Neuromarketing Guest Lecture

Usability testing using biometric research methods and the iMotions platform

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Visual attention

Emotional involvement

Tine Juhl
Senior Lecturer, NeuroLab Researcher at VIA University College

We have a plan....

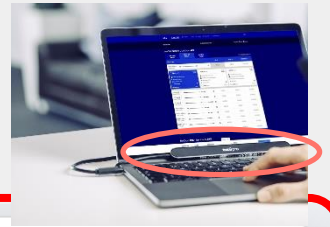
- What are biometric research methods, and what do we use them for?
- What software do we use in VIA's NeuroLab?
- What does eyetracking and emotional data look like?
- Pros & Cons compared to other research methods?
- Live demo and test --> A volunteer is needed ☺
- We look at and discuss the results
- (A few more examples if time allows)

Questions, yes please!
☺
As many as possible and anytime

How do people experience our [.....app, website,.....]?
– visually & emotionally ?

The biometric research methods we use in VIA's NeuroLab:

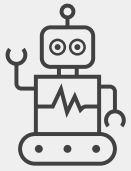
Visual attention



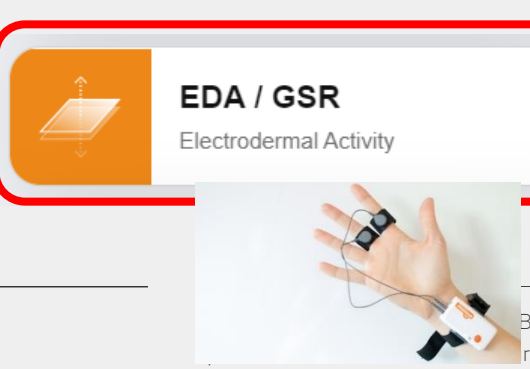
Eye Tracking
Screen Based

Eye Tracking
VR / XR

Eye Tracking
Glasses



Emotional involvement



EDA / GSR
Electrodermal Activity

FEA
Facial Expression Analysis

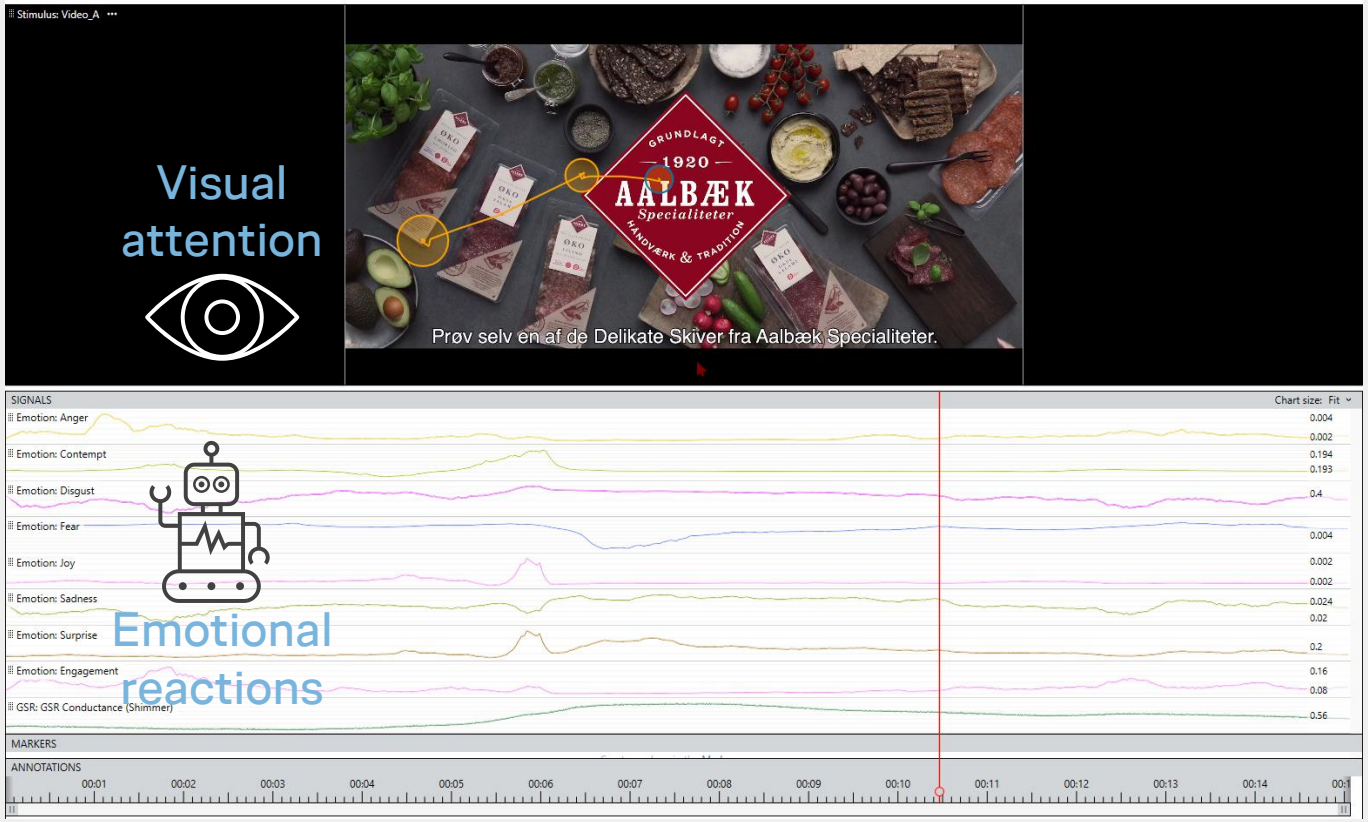
The Software

IMOTIONS
Unpack Human Behavior

Provider: Imotions

- Data from several sensors and technologies on one timeline
- High quality and scientifically validated algorithms
- Data visualised and quantified

→ Enables relatively quick and straight forward data analysis



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Eyetracking

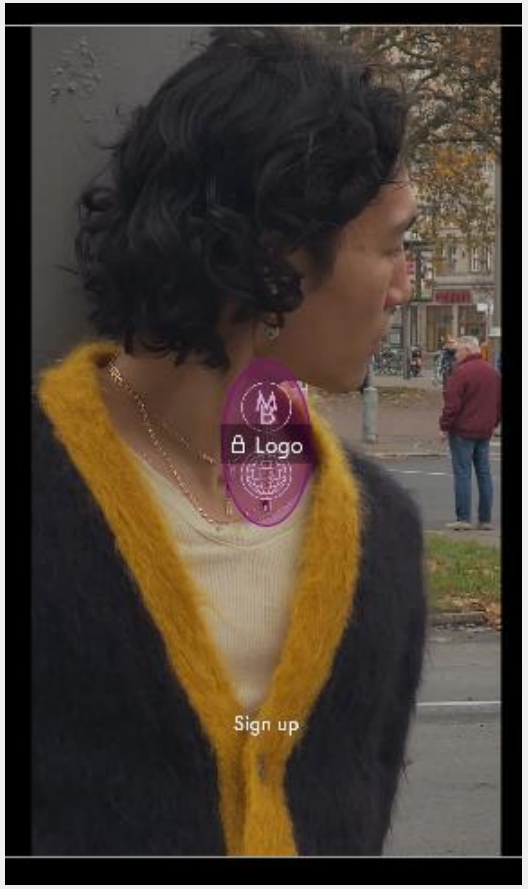
Heatmaps

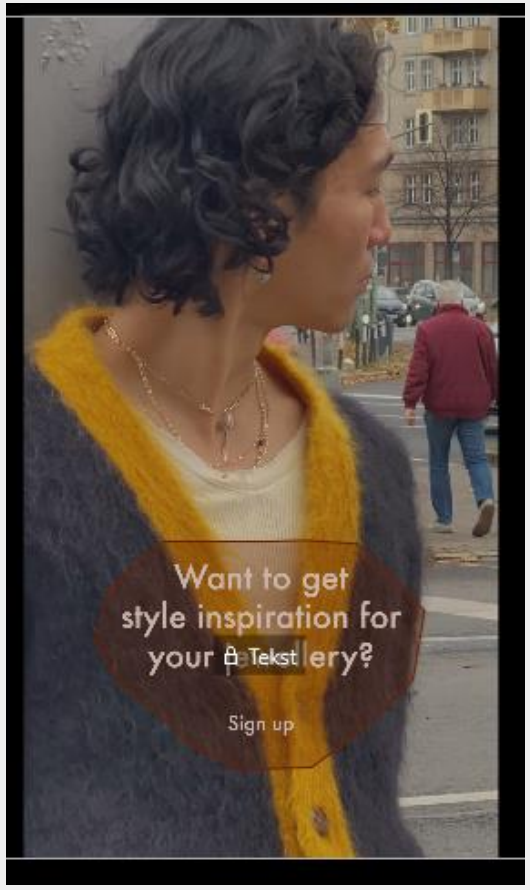
Visual attention

Eyetracking – AOIs (Areas of Interest)

Visual attention

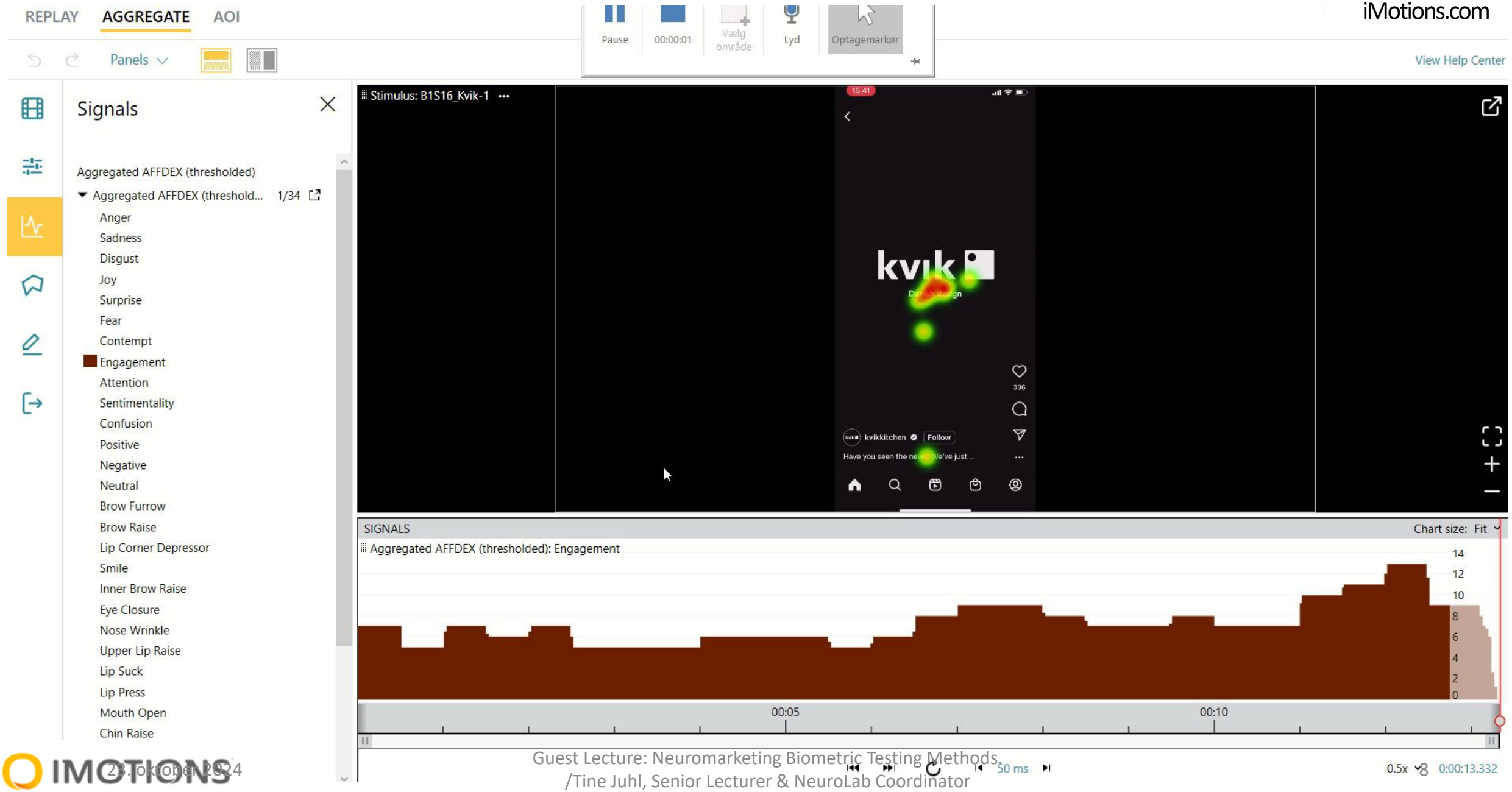
	Logo	Tekst
Information		
Stimulus duration	15584.7	15584.7
AOI duration (ms)	9688.1	5050.5
Respondent base	22	22
Fixation based metrics		
Respondent count	21	22
Revisit count	3.8	0.6
Dwell time (ms)	2743.4	2206.8
Dwell time (%)	28.3	43.7





Example from iMotions – analysis of a video commercial on Instagram

iMotions.com



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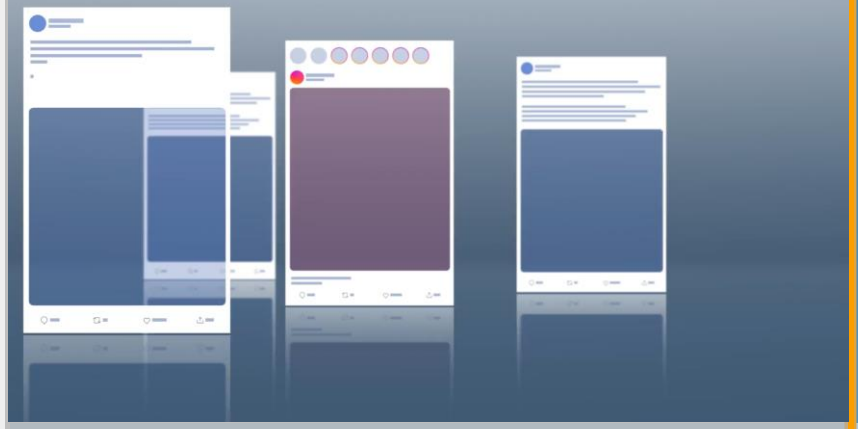
Types of research methods...

Analytics methods
(Secondary data)



Insights available from a variety of digital sources:

- Meta, Google, etc. etc.
- ...

Traditional "asking" methods
(Primary data)

- Questionnaires (fx. online)
- "Think-aloud-tests"
- Focus Groups
- ...

Biometric methods
(Primary data)

- Eye tracking (on-screen, glasses, VR)
- Facial Expression Analysis
- Galvanic Skin Response (Sensors on fingers)
- EEG (Sensors on scalp)
- ...

Traditional "asking" methods:

1. What the person **remembers clearly** from their experience
2. The person's **strong and conscious emotions**
3. Underlying reasons -Why the person **believes** (or wants us to believe) that they..
    1. prefer something over another
    2. Carried out a certain behaviour

Types of research - What **insights** can we uncover?

Biometric methods:

1. How the person **reacted** during their experience
2. The person's sub-conscious experience – which **emotions**, how intense
3. What attracted the person's visual **attention**. What they saw/didn't see. What they looked at most, for how long, in which order...

Types of research - Limitations

Traditional "asking" methods:

1. The test person might not be 100% **honest**, **articulate**, or have a perfect **memory**
2. **Bias** – the test person may say/do things in order to please / impress us, or to avoid presenting themselves in a bad light
3. The test person is unable to express **micro emotions** (fx. slight frustrations)

Biometric methods:

1. **Expertise** is needed
– both to conduct the research and to analyse the collected data
2. **Hardware** and **software** is needed
3. We can't uncover the underlying **reasons** behind the test person's biometric reactions – **why** they reacted how they did. (but we might get hints from eye tracking data)

Traditional "asking" methods:
What's "visible" on the surface

Conscious behaviour

Biometric methods:
What's under the surface.

The otherwise "invisible"

Unconscious behaviour

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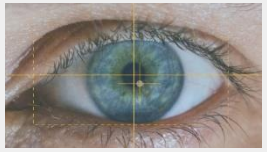
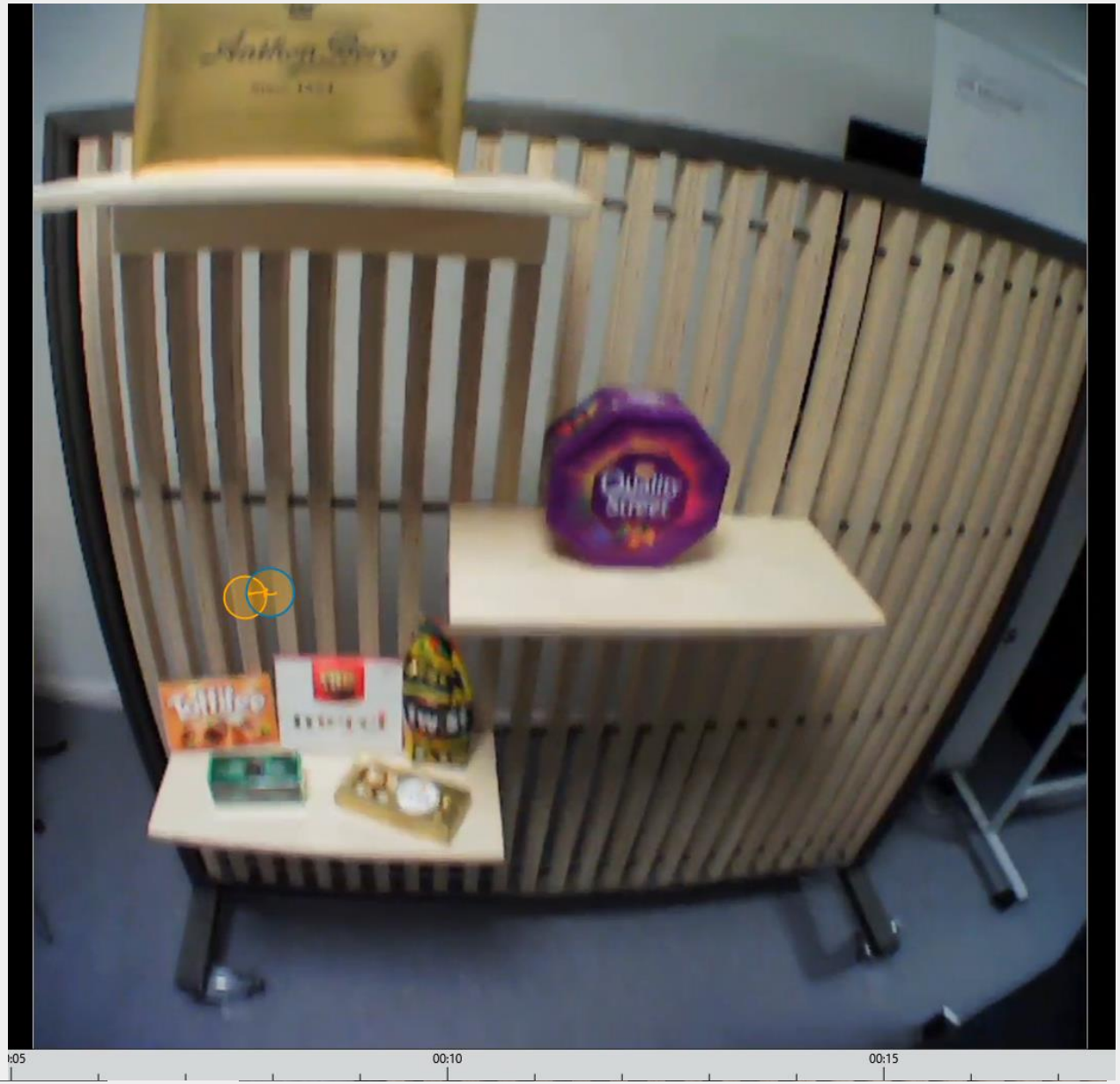
Examples from a few previous studies...

- A chocolate "shop" test
- A UX test

The chocolate test



Eyetracking data



IMOTIONS

Heatmap

The lowest shelf seems to get the most attention

Attention Intensity Low High

IMOTIONS

”Areas of Interest”

Which shelf is seen first?

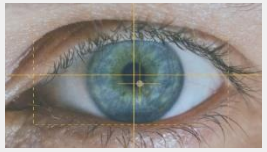
(Shortest time)

IMOTIONS

”Areas of Interest”

Which shelf is looked at the longest?

UX Study



Eyetracking data

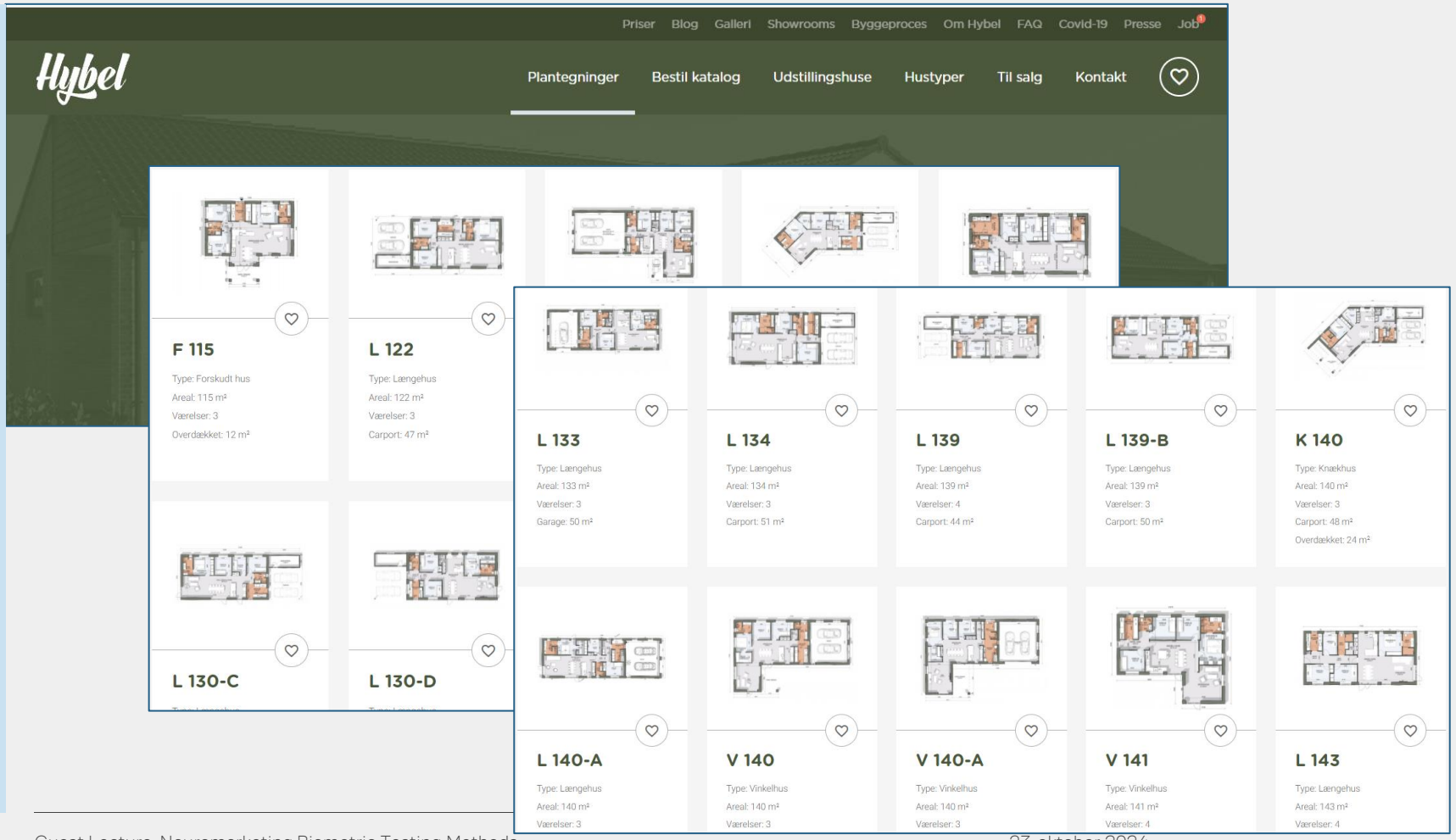
Facial Expression Analysis

UX test of a website

Objectives of the filtration tool:

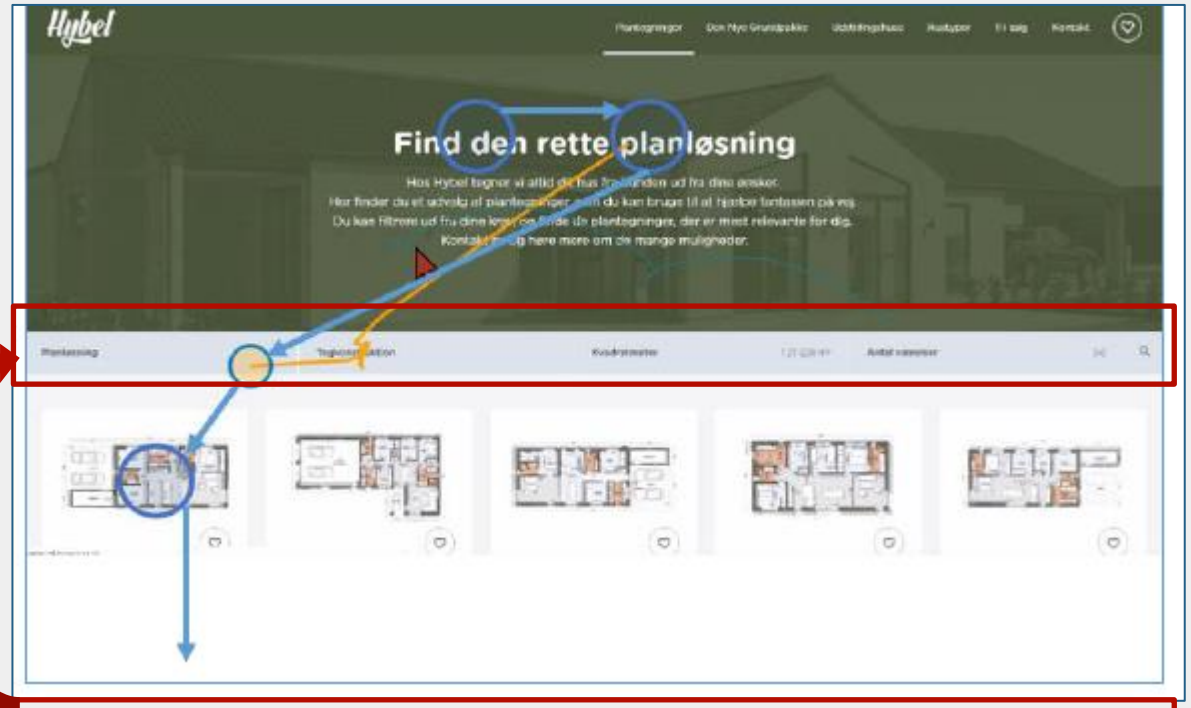
- Engage & maintain customer attention and involvement.

- Make it easier to navigate the many floor plan options



Source: MA Dissertation Study by Tine Juhl, 2020

UX test of a website

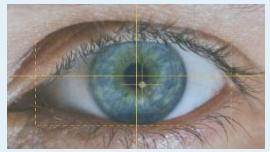


1. Do the users find, see and use the filtration tool?

2. Which emotional reactions are associated with this experience?

Conclusions

The Filtration Tool



Eyetracking

- Was "invisible" (& page was hard to find)
- When found and used → less extent of negative emotions / frustration, longer on-page time spend
- When not found/not used → higher extent of negative emotions / frustration, shorter on-page time spend

Facial Expression Analysis

Source: MA Dissertation Study by Tine Juhl, 2020

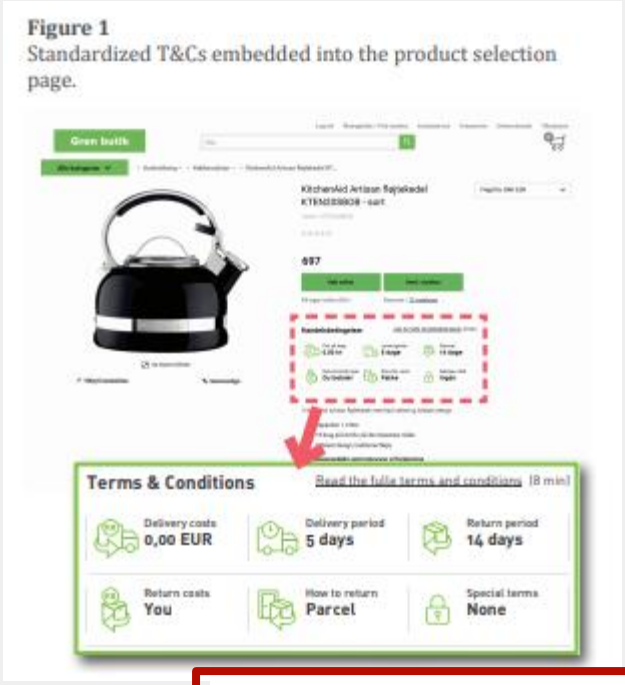
Other studies for inspiration

(not conducted by me)

1:

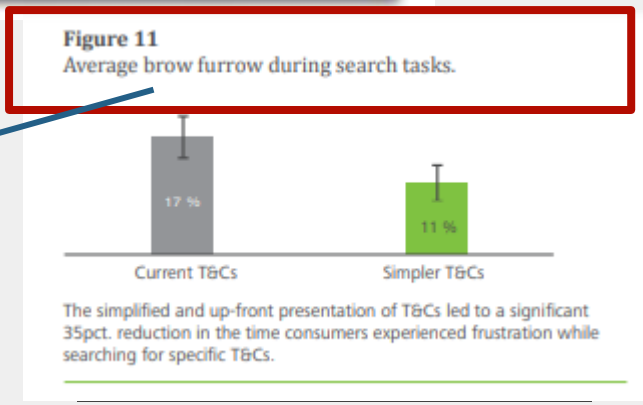
"Terms & Conditions" - Do you read them?

https://www.kfst.dk/media/50713/20180621-improving-the-effectiveness-of-terms-and-conditions_ny4.pdf



Facial Expression Analysis

"Brow Furrow"



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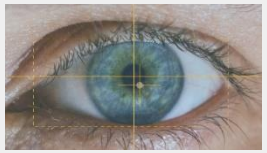
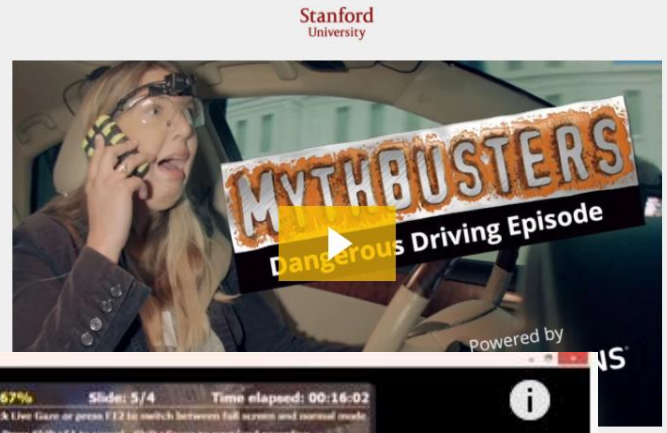
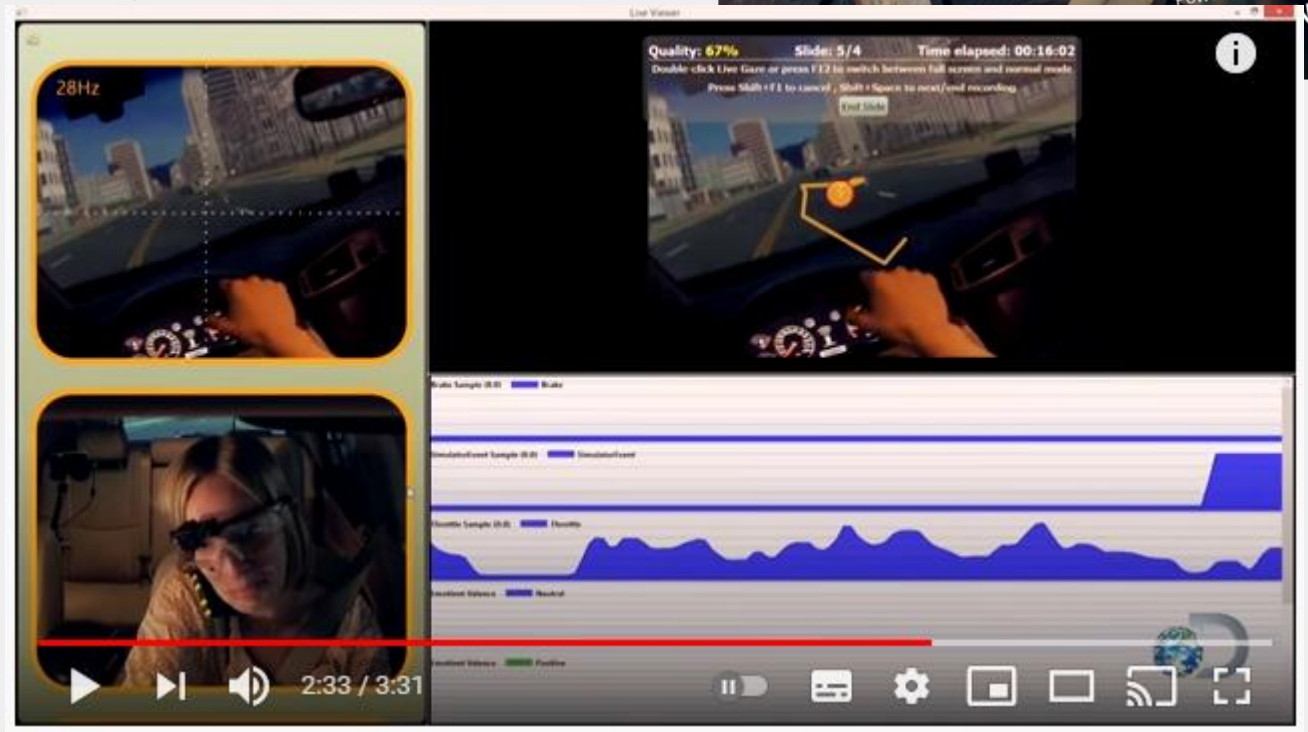
2:



Eyetracking & VR





Mythbusters "Dangerous Driving – hands free vs. full"

https://imotions.com/cases/mythbusters/

https://www.youtube.com/watch?v=VLVUR9Lesa4

(Thank you) FOR YOUR ATTENTION

Connections are welcome!

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