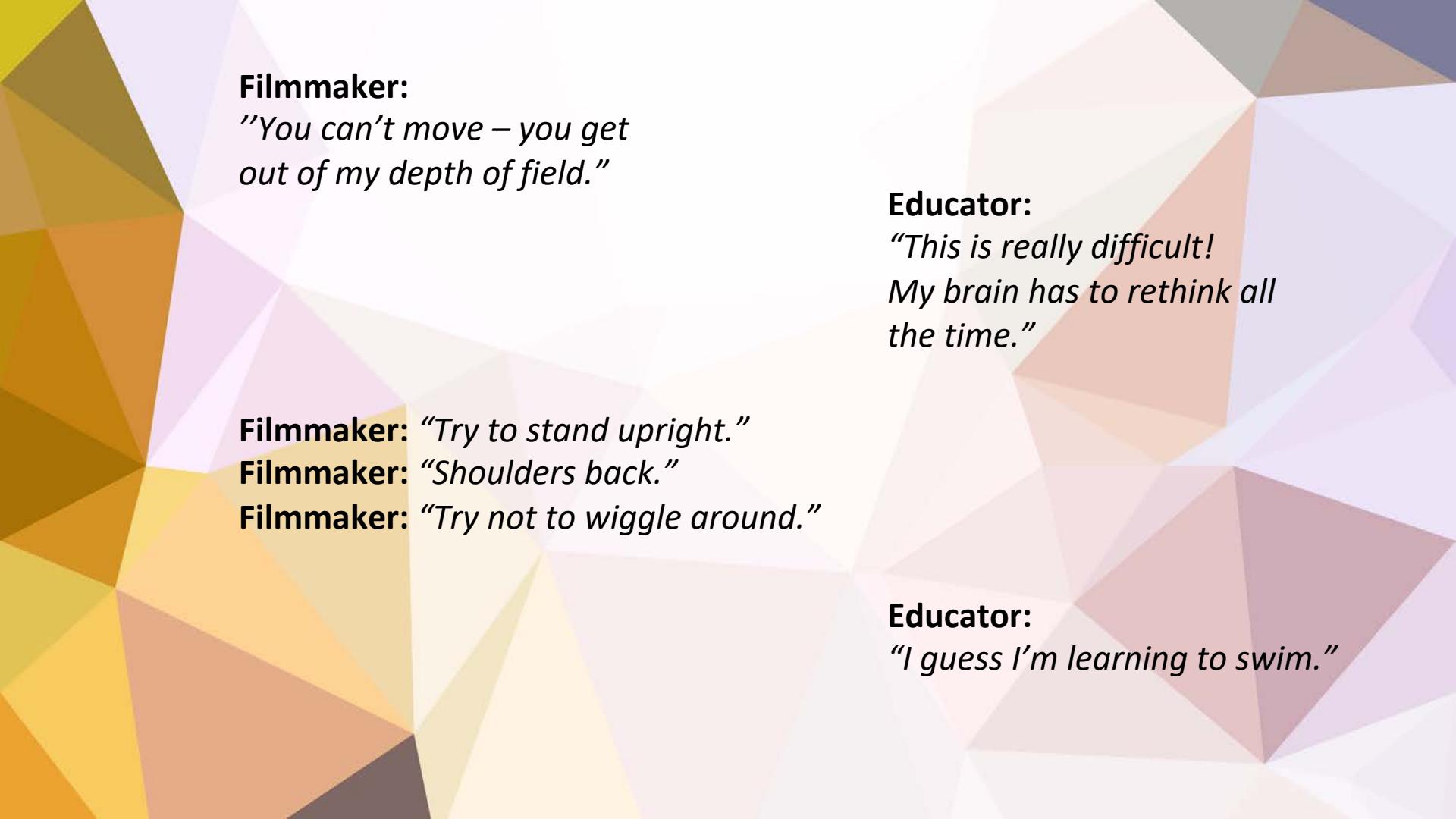
● Individual Investments



SusTec,
ETH Zürich

Corporate Sustainability





Filmmaker:

"You can't move – you get out of my depth of field."

Filmmaker: *"Try to stand upright."*

Filmmaker: *"Shoulders back."*

Filmmaker: *"Try not to wiggle around."*

Educator:

*"This is really difficult!
My brain has to rethink all
the time."*

Educator:

"I guess I'm learning to swim."

Gesten – verkörperte Sprache

- (1) “Kommunikative Funktion” von Gesten**
- (2) “Selbst-referenzielle Funktion” von Gesten**

Gesten – verkörperte Sprache

- (1) "Kommunikative Funktion" von Gesten
- (2) "Selbst-referenzielle Funktion" von Gesten

**But gestures also have functions for the
gesturers him or herself. [...] When you make
gestures, your communicative processes
change the way you actually think about. The
topic you are talking about, changes when
you try to express something in the hand.**

*PROF. SOTARO KITA,
GESTURE & COMMUNICATION RESEARCHER, 2015.*

Co-Design



Oxford University
Geraldine Werhahn

Himalayan Wolf Project

4d, SNF, synthesis project:
ETH Zurich, University Geneva,
University Lausanne

Social Conflicts Research Docu



A photograph of a man with short, light-colored hair that has pink highlights. He is wearing a dark blue t-shirt and jeans, and is seated on a small, round, red stool. He is smiling and looking towards the camera. The background shows a large building with classical architectural details, including white columns and a decorative mural on the wall.

**Empathies Conference 2017 European
Society for Literature, Science and
Arts, University of Basel**

The Diversity of Empathy

Chair of Digital Humanities, EPFL
Prof. Frédéric Kaplan
Dr. Isabella di Lenardo

Venice Time Machine



**Chair of Ecosystem
Management, ETH Zurich
Prof. Jaboury Ghazoul**

**Field Study:
Scottish Highlands**



Audiovisuelle Sprache

Rhetorik, Ästhetik und Charakteristik

A 014

Hörsaal

Mit Ihrer Unterstützung
Wir können weiter!

 Volksbank
Alzey-Worms eG





Bild-Ton Verhältnis

Synchrese:

«forging of an immediate and necessary relationship between something one sees and something one hears at the same time.»

MICHEL CHION: AUDIO-VISION: SOUND ON SCREEN, 1994.

A wide-angle photograph of a deforested landscape in the Scottish Highlands. In the foreground, a dirt path leads through a field of fallen tree trunks and branches. A group of approximately ten researchers in outdoor gear are gathered on the right side of the path. Behind them, a dense forest of tall evergreen trees stands on a hillside. In the background, a range of mountains is visible under a cloudy sky.

**Chair of Ecosystem
Management, ETH Zurich
Prof. Jaboury Ghazoul**

**Field Study:
Scottish Highlands**



... Wissensvermittlung ...
... Wissenskommunikation ...
... Wissenstransfer ...
... *Wissenstransformation* ...

Galerkins Lösungsnäherungen bei monotonen Abbildungen

Friedrich Wille

§ 1. Approximation bei stark monotonen Operatoren

Gar mancher hatte Mühe schon
mit seiner Lösungskonstruktion.
Drum haben wir uns ausgedacht
wie man es mit Galerkin macht.

X sei reeller Banachraum,
der außerdem, sonst klappt es
kaum,
in uns'rer mathemat'schen Fabel
ist reflexiv und separabel.
Die Dimension ist endlich nicht,
sonst wär' zu einfach dies Gedicht.
Mit X^* wird, wie wohlbekannt,
der konjugierte Raum benannt.

Aus diesem folgern wir nun schon:
Zu jedem n als Dimension
gibt's einen Raum E_n in X
mit folgenden erlaubten Tricks:

$$E_1 \subset E_2 \subset E_3 \subset \dots, \quad \overline{\bigcup_{n=1}^{\infty} E_n} = X.$$

Nun sei der Operator T ,

$$T: X \rightarrow X^*,$$

den ich als stetigen versteh',
im Folgenden stets monoton,
das heißt (wir kennen dieses schon):

$\forall x_1, x_2 \in X$:

$$\langle T(x_1) - T(x_2), x_1 - x_2 \rangle \geq 0.$$

Wir wissen dabei aus Erfahrung:
die Winkelklammern sind die
Paarung:

$$\forall y \in X^* \forall x \in X: \langle y, x \rangle = y(x).$$

Stark monoton ist unser T ,
wenn Folgendes erfüllt ich seh':

$$\exists \alpha > 0 \forall x_1, x_2 \in X:$$

$$\langle T(x_1) - T(x_2), x_1 - x_2 \rangle$$



Mediale Transformations- prozesse

BEWEGTBILDER ALS ANDERE SPRACHE

1. Wissenskörper

Re-Formatierung des Textes; Kontextualisierung; Adaptation;

2. Strukturelle Logik

Linearität; Multimodalität; Zeit/Raum

3. (Audiovisual) Rhetorik

Performance; Bild-Ton Interaktion; Argumentation; Epistemologie;

4. Spannungsbogen

Storytelling; Narrative; Rhythmus;

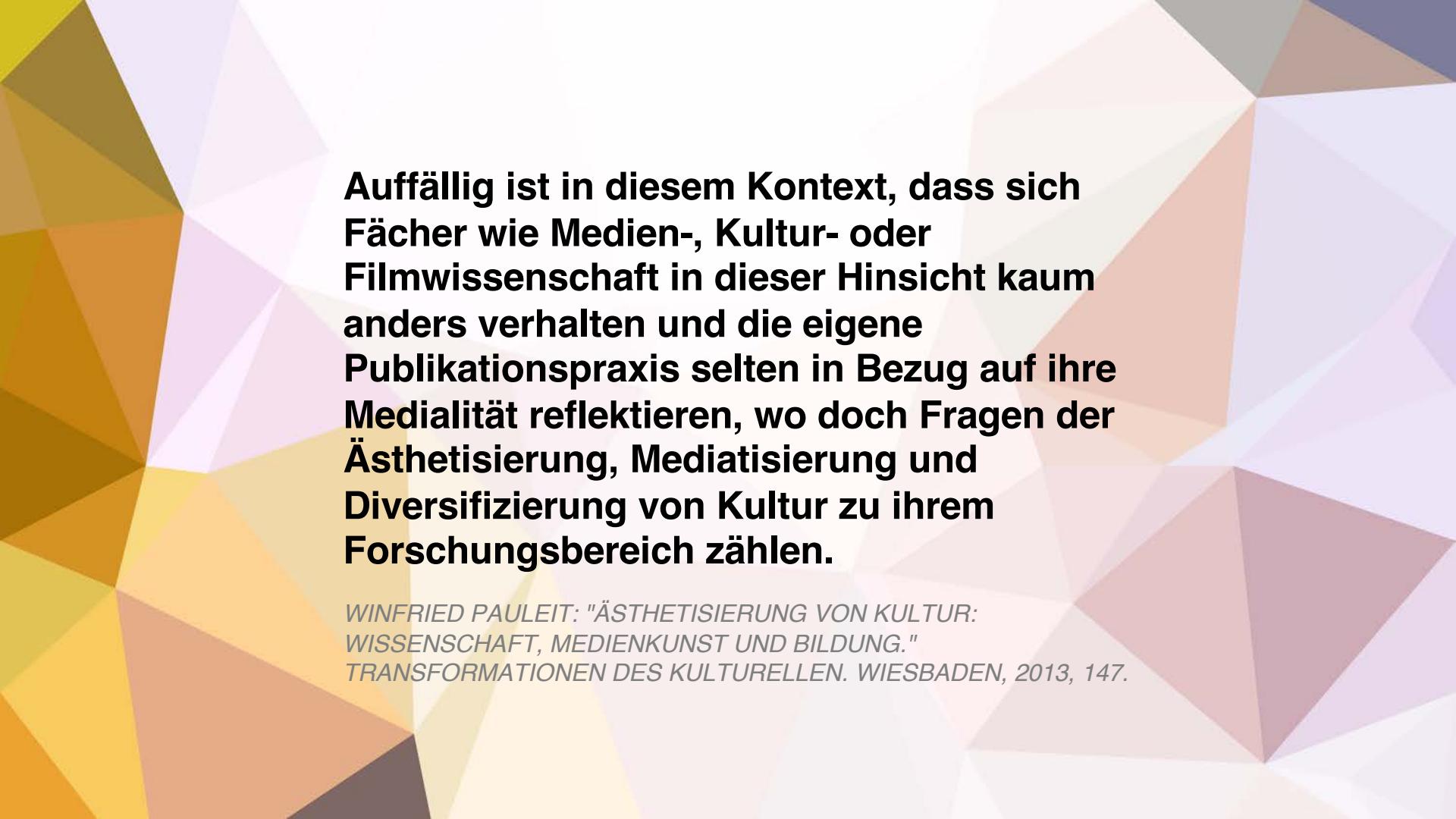
5. Playful

Intensive Arbeit; Lehrreich; enjoy it or leave it!



3rd Millennium Skills

Fremdsprache: Audiovisuelle Bewegtbilder



Auffällig ist in diesem Kontext, dass sich Fächer wie Medien-, Kultur- oder Filmwissenschaft in dieser Hinsicht kaum anders verhalten und die eigene Publikationspraxis selten in Bezug auf ihre Medialität reflektieren, wo doch Fragen der Ästhetisierung, Mediatisierung und Diversifizierung von Kultur zu ihrem Forschungsbereich zählen.

WINFRIED PAULEIT: "ÄSTHETISIERUNG VON KULTUR: WISSENSCHAFT, MEDIENKUNST UND BILDUNG." TRANSFORMATIONEN DES KULTURELLEN. WIESBADEN, 2013, 147.

**Photography is truth.
The cinema is truth
twenty-four times per
second.**

JEAN-LUC GODARD, 1960.



Digitale Hochschulwelt



Rest der Digitalen Welt





WORLD'S COLLIDE!

*Filmmakers; educators;
learning experience desi-
gners; nerds; technicians...*

*Embrace the unique perspec-
tives of those involved in
the production processes.
They might even shape
your own thought processes.*

MANIFESTO VIDEOS IN HIGHER EDUCATION

*Worlds collide! Embrace the unique per-
spectives of those involved in the production processes. They might even shape your thought processes.*



KEY TAKEAWAYS

1. **Video ≠ Aufzeichnungsformat. Kamera ist ein technoaesthetisches Instrument.**

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1. **Video ≠ Aufzeichnungsformat. Kamera ist ein technoaesthetisches Instrument.**
2. **Mediendesign kann die Performanz von sichtbaren Sprechern signifikant beeinflussen. Co-Design!**
3. **Bewegtbilder: eine andere Sprache.
> Dringlichkeit einer Integration in den Hochschulkontext**



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