# Smile to Vote: Towards Political Physiognomy Analytics - Predicting Electoral Behavior from Live Video

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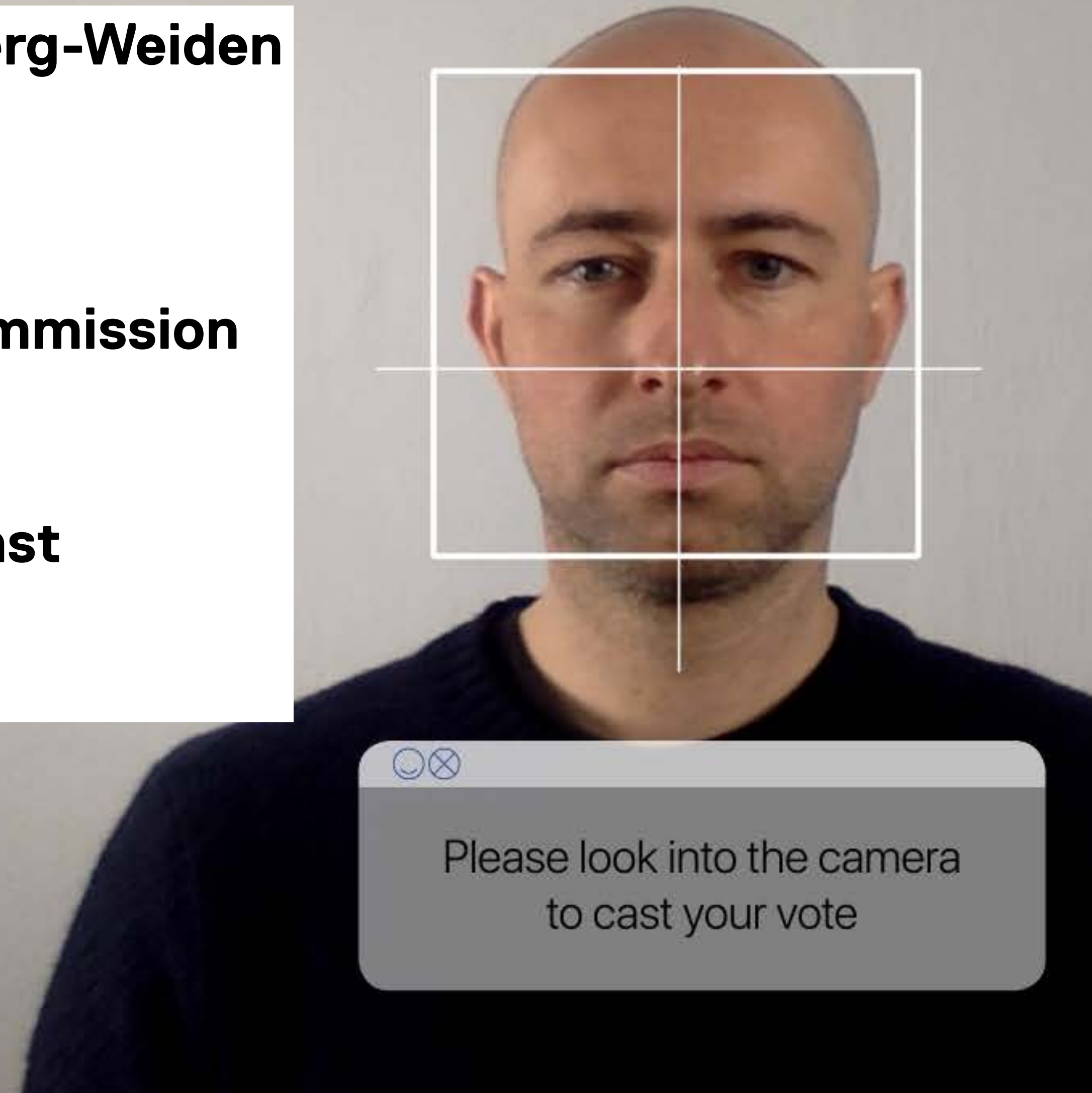**Universität Innsbruck**
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Peterhaensel, 2017, Interactive Media Installation "Smile to Vote", Screen Capture
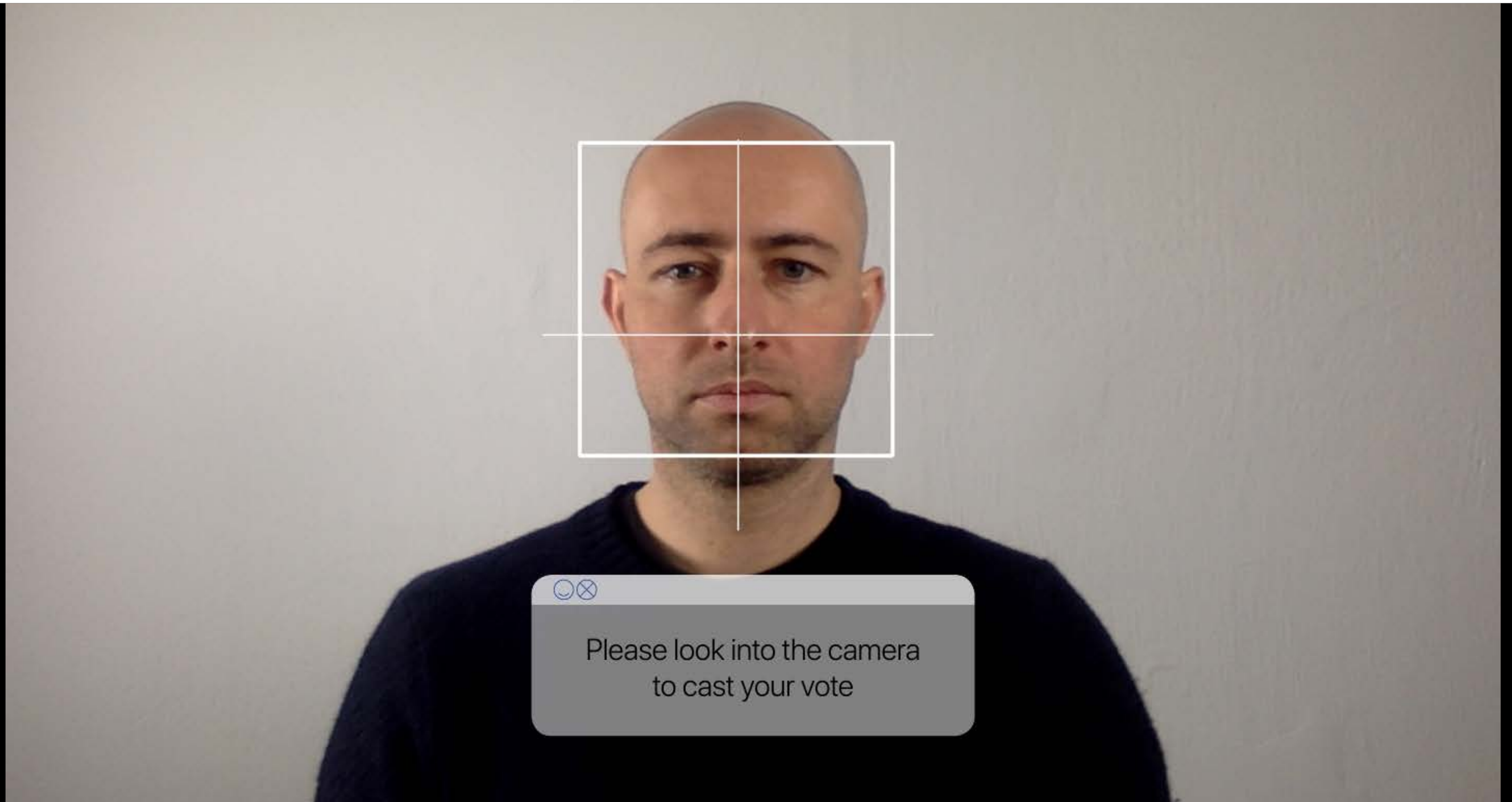
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Schnittstelle: Wirtschaftsinformatik – Medienkunst (Computing und Kreativität)

Please look into the camera to cast your vote

Peterhaensel, 2017, Interactive Media Installation "Smile to Vote", Screen Capture

HINTERGRUND

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Auflösung von Privatsphäre

und

nichtverfolgte Massenüberwachung

"The information that we collect, you can choose to have us not collect. You can delete any of it"

— Mark Zuckerberg, April 2018 [*]

"Everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified."

— Charter of Fundamental Rights of the European Union [*]

HINTERGRUND
-
Politische *Data-Analytics* und Microtargeting

Die mittlerweile geschlossene Firma Cambridge Analytica verursachte einen Datenschutzskandal. Im März 2018 wurde bekannt, dass die Firma illegal über 50 Millionen Facebook Profile verfügte.

Bundeszentrale für politische Bildung: "Digitale Desinformation - Microtargeting und Manipulation: Von Cambridge Analytica zur Europawahl
https://www.bpb.de/themen/medien-journalismus/digitale-desinformation/290522/microtargeting-und-manipulation-von-cambridge-analytica-zur-europawahl/
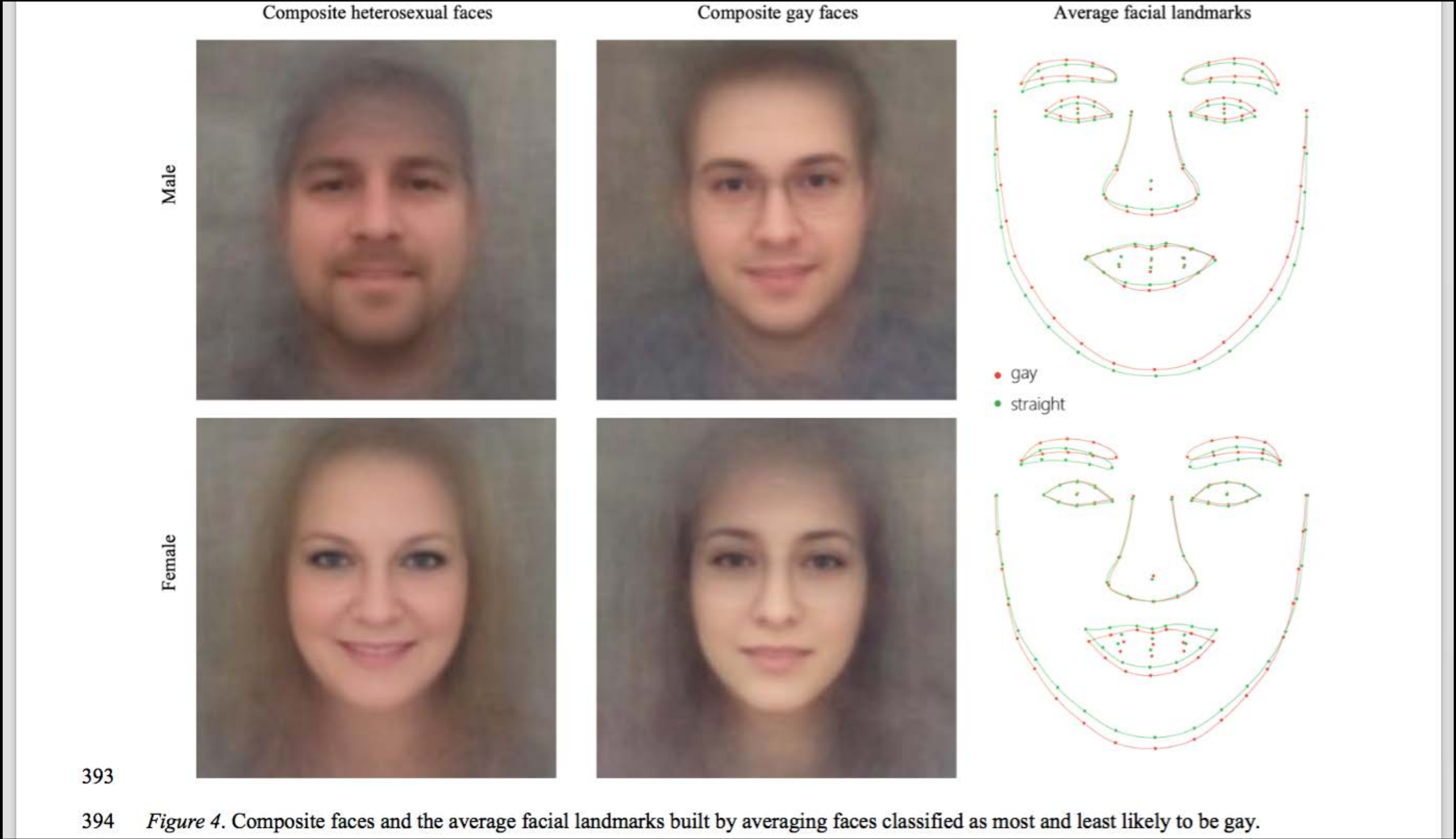
Cambridge Analytica (CA) war ein 2014 von der britischen SCL Group gegründetes Datenanalyse-Unternehmen, das im Mai 2018 Insolvenz anmeldete. Es hatte seinen Hauptsitz in New York City und **sammelte und analysierte in großem Stil Daten über potentielle Wähler mit dem Ziel, durch individuell zugeschnittene Botschaften das Wählerverhalten zu beeinflussen** (Mikrotargeting).

https://de.wikipedia.org/wiki/Cambridge_Analytica

- Offenheit
- Gewissenhaftigkeit
- Extraversion
- Verträglichkeit
- Neurotizismus
- Lebenszufriedenheit
- IQ
- Politische Ansichten = konservativ?
- Politische Ansichten = liberal?
- Politische Ansichten = unbeteiligt?
- Politische Ansichten = libertär?
- Religion

Auswahl granularer Targeting-Optionen, aus einer geleakten Email and Cambridge Analytica von Dr. Aleksandr Kogan im Mai 2014

HINTERGRUND

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Digitale Psychometrie

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Composite heterosexual faces | Composite gay faces | Average facial landmarks

Male

Female

- gay
- straight

393

394   *Figure 4*. Composite faces and the average facial landmarks built by averaging faces classified as most and least likely to be gay.

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Was macht das mit unserer (europäischen) Vorstellung davon, dass Menschen:

- **sich (weiter)entwickeln können?**
- **sich verändern können?**
- **ihre Meinung ändern können?**

HINTERGRUND

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Marktakzeptanz von Gesichtserkennung

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Video Excerpt, Apple, iPhone X Commercial, visualizing functionality of Face ID, September 2017

Video Excerpt, Alibaba Group, Smile to Pay Commercial, "Look up at the camera to authenticate your payment", September 2017

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Biometric Capturing, Durban Airport, June 2018

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Biometric Capturing, Durban Airport, June 2018

Wieviel Privatsphäre sind wir gewillt aufzugeben

für die Bequemlichkeit?

SMILE TO VOTE - POLITICAL PHYSIOGNOMY ANALYTICS

Die Zukunft von biometrischem Scoring
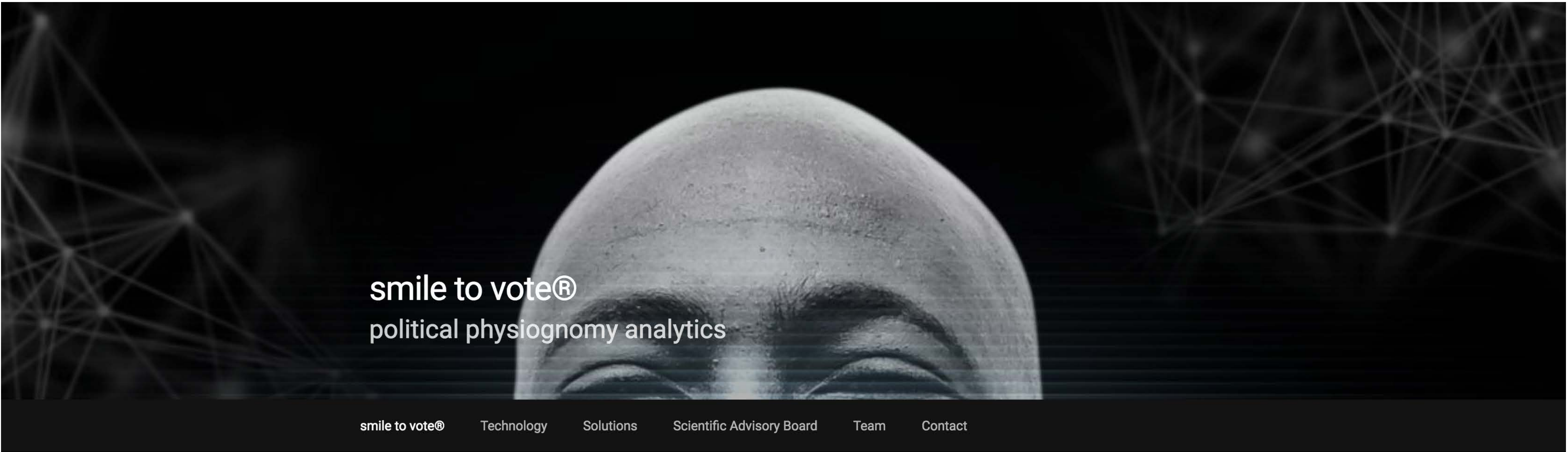
Peterhaensel, 2017, Fake Company Website "smiletovote.com", Screen Capture

smile to vote®

political physiognomy analytics

Peterhaensel, 2017, Fake Company Website "smiletovote.com", Screen Capture

smile to vote®

political physiognomy analytics

smile to vote®   Technology   Solutions   Scientific Advisory Board   Team   Contact
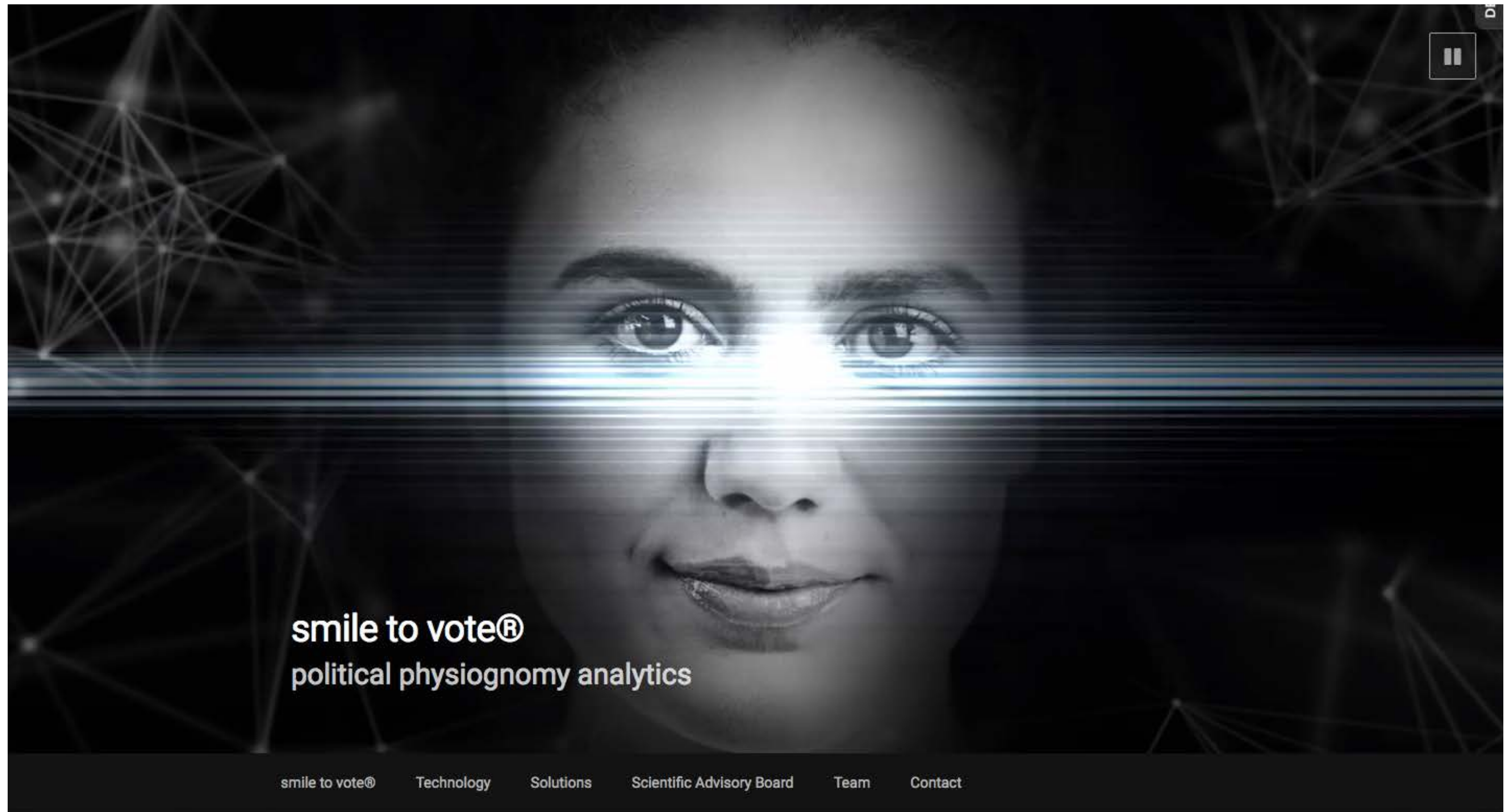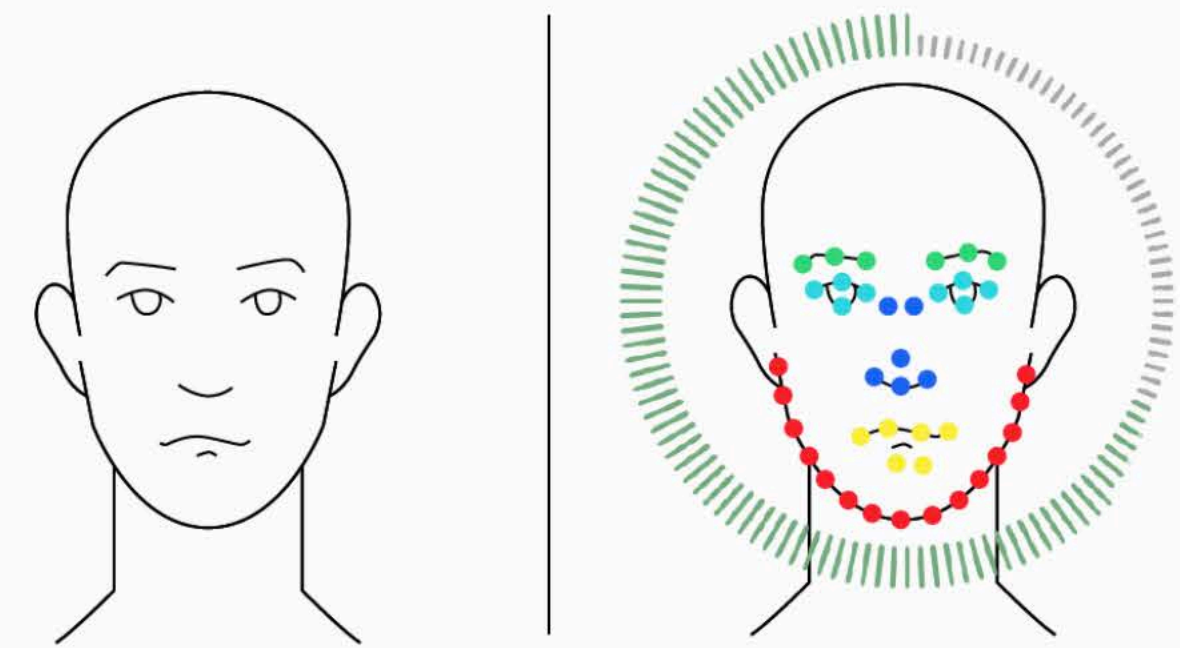
smile to vote®

smile to vote® is the innovative leader of physiognomy analysis technology. smile to vote® decodes facial features and provides fascinating insights into individual political bias and electoral behavior. The software uses state of the art facial recognition as well as AI-driven pattern analysis to gage a valid picture of citizens and their political beliefs. smile to vote® opens up new paths to intelligent, individualized and efficient voting processes.

Peterhaensel, 2017, Fake Company Website "smiletovote.com", Screen Capture

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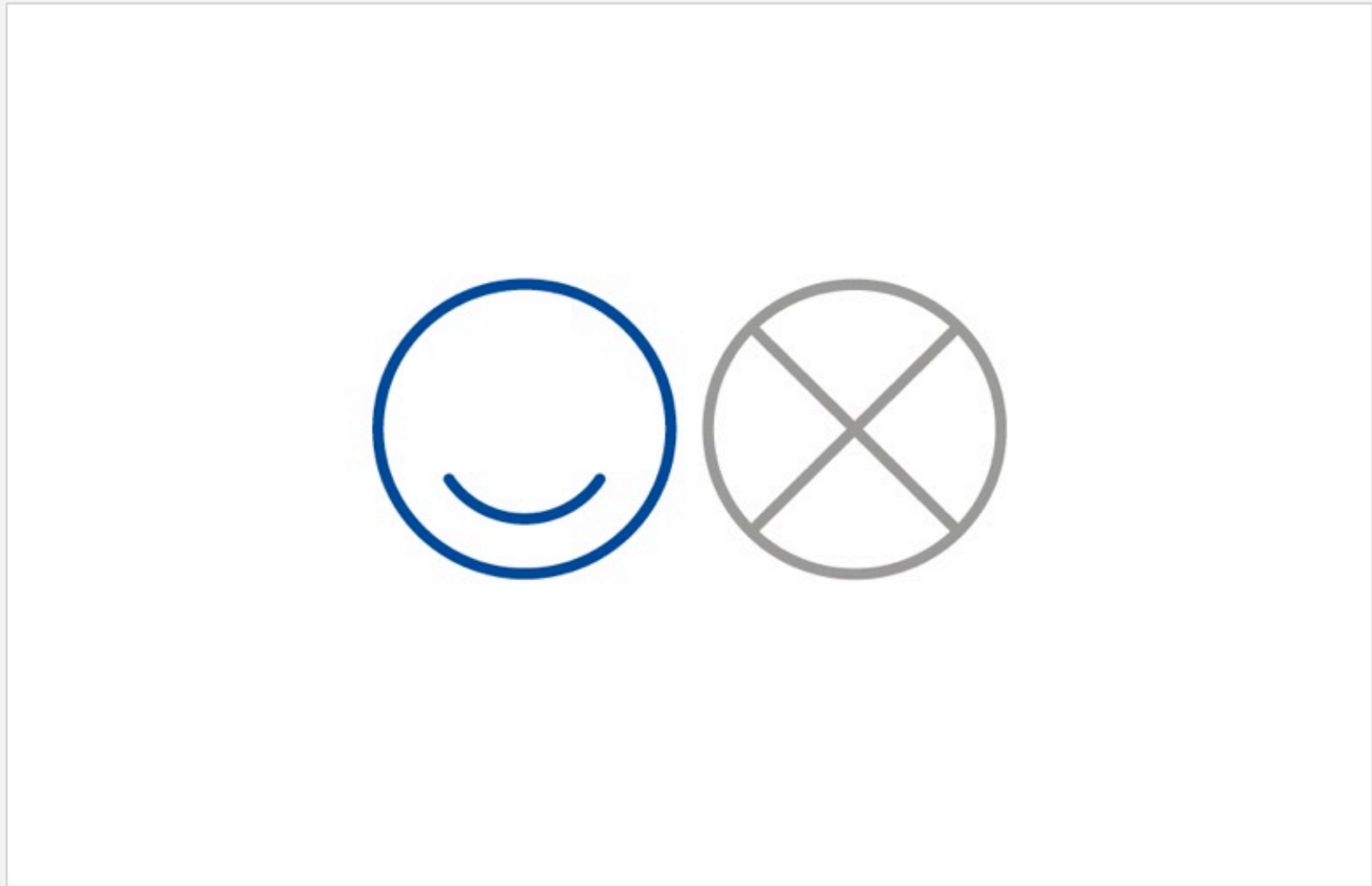.

Technology

To the human eye every person has a unique physiognomy. Cutting edge research in the field of AI-driven Psychometrics revealed the existence of reoccurring patterns related to personality traits below the threshold of human perception.

smile to vote® fractionises facial physiognomy into tens of thousands of tiny, digital components and elements ("features"). Data rooms and data clouds arise from these components and develop patterns, which **smile to vote®** compares to patterns and structures of substantiated reference data. This technology is based on Facial Scanning, Data Mining, Deep Learning, and Psychometrics.


relevant facial points for scanning

smile to vote® is a technology, which – with the help of Artificial Intelligence – identifies patterns in physiognomy and

Peterhaensel, 2017, Fake Company Website "smiletovote.com", Screen Capture

Peterhaensel, 2017, Fake Company Business Cards: GovTech-Startup "smile to vote"

smile to vote
political physiognomy analytics

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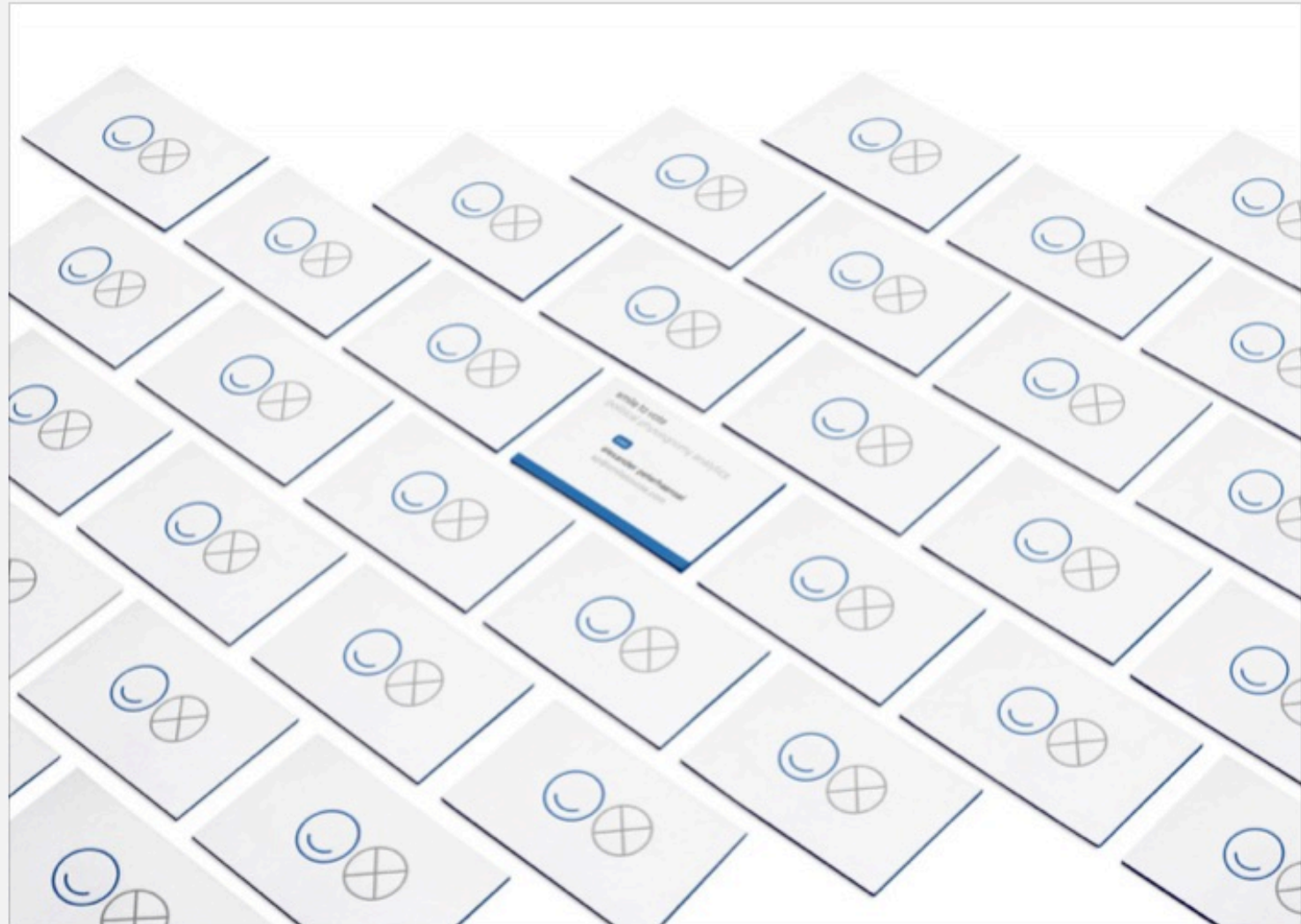
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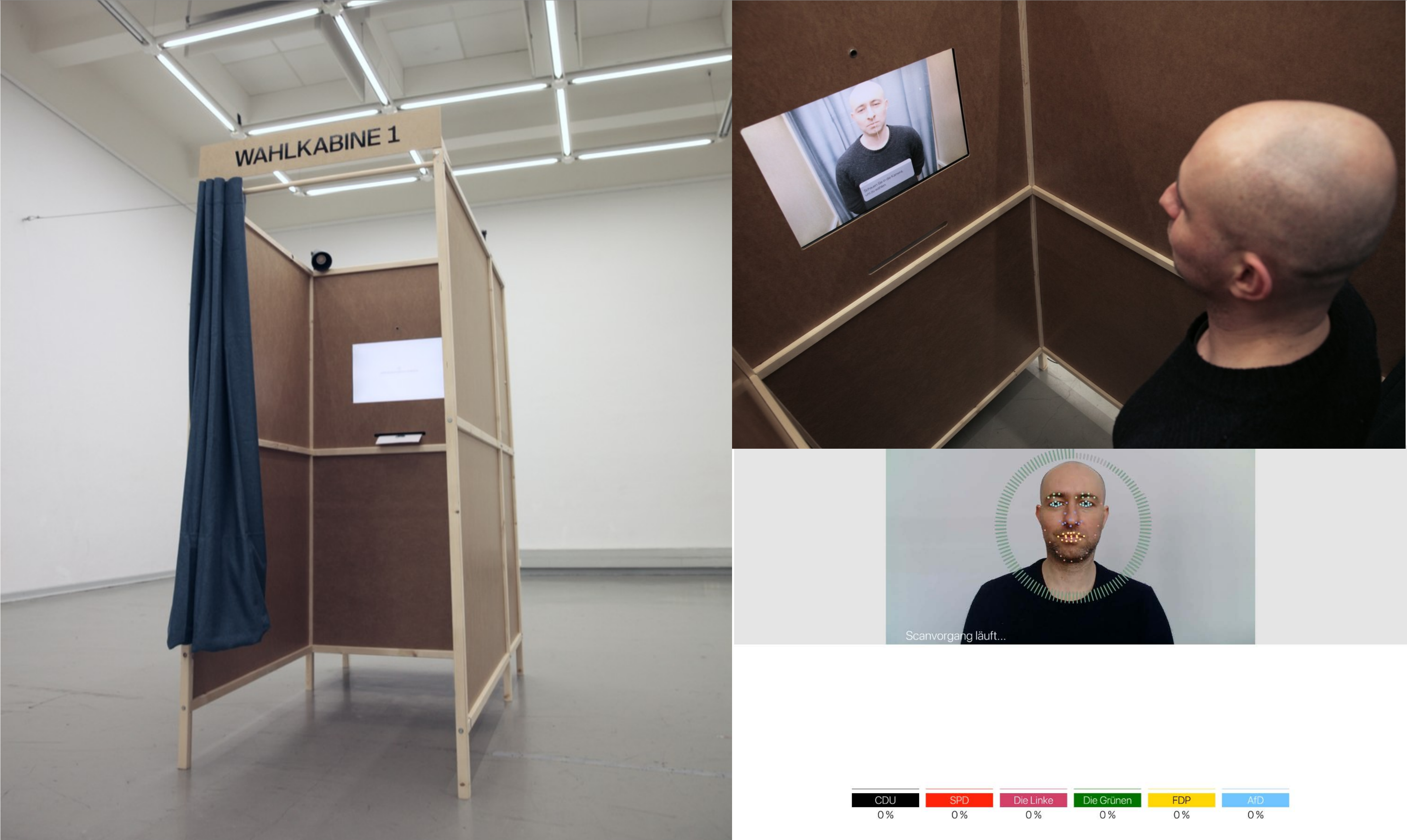
Peterhaensel, 2017, Interactive Media Installation "Smile to Vote", Photos, Screen Capture

Smile to Vote: Towards Political Physiognomy Analytics - Predicting Electoral Behavior from Live Video

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Keywords

Facial Recognition, Psychometrics, Computer Vision, Artificial Intelligence, Government 4.0, Privacy 4.0, Media Art, Interactive Installation

Abstract

This Paper proposes a novel application of psychometric computer vision analysis. It describes the experimental use case of an interactive voting booth, which is able to retrieve, in real-time, the political conviction of any given person from their facial physiognomy by means of computer vision. After an overview of relevant developments in the fields of psychometrics, computer vision as well as AI-driven political data science, the article describes the design and the operating principle of the interactive voting booth.

1. Introduction

Against the backdrop of currently trending AI-driven political campaigns and the related 2018 Cambridge Analytica data scandal, *Smile to Vote* escalates the latest research findings in the field of psychometrics and merges them with the worry-free big scale implementation of facial recognition systems in life style products and daily business processes. The conceptual media art piece portrays the fictitious Govtech startup *Smile to Vote* and its cutting edge product with the same name: an ultra efficient e-voting booth.

By means of AI-based facial scanning, the e-voting booth gages the political conviction of any given person and emulates the process of digitally casting a vote at a federal election by simply looking into a camera.

The work addresses the religiously recited aspirations of global IT companies of turning the world into a better place by way of their products, as well as their apparent believe in a superhuman objectivity of algorithmical decision making. Also, it aims at highlighting an apparent discrepancy between these aforementioned aspirations and a surprising lack of respect for personal data and privacy.

Furthermore, the work addresses the question of how the large-scale deployment of AI algorithms and facial recognition applications will affect democratic decision-making processes as well as our individual understanding of privacy, freedom and self-determination.

2. Background

Starting point for the reflections was, on one hand, the perceivable effect of AI-based data analytics on the research fields of psychometrics and computer vision within the last 2 years, and the effect the both research fields are having on one another. The incorporation of deep learning (deep neural networks) into the practice of psychometrics seems to have the most profound potential as an instrument for near-complete surveillance, political manipulation and for predicting human behavior.

Taking into account the outright deceitful behavior of global IT-companies towards their users, which become somewhat apparent in Facebook's 2018 Cambridge Analytica data-scandal, this work is, on the other hand, inspired by the general public's surprising unimpressedness regarding large scale deployments of facial recognition systems.

I am going to give a quick overview over recent developments in digital psychometrics (2.1), political data analytics (2.2), the market acceptance of large-scale facial recognition implementation (2.3), and the clad und unresolved privacy fraud currently being orchestrated by global IT-companies (2.4).

2.1 Digital Psychometrics

Deep neural networks are capable of detecting minute statistical anomalies in data sets, below the threshold of human perception. Therefore machine-learning algorithms are able to interpret information in ways we as humans can't retrace.

As an example the company Cambridge Analytica "from July 2016 on [...] provided election workers of the Trump campaign with an App, with which they could identify the political conviction as well as the personality type of residents of a specific house." "The election workers also had conversation guidelines matching the personality type of the resident." (Author translation) [Grassegger, Krogerus, 2016]

During the federal election campaign 2017 in Germany, the Christian Democratic Union of Germany (CDU) deployed an app called "Connect17". The CDU party head quarters went on record with the statement: "Via the Deutsche Post Direkt GmbH we have bought a potential analysis [data set] on the level of street accuracy. That means, that the statistical probability, with which the CDU will be voted for, has been calculated for a residential block." (Author translation) [Keller, 2017]

Because of a data breach on the Website of the Free Democratic Party (FDP), the precision of the party's micro targeted campaigning during the German federal election campaign 2017 was revealed. Simon Hegelich, of the Technical University Munich, analyzed the erroneously exposed electioneering tool and noted: "On a map one can zoom in so far (in the big cities), that one gets displayed the likelihood of 60% or 80% whether the inhabitants of individual houses are FDP-voters." (Author translation) [Hegelich, 2017]

2.3 Market Acceptance of Facial Recognition

Facial recognition technology is currently being deployed extensively for the mass market. The potent feature is conveniently implemented in practical use cases, which facilitate mundane daily tasks.

Fig 1. Video still from Apple's iPhone X Commercial, visualizing functionality of Face ID, September 2017 [5]

In September 2017, the IT company Apple implemented a technology, called Face ID, in their latest smartphone iPhone X. Face ID creates high resolution physiognomical data sets of their users' faces by means of a camera and depth sensors. Physiognomical analysis hereby becomes a hip lifestyle product. [6]

Similar to one of Apple's proposed use cases, in which users can identify themselves for business transactions using Face ID on their iPhone X, it is now possible in China to pay in fast food restaurants with just a gaze into a camera. Also in September 2017, Alibaba's facial recognition system "Smile to Pay" saw a large-scale roll out as an identification method for payment processes. [7]

Fig 2. Video still from Alibaba's Smile to Pay Commercial, "Look up at the camera to authenticate your payment", September 2017 [8]

Surprisingly, there is currently no indication of client refusal to use these products and services due to privacy concerns.

2.4 Large-Scale Privacy Fraud and Unprosecuted Mass Surveillance

Despite claiming the opposite, the surveillance and data-collection practices of IT-companies, whose business models are based on micro-targeted advertisement, present an enormous breach of privacy laws in both Germany and Europe. This becomes evident in the light of recent revelations during Facebook's 2018 Cambridge Analytica data scandal. Neither are users asked for their consent to be surveilled, spied upon and psychometrically analyzed, nor are the users given the possibility to gain a comprehensive overview of all the data that have been associated with them.

In his testimony before the U.S. Congress, Mark Zuckerberg claimed, that "The information that we collect, you can choose to have us not collect. You can delete any of it" [9].

In contrast to this statement stands Facebook's proven practice to collect as much data as possible on any internet user - no matter if he or she has a Facebook account - and aggregate these data in so called "shadow profiles". Facebook's Methods to harvest these shadow data include, amongst others:

A) Third-party tracking by means of "Like"-buttons and other browser fingerprinting techniques [Englehardt, Narayanan, 2016].

B) Cross-referencing electronic address books of anybody who uploads her/ his address book to any of face book's services (see the 6 million user data breach in 2013 [10]).

C) Scraping meta data from users' activity unassociated with Facebook services, like calling and texting on android phones [Gallagher, 2018].

A complete summary of all data that Facebook has associated with a user - including aggregated and derived meta data - is not offered by the company. This leaves no way to monitor a termination of data collection or the deletion of user-associated data, contrary to what Mr. Zuckerberg has suggested. The fact that it is not possible to access one's so called "shadow profile", poses a massive constraint of basic civil rights. Title 2, article 8 of the Charter of Fundamental Rights of the European Union, entitled "Protection of personal data", states: *"(1) Everyone has the right to the protection of personal data concerning him or her. (2) Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the the right of access to data which has been collected concerning him or her, and the right to have it rectified."* [11]

It remains yet to be seen as to when and how Europe's executive and judicial powers will respond to this continually abolishing of privacy.

3. Smile to Vote

Under the impression of above mentioned observations, the installation *Smile to Vote* pursues two thematic leitmotivs, which solidify in an interactive experience.

Firstly, the consequent application of computer-vision analysis on political conviction.

Secondly, the application of the "Smile to pay" - principle on the process of casting a vote at an election.

3.1 Installation Setup

The installation is comprised of a voting booth equipped with camera, screen, computer and printer (see Fig 3). The computer is running the *Smile to Vote* - software.

Fig 3. CG-visualization of the *Smile to Vote* voting booth, 2017, ©Alexander Peterhaensel

3.2 The Smile to Vote - Software

Building on the basis of Wang and Kosinski [Wang, Kosinski, 2017], the *Smile to Vote* - software employs AI-based computer analysis to gage the facial characteristics of a person and compare them to photo datasets, which have been classified by political conviction. By using a deep neural network, that has been trained on photos of people who's party membership and political affiliation are unequivocal, it becomes possible to deduce, in real time, the political conviction from the face of any given person, that is captured by the camera. (see Fig 4)

Fig 4. Similarity comparison of facial physiognomy profiles in the *Smile to Vote* - software, 2017, ©Alexander Peterhaensel

The software is programmed in Unity and uses functionalities of OpenCV [12] for face detection and face recognition.

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ISEA 2018
ARS ELECTRONICA 2018
RE:PUBLICA 2018

http://smiletovote.com/background

alexanderpeterhaensel.com/stv

Vielen Dank! :)