

# Science, culture & communication – an exploration

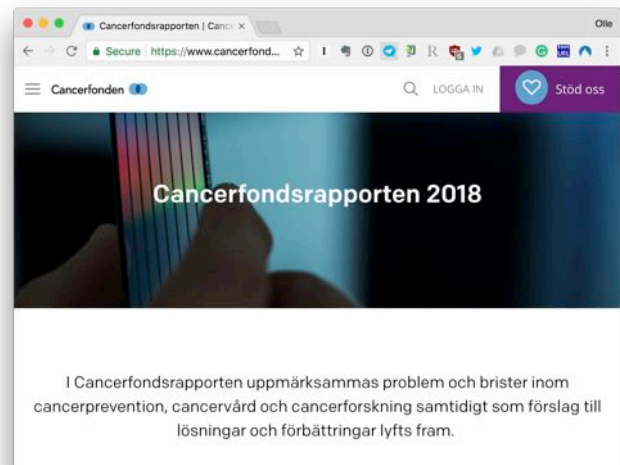
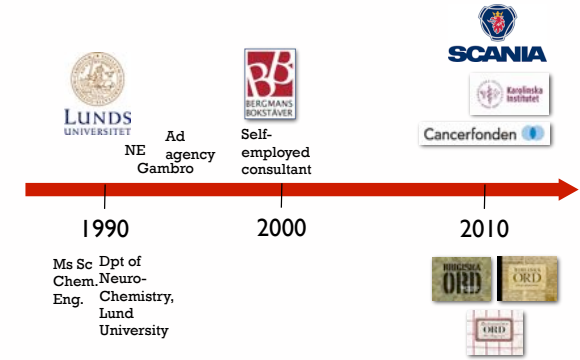
København 10 april 2018



## Olle Bergman

M.Sc. Chemical Engineering

“Communications Consultant, Public Speaker & Professional Writer with a passion for people, science, language & history.”



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**INTERVIEWS**  
**THE SONG OF PLANKTON - "VISUALIZING" BIG DATA AS MUSIC**

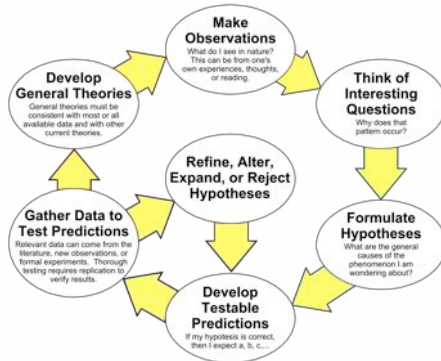
Is there a melody in a lake? How about a song in plankton diversity? Swiss biologist and musician Simone Fontana transformed a plankton dataset from Lake Greifensee into intriguing musical imagery - with different instruments assigned to...

0 Comments | April 9, 2018

# THE SCOPE



## The Scientific Method as an Ongoing Process



Wikipedia



“Those are my principles, and if you don't like them ... well I have others.”

**Groucho Marx**

“Do I contradict myself?  
Very well then I contradict myself;  
(I am large, I contain multitudes.)

**Walt Whitman**

## What is your favourite research? How come?

AI research – creating new possibilities for knowledge management in the healthcare system.

Psychosocial cancer research – lightening the social, mental and practical cancer burden of patients and their close ones.

Astrophysics – making us understand more about our place in the Universe.

## What is your favourite communication? How come?

Malala Yousafzai's UN call for worldwide access to education – turning the limelight on the situation for girls' education globally.

IKEA's 'Wonderful Everyday' campaign – impressive advertising technique to get through the noise of the information society.

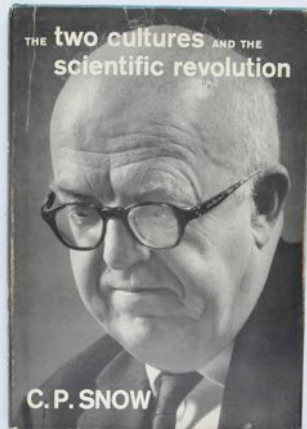
Inger Christensens's Alfabet (1981) – pushing the borders of Danish literature.



# PROBLEM



Every profession forms a **culture** and develops **blind spots**.



Rede Lecture,  
Cambridge  
**1959**

### Examples of cultural biases:

- Peers more important than target group.
- University curriculum more important than empirism.
- Abstractions shadow the nitty-gritty of reality.
- The STORY shadows the complexity and contradictions of the bigger picture.

### Mindset of scientists



- Write articles in peer-reviewed scientific journals.
- Write grants.
- Design scientific posters
- Give oral presentations

- Embrace uncertainty!
- Details are cool.
- Opposition is a tool.
- Truth is an aiming point.
- Certainty is a process.

The most common misunderstanding about science is that scientists seek and find truth. They don't — they make and test models ... Making sense of anything means making models that can predict outcomes and accommodate observations. Truth is a model.

*Neil Gershenfeld, American physicist*

## Mindset of media people

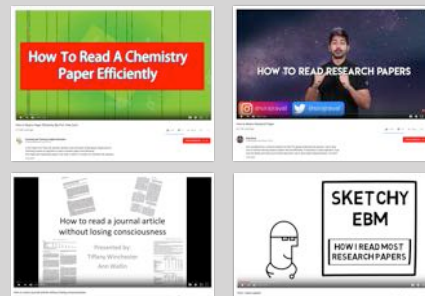
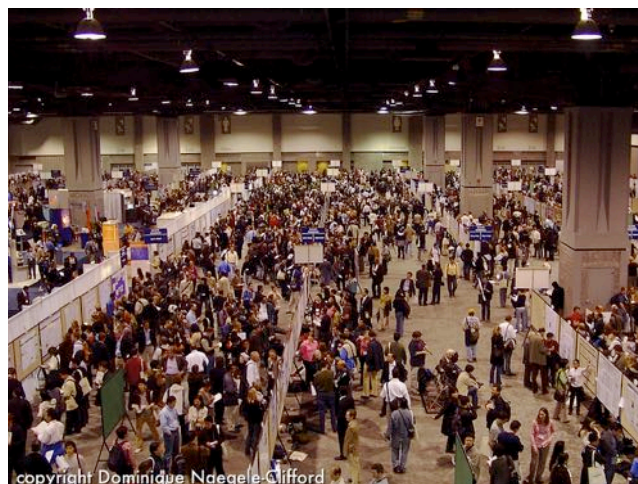


- Communication changes things.
- Pick your messages.
- Summarize, simplify, package.
- New target group = new task.
- Society is a playfield of rhetoric.



## Scientists communicating with scientists

1. Poor emotional engagement.
2. Strong, yet dysfunctional conventions.
3. Widespread do-it-yourself culture.



## Scientists communicating with the world outside

nature nanotechnology SUPPLEMENTARY INFORMATION DOI: 10.1038/NNANO.2014.31

## Graphene photodetectors with ultra-broadband and high responsivity at room temperature

Chang-Hua Liu<sup>1†</sup>, You-Chia Chang<sup>2†</sup>, Ted Norris<sup>1,2†</sup> and Zhaohui Zhong<sup>1\*</sup>

**Supplementary Section 1.**  
**Measurement of the capacitance of Ta<sub>2</sub>O<sub>5</sub> dielectric layer**

To measure the capacitance of Ta<sub>2</sub>O<sub>5</sub> dielectric layer, we configure our double layer graphene heterostructure device as a dual gate field-effect transistor (Fig. S2a). Here, the Si substrate is used as the backgate and top graphene layer is served as the top-gate. Sweeping both top-gate voltage ( $V_{gt}$ ) and the backgate voltage ( $V_{bs}$ ) can modulate the channel conductance of bottom layer graphene. A 2D colour plot of bottom layer graphene resistance versus both  $V_{bs}$  and  $V_{gt}$  are shown in Fig. S2b. It is apparent that ambipolar transfer characteristics can be observed with both gate voltage sweeps, with the charge neutrality point ( $V_{gt}^{CNP}$ ,  $V_{bs}^{CNP}$ ) identified as the local peak in resistance. More importantly, the slope of  $\frac{V_{gt}^{CNP}}{V_{bs}^{CNP}} \sim 74$  in the 2D plot gives a direct

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## New tech could lead to night vision contact lenses

Mar 16, 2014 Contact Kate McAlpine, (734) 763-4386, kmca@umich.edu

ANN ARBOR—An ultrathin light detector that can sense wavelengths our eyes can't see has the potential to put heat vision technology into a contact lens, its University of Michigan researchers say.




**LOVE:** cherish professional diversity

**PEACE:** form multiprofessional teams, working together

**UNDERSTANDING:** get to know the background, incentives and work situation of the other professions

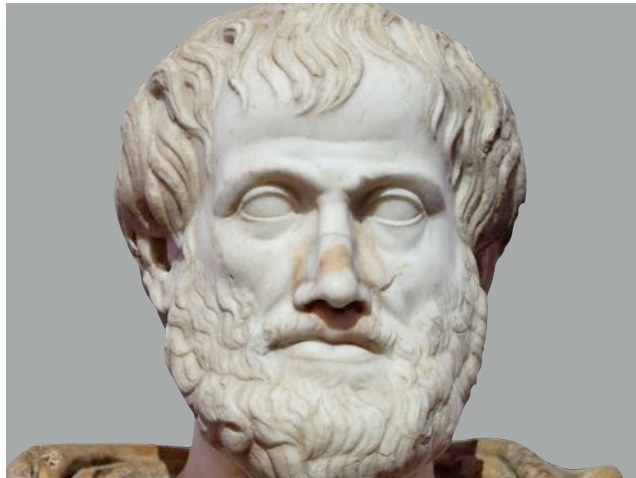


**FIX #1**





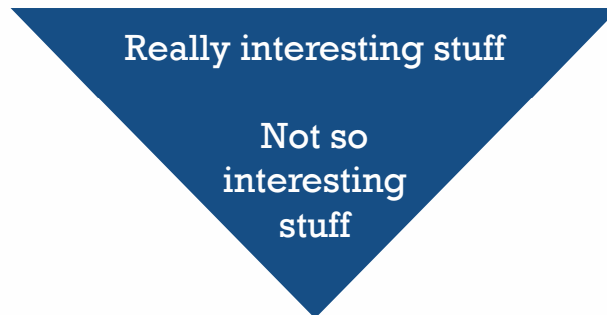
**FIX #2**



**FIX #3**



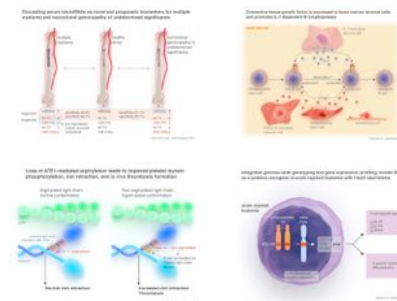
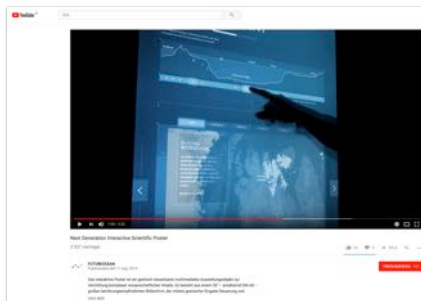
**The inverted pyramid**



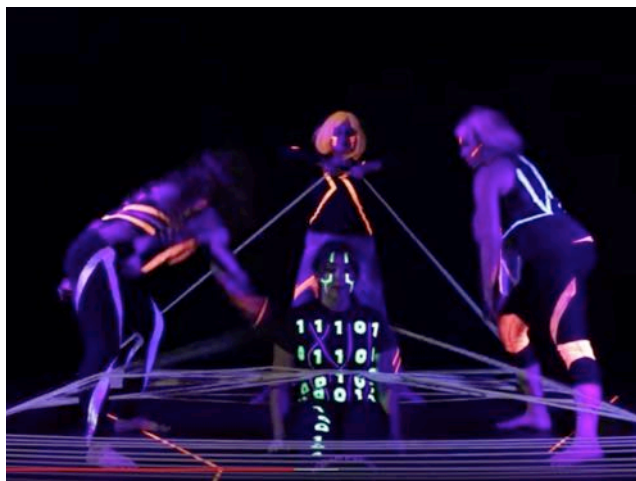
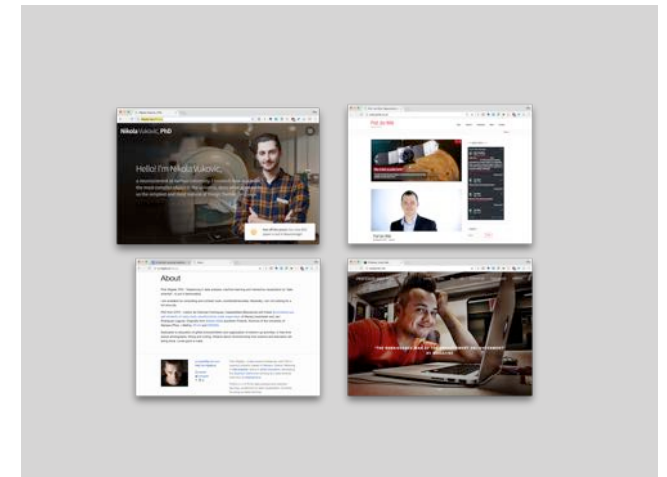
**More  
fixes**

1. Lab technician for a day.
2. Crash course in statistics.
3. Journal club for laymen.
4. ...

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- Write grants.
- Design posters.
- Give oral presentations.
- Engage on Twitter.
- Blog.
- Keep a personal website (or contributing to a group website) and an active LinkedIn account.
- Write press releases for the group.
- Attend science-for-the-public events.