Portraits for Umwelts and Programs

How can humans sense what a computer program deems to be an image of a face? To explore this question, this work involves photographs and drawings produced using facial recognition programs included in digital cameras. Digital cameras of recent years incorporate a facial recognition function. It is a function that displays a square on the monitor around a face that is detected within the field of view. Such programs are generally based on databases that aggregate enormous amounts of photographs of people's faces. The program first divides the subject area into successive rectangles, which are further subdivided into smaller rectangles. It then measures the local rate of change of luminance among the rectangular areas. When the rate of change matches the one extracted from a database of face photographs, the program determines that it is indeed a face. The verification is carried out by countless "weak" detectors (referencing a database to identify only certain patterns of change in luminance levels as faces / composing an assemblage of detectors with different sets of criteria), which are used in order of their rates of successful recognition to detect a positive instance within view (Viola & Jones, 2001). The mechanism of such programs could perhaps be understood by reading papers, but difficulties immediately emerge when one beings to think about how faces appear to programs. What kind of images are recognized as faces by the programs? To answer this, we must create "images that are recognized as faces exclusively by programs" that pose a counterpoint to human facial recognition.

This work juxtaposes photographs and drawings. In the photographs, the camera of an iPhone 6 was used to make weird faces to seek out the kind of faces that are not recognized as such by the program. Cameras should not recognize these photographs as faces. On the other hand, the drawings portray face-like images through an autopoietic generation of patterns and constituents achieved via improvised motifs (brush strokes and application of paint, colors and tones, etc.) that are repeated twice in the horizontal direction. 63 drawings were produced in total, with 126 variations if we were to count the upside down positioning too. Each of those variations were then tested twice with the iPhone 6 camera to determine whether faces were recognized, and were categorized into positives and negatives (see diagram). The drawings that are exhibited on wooden panels, along the photographs, are those that were recognized as faces in their reverse position (only 4 out of 63 were recognized as faces in both directions). In other words, these drawings represent the fact that the program is recognizing as faces those upside down images that do not appear anything like faces to us. (Do your cameras behave in the same way?)

The weird faces that look like faces to humans but not to computers, and on the other hand, upside down drawings that look like faces to computers but not to humans. Contraposing these face recognition phenomena allows for the emergence of a highly abstracted facial image supported by mathematical programs. Seeing those images allows us to experience anew the human way of looking at faces. This work is thus a portrait that exists between humans and computer programs. Will computers one day arrive at the kind of metacognition of faces that this work presents?