TACTICAL INTERVENTION
- Is biometric art that uses emotion recognition fundamentally a time-based and time-critical art genre?
- In what ways and to what extent does biometric art tactically intervene with the hegemonic temporalities of face behavior that are established in the scientific and technological cultures of the face?
- Denaturalizing these codes and ideologies by making explicit the implicit conventions behind face measuring as well as emotion modeling, why not for what purpose does biometric art generate novel temporalities for the lived present of the human face?

FACS-BASED EMOTION AI
- In recent decades, so-called “new media” art, also sometimes known as digital art, has utilized a wide range of measurement systems for the statistical analysis of numerical data from physiological sources, including DNA analysis, eye tracking, and gait analysis, to name but a few.
- The Face 2006. Face recognition technology (FRT) and automated facial expression analysis (AFA) begin to become available as commercial software that non-expert users can configure into large-scale applications, such as the hybrid objects that I term “biometric art.”
- These biometric artifacts are intelligent machines that instrumentally combine a face recognition algorithm on a computer server either local or cloud-based, digital camera, a display of some variety, and the participation of spectators, among any number of daily materials.
- In contrast to its historical progenitors that representatively implement physiognomic science, this biometric art does, 2) extract, and 3) classify the faces of participants as an open system that relays upon engagement and interaction.

EMOTION RECOGNITION ART
- emotion recognition art is one of several face recognition arts in biometric art, which also intersects and overlaps with a multitude of contemporary media forms as well as traditional art forms; however, it is critically important to differentiate individual art works by the functionalities of the recognition technology that is being used.

PROBLEMS OF TEMPORALITY
- the problems of temporality is one of the oldest and most pervasive in the histories of theory and the practice of culture.
- however, as the affective turn in the early to mid-1990s, cultural studies and by large neglects the crucial dimension of time established at the beginning.
- there is a “need to ground knowledge of the social relations of time to particular practices and technologies” (Adam 2)
- time can be considered as “constructed by technological, economic, and geo-political forces over centuries, rather than simply being a natural given” (West-Parker 3)
- images and objects can actively create multiple temporalities (Bord, Prendergast)

AMERICAN PRAGMATIC SEMIOTIC TRADITION
- developed out of classical as well as medieval diagnostics, logos, and hermeneutics.
- founded by Charles Sanders (C.S.) Peirce in the late 19th and early 20th centuries.
- in contrast, biometric biologic, semiotics of the continental tradition, the pragmatic semiotics of the American tradition is “not biologic but logic” (Jung 6)
- this conceptual science with a complex formalism that is useful for understanding the practical function of signs, image, and artwork
- role and structural potential of temporality in the semiotics of Peirce only starting to be specified in the mid-1900s (Kearns)
- since then, there have been only a few conference proceedings on the signs of time (Habermas and Schulz-Luthe ales. etc., Luhmann)
- further models include cognitive semiotics (Beron; Pauillac), computer semiotics (Anderson; Kozminski) and the semiotics of scientific representation (Dussouyes and Fontanella)

APPLIED CRITICAL VISUAL SEMIOTICS
- applying the critical methodology of semiotic analysis, this dissertation maps and models the multiplicity of modalities through which meaning is made about facial temporalities in biometric art.

Fig. 1. Diagram with interaction analysis with temporal separations of dynamic facial behavior into the Action Units (AU) of the Facial Action Coding System (FACS), wiring multiple for facial expression analysis, in FACS. Adapted from (von Euler-Utzerath: Information Technology 2010)

TOP LEFT: Felt Time and the Prosthetic in Brüheleligheder’s Gnoosologis (Japan, 2010)
- tele-operated robots with pneumatic actuators and silicon data that simulates facial behavior during human-robot interaction
- perceptibility and subjectivity in face time, e.g., “the flow” or “stream” of dynamic behavior and facial movement, normative as well as nonnormative modes of behavior, and the uniqueness of asynchronicity between verbal and nonverbal modalities

TOP CENTER: Metric Time and the Computational Art with Media’s Classification Code in Art (Bahner/L., 2019)
- immersive installation where the participants perform facial behaviors that are then classified in comparison with those of trained individuals
- measurability and objectivity in face time, e.g., the duration of a facial action or event, time-series segmentation, onset, offset, and operation segmentation, slope of interval, and the smoothness of acceleration or deceleration

TOP RIGHT: Proper Time and Inactivity in Yang Guo’s Neur information: Can You Run This? (China/Canada, 2016)
- digital fusion that achieves with light and movement it and only if the participants’ facial behaviors remain neutral rather than emotive within a smart environment
- processability and relationship in face time, e.g., facial feedback modulates emotional stimuli and initiates emotional response, facial mimicry stimulates other people’s emotions by “mirroring” expression, producing complex possible inter-individual interactions such as empathy and compassion

BOTTOM LEFT: Trained Time and Multimodality in Shere Khan’s Face Design (Netherlands, 2017)
- film of a performance in which the artist analyzes her own facial behaviors before and after having injected herself with Botex
- fluency and ordering in face time, e.g., the before and after the enhancement of cosmetic medicine, memory of the cause and effect behind facial disfigurement or facial positivity, and the chronocycle of timing deficits or reparative in face behavior

BOTTOM RIGHT: Labor Time and the Spatio-temporal in Raun von der Vox’s The Creation (Europe, 2014)
- video game for mobile devices where players must alter their own facial behaviors to those instructed through various prompts and modes
- commodification and valuation in face time, e.g., quantification of the facial expression art and its frequency, collection of face data in real-time or aggregation, and the use of techniques for data behaviors and predictive analyses

Fig. 1. Diagram with interaction analysis with temporal separations of dynamic facial behavior into the Action Units (AU) of the Facial Action Coding System (FACS), wiring multiple for facial expression analysis, in FACS. Adapted from (von Euler-Utzerath: Information Technology 2010)

Fig. 2. Diagram with interaction analysis with temporal separations of dynamic facial behavior into the Action Units (AU) of the Facial Action Coding System (FACS), wiring multiple for facial expression analysis, in FACS. Adapted from (von Euler-Utzerath: Information Technology 2010)