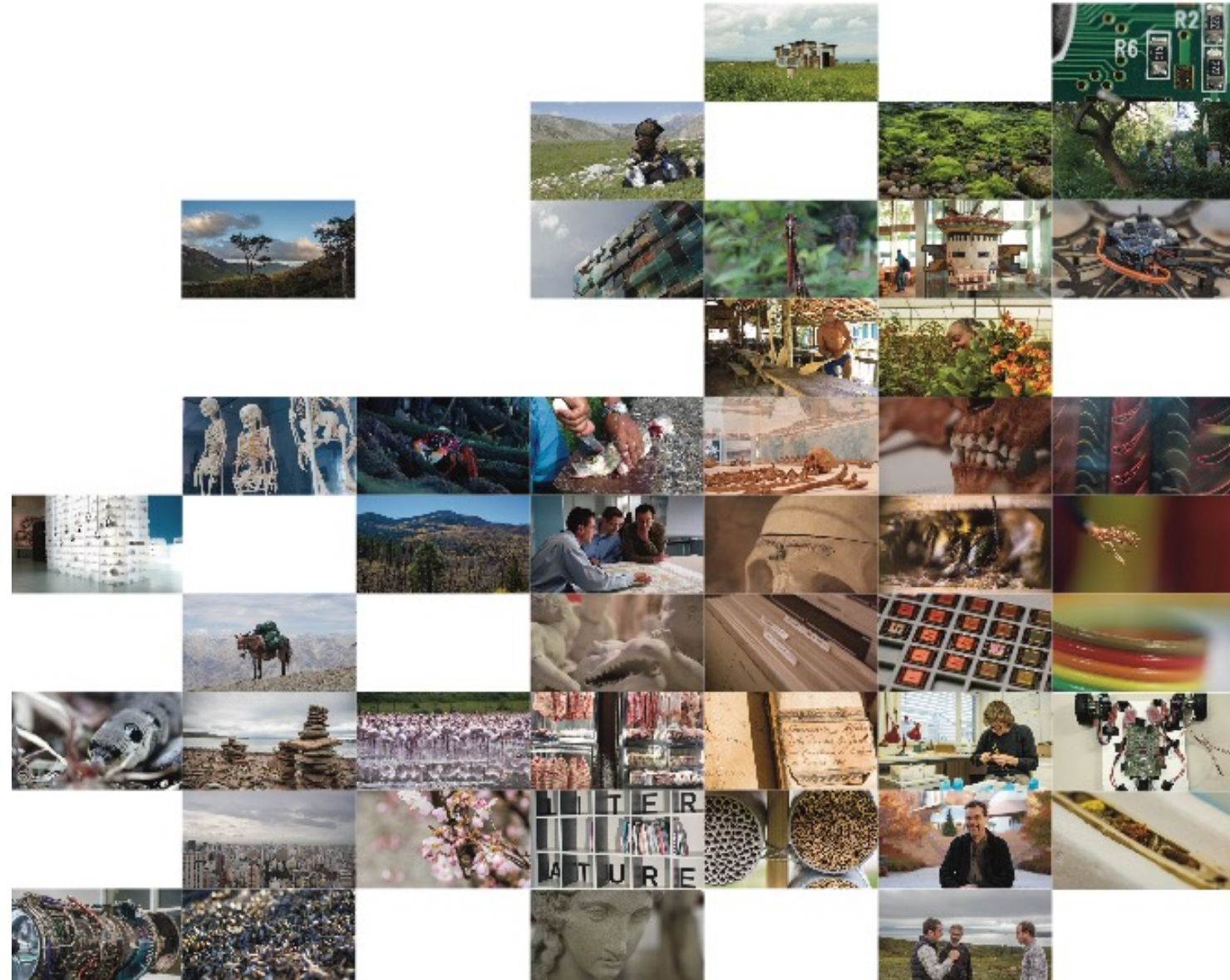


# CO-DESIGN OF SCIENCE FILMS

# Jeanine Reutemann

**Science meets Film**  
**RedMorpheus GmbH, Switzerland**

**Research & Teaching  
Centre for Innovation, Leiden University,  
The Netherlands**















# RESULTS

*448 Lecture Videos*







# rotein 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



2

```
ages.c (~src3m) - gedit
// declare array to store everyone's age
27 int ages[n];
28
29 // get everyone's age
30 for (int i = 0; i < n; i++)
31 {
32     printf("Age of person #i: ", i + 1);
33     ages[i] = GetInt();
34 }
35
36 // report everyone's age a year hence
37 printf("Time passes...\n");
38 for (int i = 0; i < n; i++)
39 {
40     printf("A year from now, person #i will be %i years old.\n", i + 1, ages[i] + 1);
41 }
42 }
```



## 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  $N^n$  operations – "polynomial time algorithms"
  - Now: If you have  $N$  data items, you must do no more than  $N^k$  operations, for some large  $k$ .
    - Polynomial-time algorithms must be parallelized
  - Soon: If you have  $N$  data items, you should do no more than  $N \cdot \log(N)$  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)

Research Video: Videos in Higher Education – A Journey into the World of Digital Education





# **Technoaesthetics (Technology & Aesthetics)**



**...science communication with film...**  
**...science transformation through film...**



**A grateful task would be [...], to record the shooting of a forest mushroom [...] during a day in a series of shots. This would a very appealing way to study the growing process.**

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

**2013**

**A grateful task would be [...], to record the shooting of a forest mushroom [...] during a day in a series of shots. This would a very appealing way to study the growing process.**

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. [...] With videos, you can now describe dynamic phenomena which are simply too complicated, too complex, [...] 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**





# **(Audio)visual Language**

*rhetorics and characteristics*

A 014

# Hörsaal

Mit freundlicher Unterstützung  
With friendly support



Volksbank  
Alzey-Worms eG







# **IMAGE-SOUND RELATION**

## **«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.





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





**Oxford University;**  
**Himalayan Wolf Project**  
Geraldine Werhahn





M·G·M PRESENTS

# FORBIDDEN PLANET

AMAZING!



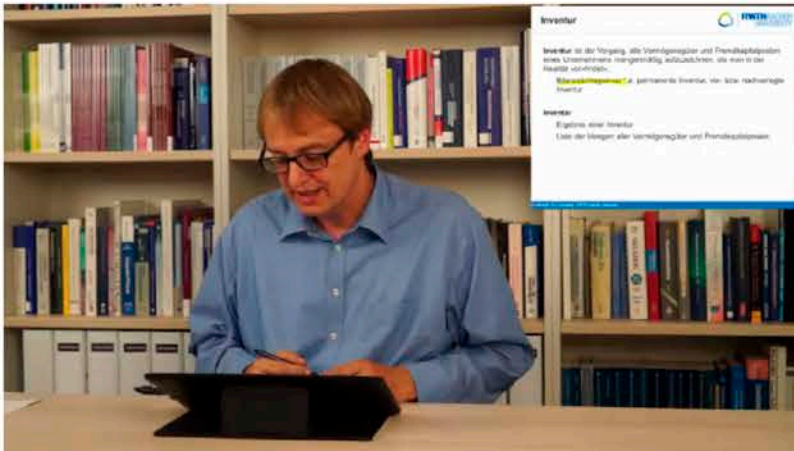
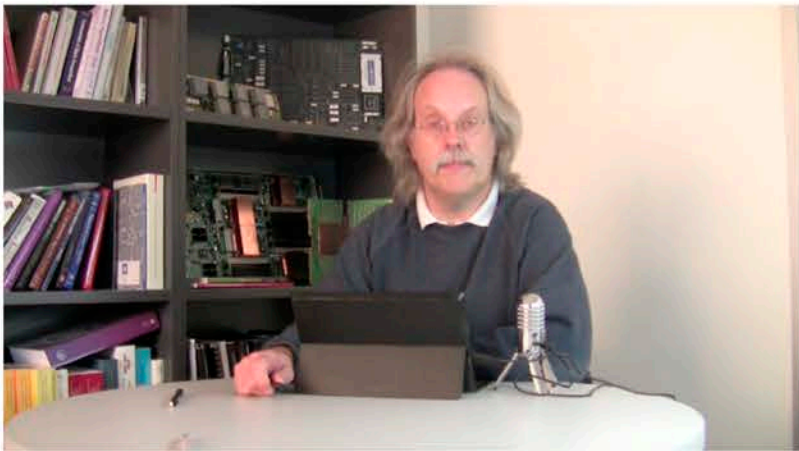
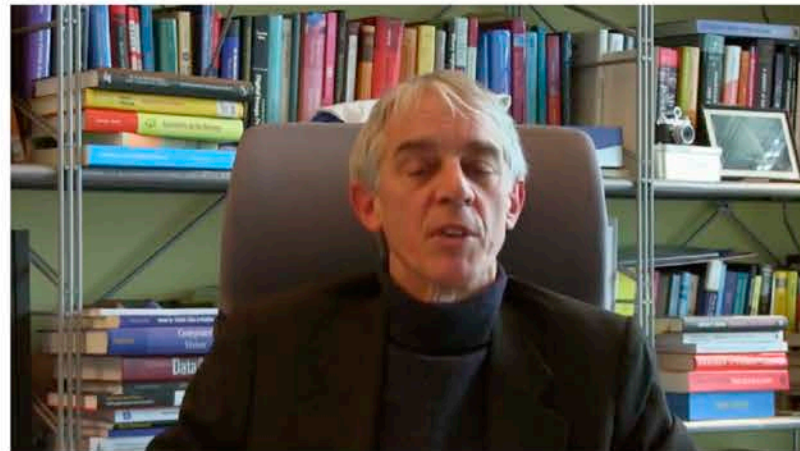
STARRING WALTER PIDGEON · ANNE FRANCIS · LESLIE NIELSEN  
WITH WARREN STEVENS AND INTRODUCING ROBBY, THE ROBOT  
SCREEN PLAY BY CYRIL HUME  
DIRECTED BY FRED McLEOD WILCOX · PRODUCED BY NICHOLAS NAYFACK  
BASED ON A STORY BY IRVING BLOCK AND ALLEN ADLER  
PHOTOGRAPHED IN EASTMAN COLOR  
IN CINEMASCOPE AND COLOR

A METRO-GOLDWYN-MAYER PICTURE














► Focus on the message,  
not the messenger.

Be generous.

Kill your darlings.

*Film making is never a oneman show*

*If you do not want to collaborate,  
go run a marathon.*

## **COLLABORATIVE PROCESS DESIGN AND CO-AUTHORSHIP**

*Filmmaking is never a  
one-man-show.*

*If you do not want to  
collaborate, write a book.*







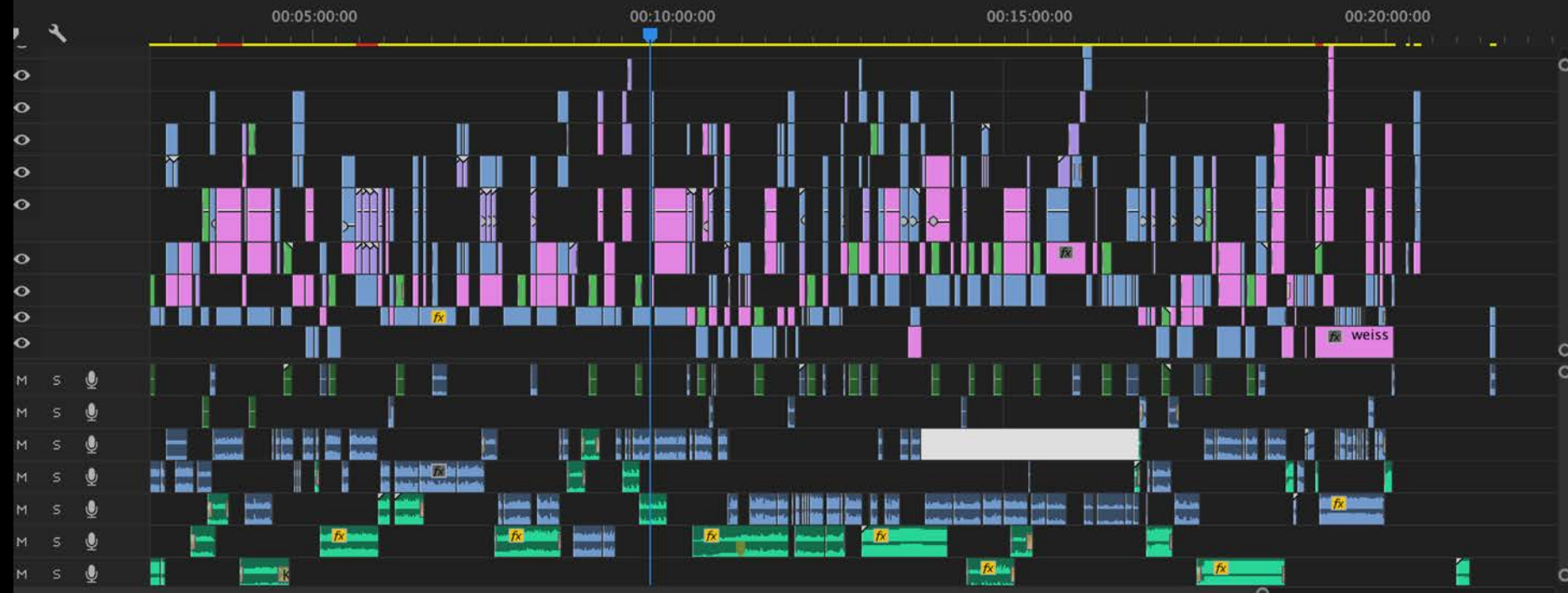


00:09:42:13 Einpassen

Voll 00:21:32:13



empathy\_TEASERFINAL x Empathy\_long\_FINAL lower\_laura



# Filmmakers

**Responsibility «good light»**

**«Changing perspectives»**

**Delegate tasks on set (every researcher can be a ‘gaffer taper’)**

**Stay high-quality aware**

**Be strikt on deadlines, decisions**

**Avoid meaningless hyperaesthetics**



► *Video made and  
killed the lecture star*



**Jeanine Reutemann**

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Presentations](http://audiovisualresearch.org/Presentations)  
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