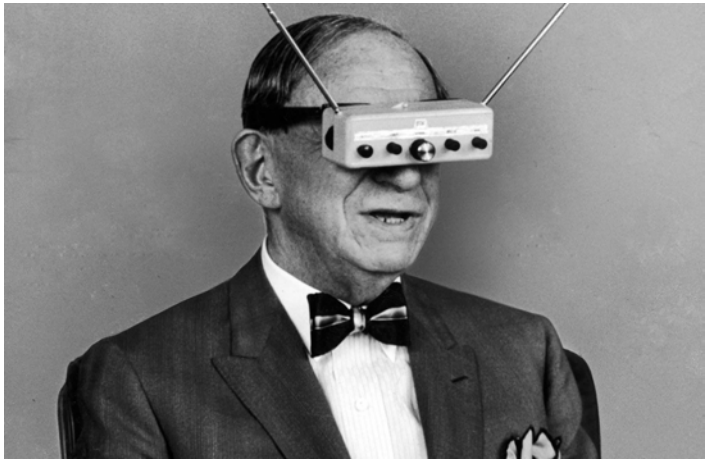
VIDEOS ARE ...

DEEPFAKES + MIXED REALITY

Third Millennium Challenges for Audiovisual Data in Journalism

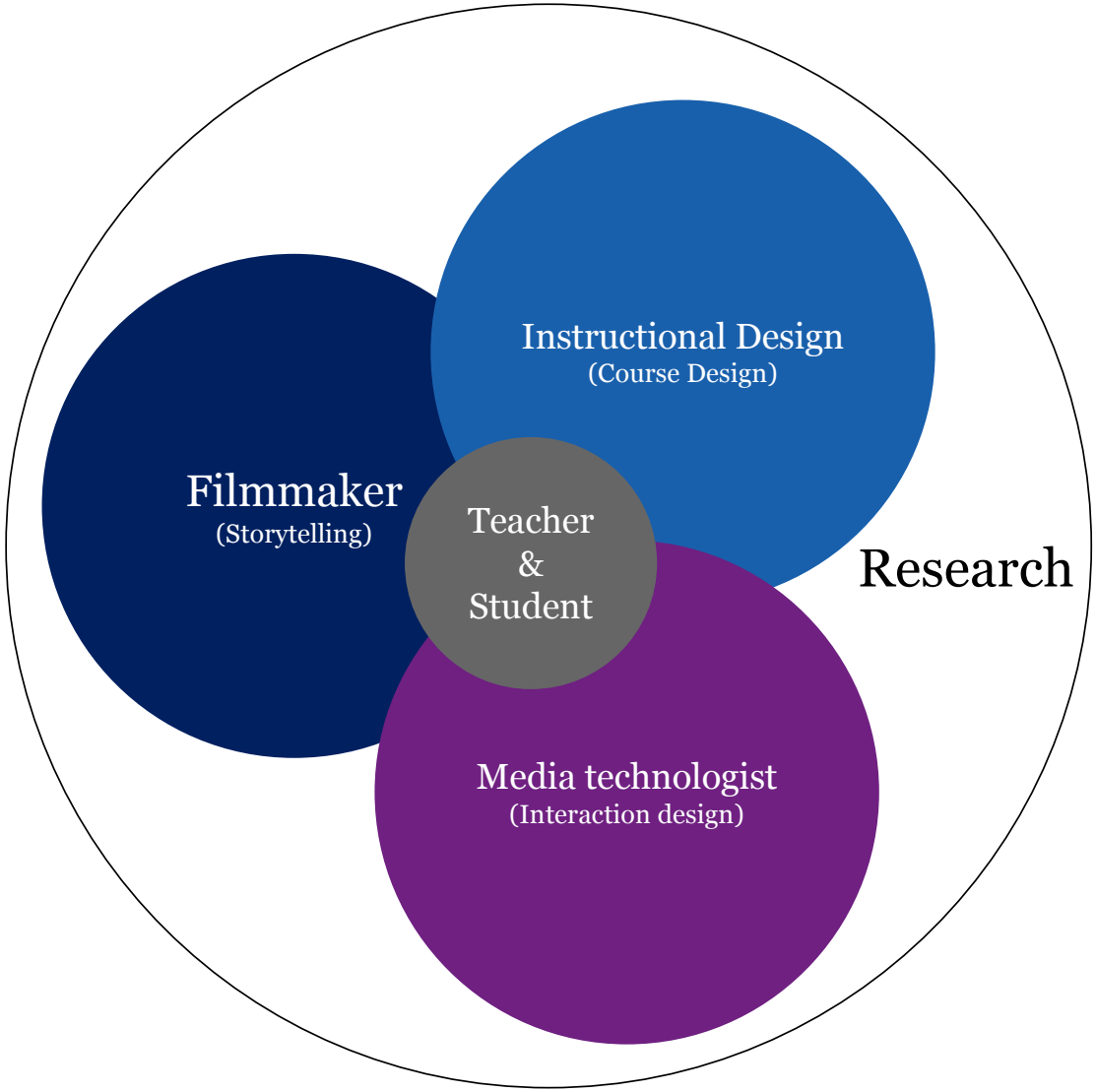


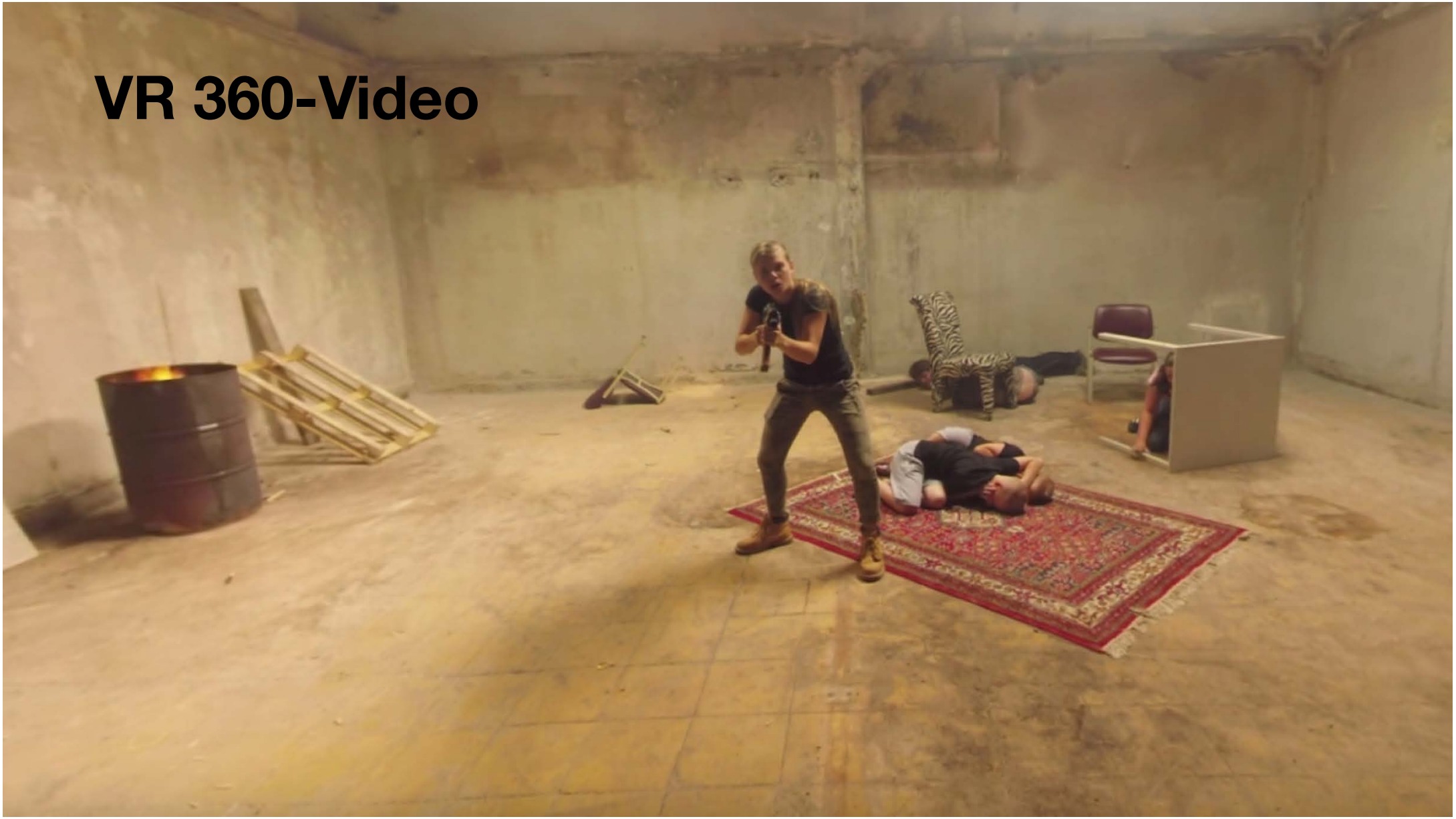
3th of May 2018; Hilversum

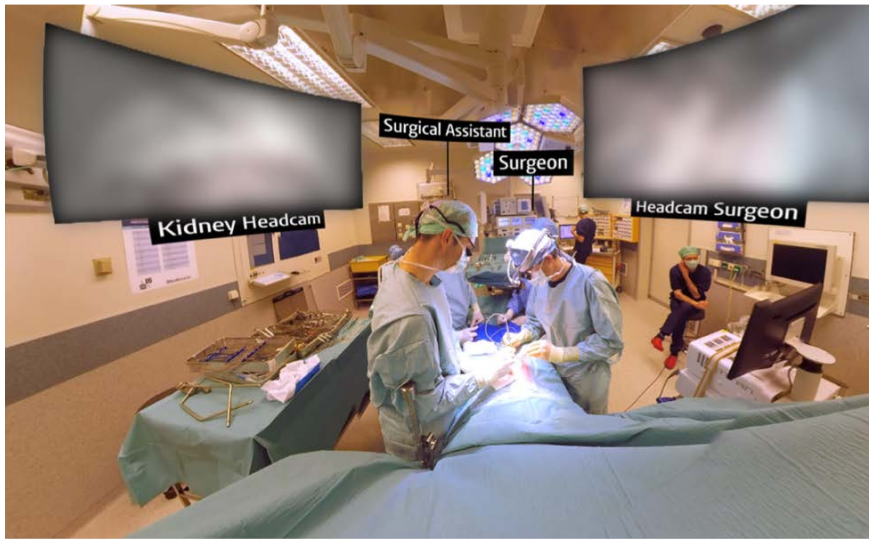
Jeanine Reutemann
Research Fellow; Digital Media Designer; Lecturer

CENTRE FOR INNOVATION
Leiden University

Universiteit Leiden


Instructional Design
(Course Design)
Filmmaker
(Storytelling)
Teacher
&
Student
Media technologist
(Interaction design)
Research


VR 360-Video


Surgical Assistant
Surgeon
Kidney Headcam
Headcam Surgeon

WHAT WAS YOUR BEST VIRTUAL REALITY EXPERIENCE SO FAR?

(if non, what was your most immersive media-experience?)

WHAT WAS THE MOST INFLUENCIAL VIDEO YOU‘VE EXPERIENCED RECENTLY?

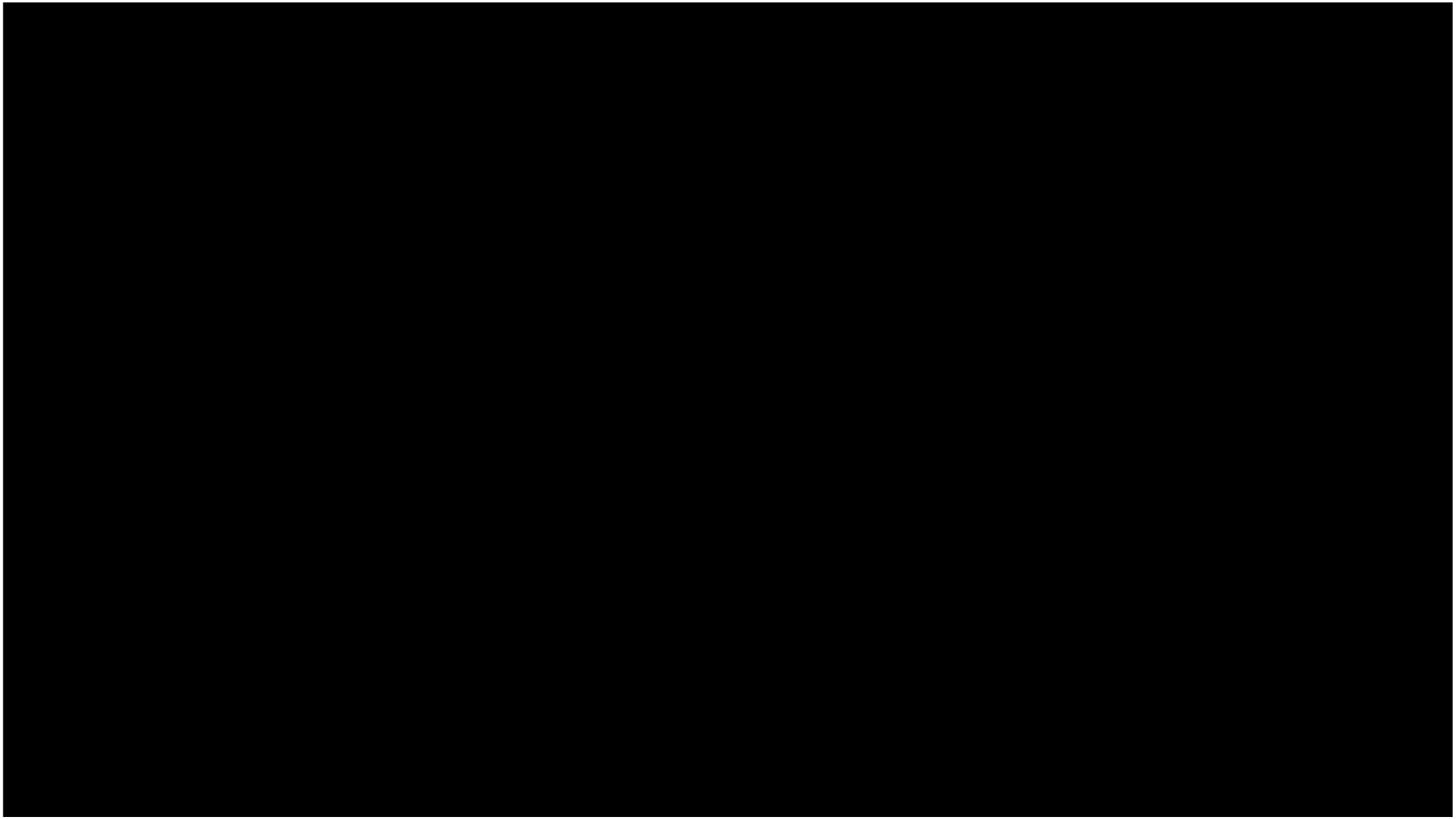
WORKSHOP TODAY

1. Deepfake & Co.
2. Verification Strategies
3. Mixed Reality

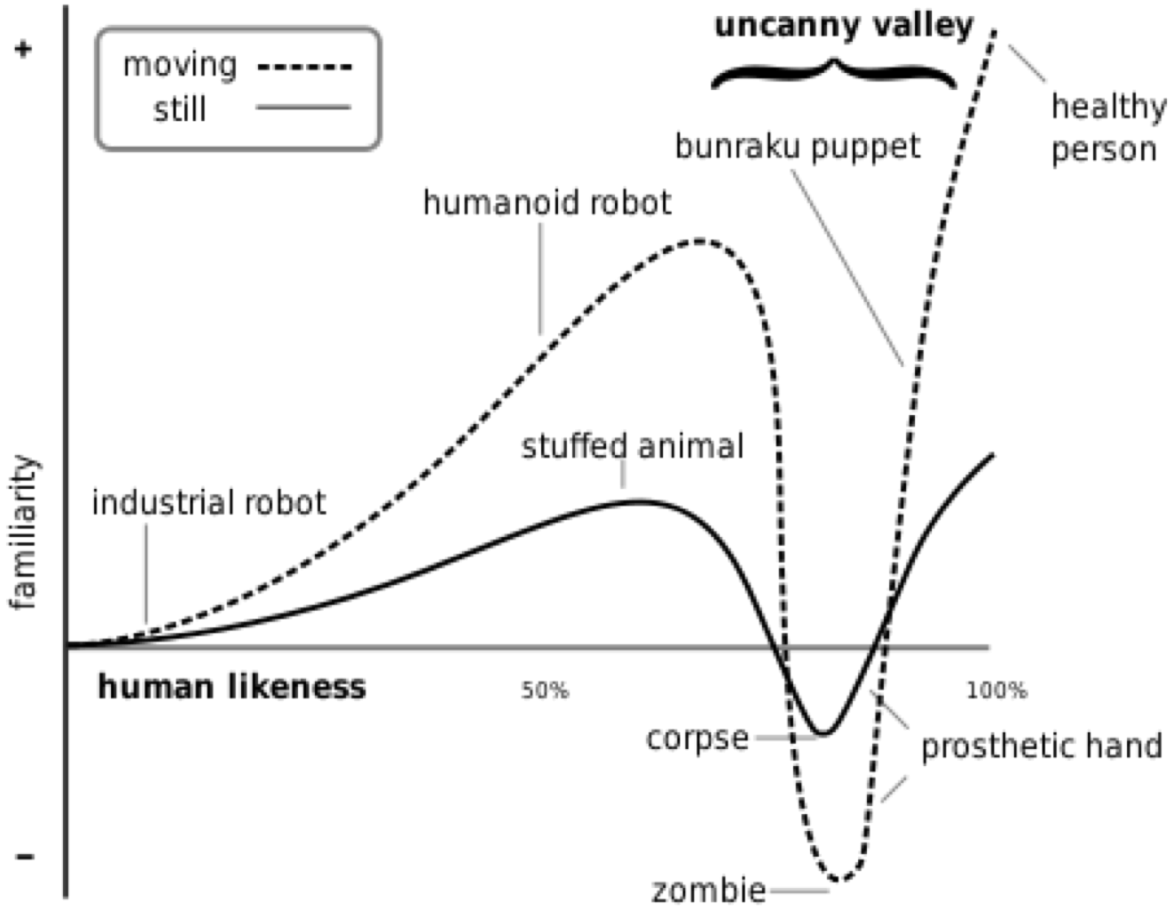
> Speculative Design Approach

Deepfakes;

ORIGINAL
DERPFAKES
THE PRESIDEN
THE PRESIDEN



Deepfakes: Uncanny Valley Effect



Deepfakes;
Audio-to-Lipsync;

TWO MINUTE
PAPERS
WITH KÁROLY ZSOLNAI-FEHÉR (KZF)
AUDIO TO OBAMA:
LEARNING LIP SYNC FROM AUDIO
Disclaimer: I was not part of this research project, I am merely providing commentary on this work.

Deepfakes;
Audio-to-Lipsync;
Face-to-Face;

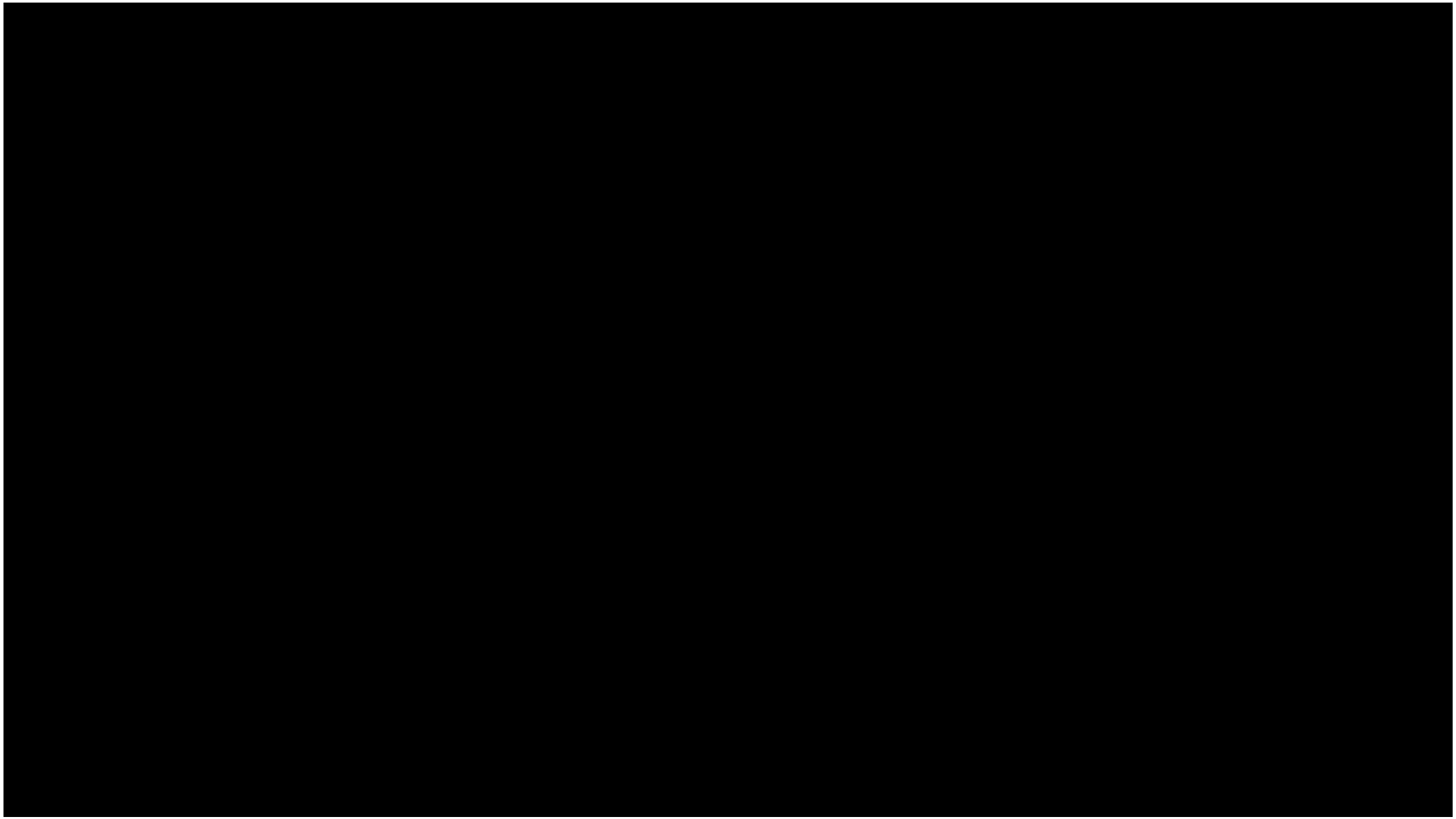
Face2Face: Real-time Face Capture and Reenactment of RGB Videos

Justus Thies[1], *Michael Zollhöfer*[2], *Marc Stamminger*[1], *Christian Theobalt*[2], *Matthias Nießner*[3]

[1]University of Erlangen-Nuremberg
[2]Max-Planck-Institute for Informatics
[3]Stanford University

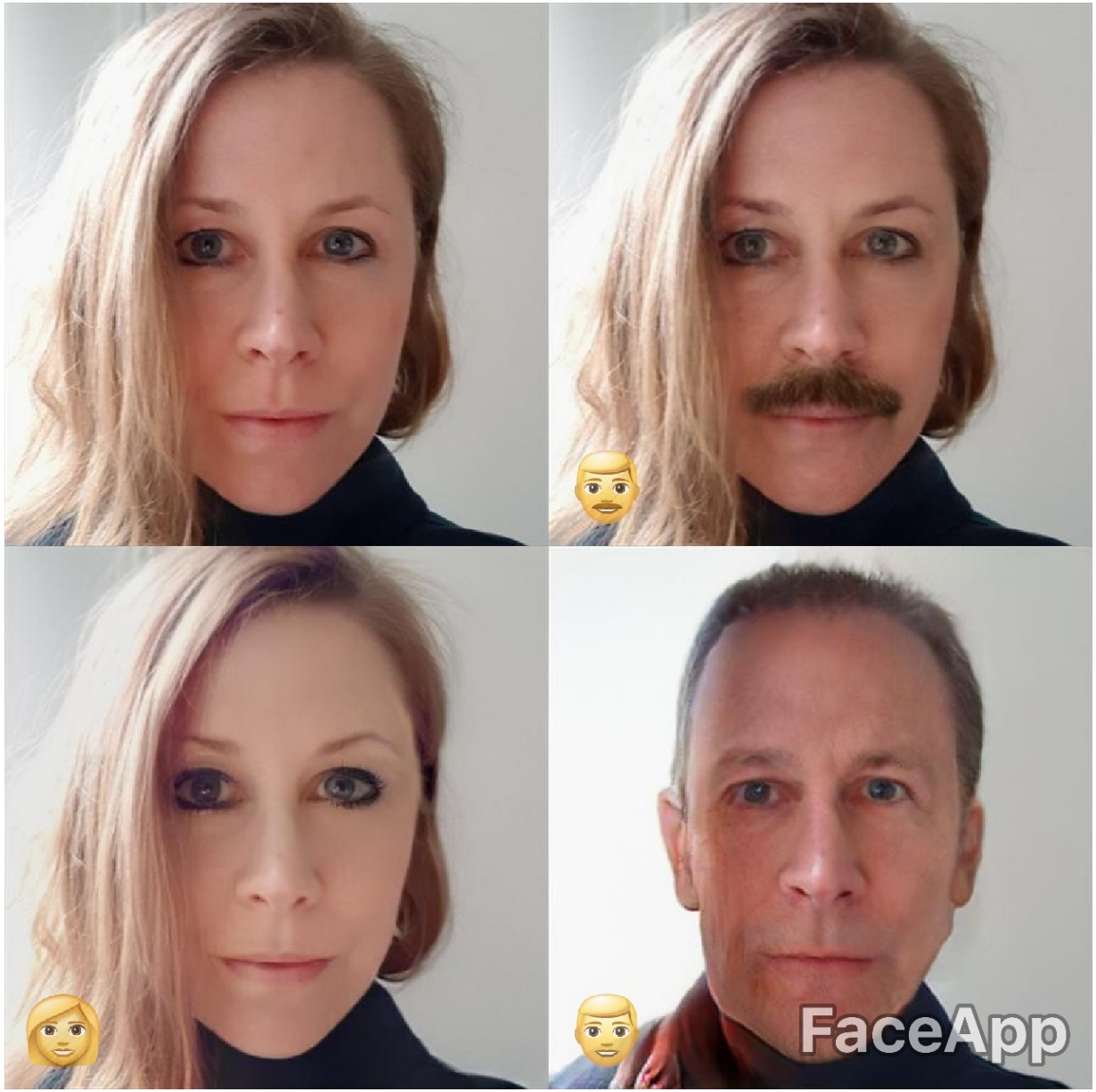
CVPR 2016 (Oral)

Deepfakes;
Audio-to-Lipsync;
Face-to-Face;
Text-to-Speech;



Deepfakes;
Audio-to-Lipsync;
Face-to-Face;
Text-to-Speech;
Facial Recognition;

FaceApp
Snapchat
Etc.



Facial-Recognition meets Facial Expressions and Emotion Recognition

Deepfakes;
Audio-to-Lipsync;
Face-to-Face;
Text-to-Speech;
Facial Recognition;
Geo-Tracking;

Geo-Tracking, e.g. on Googlemaps

https://www.google.com/maps/place/Bauchi,+Nigeria/@10.2804206,9.8006318,3a,75y,47.02h,90t/data=!3m8!1e5!3m6!1sAF1QipN0WA1HGLX0wOztSA9zkwIHTtUPs1r3SNOACzga!2e10!3e10!6shttps:%2F%2Flh5.googleusercontent.com%2Fp%2FAF1QipN0WA1HGLX0wOztSA9zkwIHTtUPs1r3SNOACzga

Deepfakes;
Audio-to-Lipsync;
Face-to-Face;
Text-to-Speech;
Facial Recognition;
Geo-Tracking;
Digital Nudging;

Push-Notification
Red-Colour Symbols
Nudging via: Interaction Design

Deepfakes;
Audio-to-Lipsync;
Face-to-Face;
Text-to-Speech;
Facial Recognition;
Geo-Tracking;
Digital Nudging;
Social (Viral) Engineering;

Deepfakes;
Audio-to-Lipsync;
Face-to-Face;
Text-to-Speech;
Facial Recognition;
Geo-Tracking;
Digital Nudging;
Social (Viral) Engineering;
[...]

WHICH MEDIA-TECHNOLOGY HAS THE HIGHEST IMPACT ON JOURNALISM TODAY?

In a few months from now,
we won’t be able to distinuish
between deepfakes and ‘normal’
videos.

Are we?

YES & NO

Nayirah Kuwaiti Girl Testimony, 1991

Front Page Picture Obama, 2010

Varoufakis – Böhmermann, 2015

Continuous Race

VERIFICATION STRATEGIES?

«Amnesty International is already grappling with some of these issues. Its Citizen Evidence Lab verifies videos and images of alleged human-rights abuses. It uses Google Earth to examine background landscapes and to test whether a video or image was captured when and where it claims. It uses Wolfram Alpha, a search engine, to cross-reference historical weather conditions against those claimed in the video.»

Fake news: you ain't seen nothing yet,
https://www.economist.com/news/science-and-technology/21724370-generating-convincing-audio-and-video-fake-events-fake-news-you-aint-seen

VERIFICATION STRATEGIES?

Media: unique key that only the signing organisation—or the originating device—possesses.

VERIFICATION STRATEGIES?

Decentralized timestamping on the blockchain

VERIFICATION STRATEGIES?

«In an initial round of testing last June, researchers were able to identify “speaker inconsistencies and scene inconsistencies,” two markers of video that’s been tampered with, with 75% accuracy in a set of hundreds of test videos.»

«DARPA is funding new tech that can identify manipulated videos and ‘deepfakes’» 1th of May 18, https://techcrunch.com/2018/04/30/deepfakes-fake-videos-darpa-sri-international-media-forensics/

All of these idea solutions will have no impact on our fakenews issue.

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

JEAN-LUC GODARD, 1960.

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

JEAN-LUC GODARD, 1960.

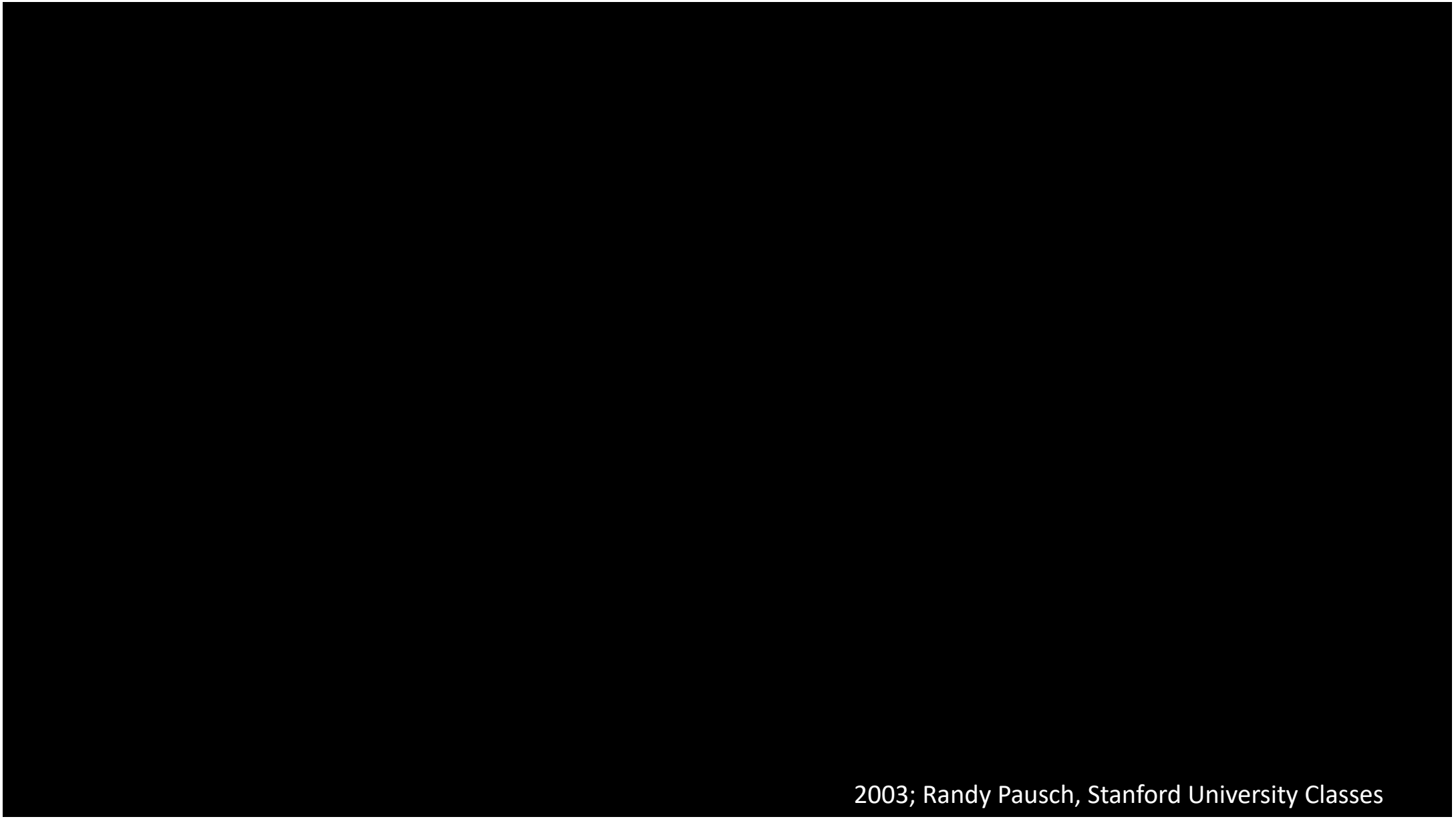
So what about 360-Virtual Reality, at 120 frames per second?

paradim *SHIFT?*

FAKEREALITY

CRISIS?

1968; Ivan Sutherland and Bob Sproull



2003; Randy Pausch, Stanford University Classes

PHILIPS
ACTION
CAMPAIGN

Clouds Over Sidra

360-Virtual Reality

Immersive experiences

Sense of presence

Embodiment

360-Virtual Reality

Immersive experiences

Sense of presence

Embodiment

VIRTUAL EMPATHY

DEATH
MENTAL HEALTH
ELEMENTAL
IMPERIALISM
VIOLENCE
FEMINISM
MISUNDERSTANDING
NEUROSCIENCE
COMBOGENESIS
NATURE
NARRATIVE
INTERMEDIARY FORMS
DARK SIDE
EXPLORING THE DIVERSITY OF
DIALOG
CONTROL
EMPATHY
ETHICS
IMAGINARY
LOVE
EMOTIONAL EXCHANGE
DIGITIZATION
COMPASSION
DEAD DOGS
VIDEO WORK
ENTANGLEMENT
EPISTEMOLOGICAL TURN
POWER
GENEALOGY
GENDER
NONHUMAN
ANIMALS
MONSTROUS NURSE
SUFFERING
TRANSNATIONAL

Deepfakes;
Audio-to-Lipsync;
Face-to-Face;
Text-to-Speech;
Facial Recognition;
Geo-Tracking;
Digital Nudging;
Social (Viral) Engineering;
[...]

In Mixed Reality Applications?

1. Possible Futures

everything that might happen (fantastical)

2. Plausible Futures

based on current knowledge

3. Probable futures

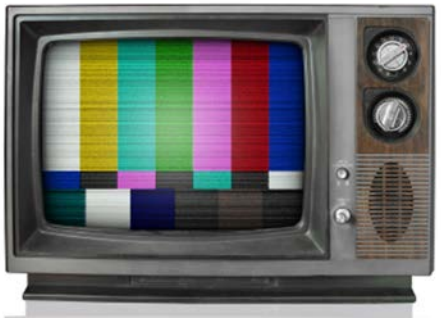
likely to happen, based on tech today

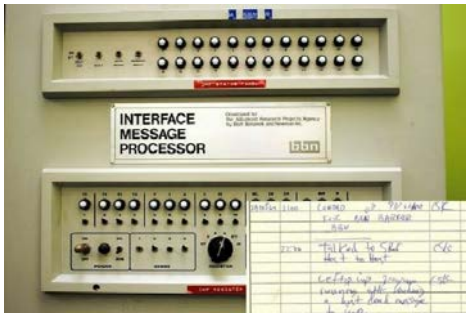
4. Preferable futures

we want to happen (individual)

Speculative Design, Sci-Fi Story:

‘HOW A DEEPFAKE CHANGED THE HISTORY IN 2025’





?

QUESTIONS?

Jeanine Reutemann
Research Fellow; Digital Media Designer; Lecturer

slides on:
audiovisualresearch.org

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