Portraits of No One: An Internet Artwork

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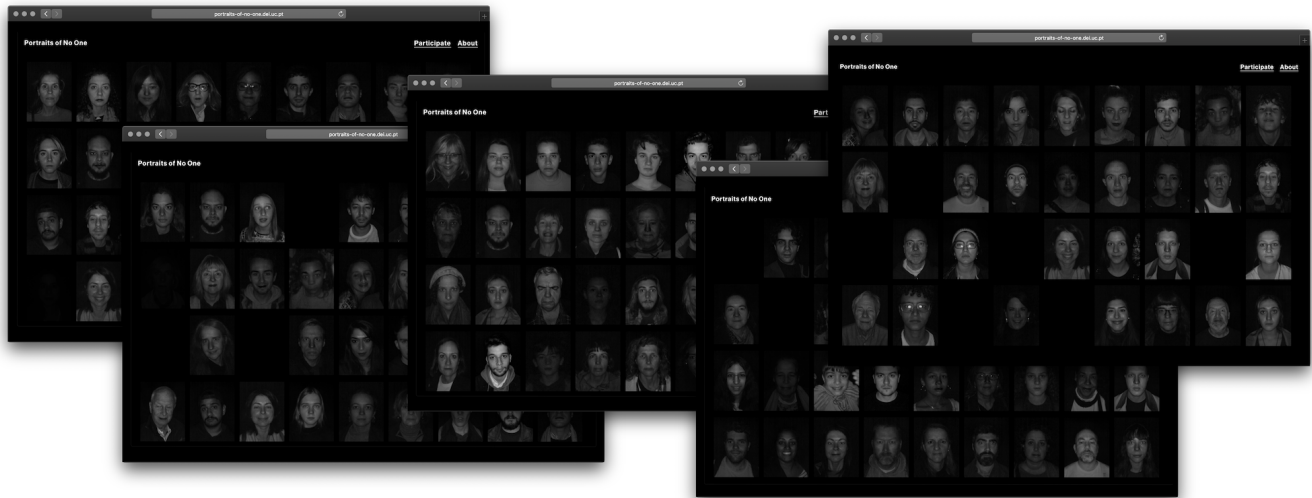Coimbra, Portugal
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Figure 1: Screenshots of the internet artwork *Portraits of No One.*

ABSTRACT

Portraits of No One is an internet artwork that generates and displays artificial photo-realistic portraits of human faces. This artwork assumes the form of a web page that synthesises new portraits by automatically recombining the facial features of the users who interacted with it. The generated portraits invoke the capabilities of Artificial Intelligence to generate visual content that makes people question themselves about the veracity of what they are seeing.

CCS CONCEPTS

• **Applied computing** → **Media arts**; • **Computing methodologies** → *Computer vision*; Neural networks; • **Information systems** → Multimedia content creation.

KEYWORDS

artificial intelligence, computer graphics, computer vision, image generation, internet art, media art

ACM Reference Format:

1 INTRODUCTION

Portraiture has always been a highly explored subject in arts, especially in visual arts. Most portraits were created as a way of immortalising the image of people. However, portraits depict more than the people traits, representing their physical and intellectual possessions. The invention of photography changed the subject. The quality of photos and the mechanical objectivity transformed photography into the medium for portraiture by excellence. This way, portraits, which were formerly an expressive luxury, became affordable for most people and became a useful identification tool.

Advances in Artificial Intelligence enabled the development of powerful tools for image detection and recognition. These advances

led to the emergence of computational techniques that enable the quick generation of imagery with exceptional photo-realism.

In this paper, we present the internet artwork *Portraits of No One*, which can be accessed using the following link http://portraits-of-no-one.dei.uc.pt. With this artwork, we explore the computational generation of imagery in the borderline between the real and the artificial, in particular the generation of photo-realistic portraits of human faces. These portraits result from the automatic recombination of the facial features from different users who interacted with the artwork. The result is an online space containing computer-generated portraits that makes visitors question themselves about the veracity of the images they are seeing. Therefore, this artwork can trigger critical thinking on its users about how recent technological advances are changing the way we see the world.

2 THE ARTWORK

The presented artwork consists of a web page that continuously displays artificial face portraits that are generated on-demand by recombining the faces captured from its users (see Figure 1). This artwork is built on the interactive installation *Portraits of No One* [3], which was created for Sonae Media Art Award 2019 and selected as a finalist artwork. This installation was exhibited at the National Museum of Contemporary Art (MNAC), in Lisbon, Portugal, from late 2019 to early 2020. During this exhibition, the installation captured about 5000 faces from visitors of the museum and used these faces to generate numerous artificial portraits (see Figure 2).

The artwork implements a custom generative system to automatically detect and extract facial parts of existing faces and then recombine and assemble these parts to create new artificial faces. The deconstruction of existing faces and construction of new ones is accomplished using Computer Vision and Computer Graphics techniques based on the *X-Faces* work [1, 2].

The web page of the artwork maintains an ever-changing audiovisual composition consisting of an array of ephemeral portraits of artificial people, or *portraits of no one*, combined with sounds produced by the real people behind those portraits.

When users access the web page, they can take part in the *Portraits of No One*. This process can be described as follows: (ɪ) the user selects the option to participate in the artwork; (ɪɪ) the user grants permission for the web page to access the camera and microphone in order to capture an image of her/his face and an audio sample, respectively; (ɪɪɪ) when the face of the user is being detected by the system, the user can select the option to confirm the image capture (the audio sample starts a few seconds before the moment when the image is captured and ends a few seconds later); and (ɪᴠ) the user is redirected to the main page, which begins to show new portraits being generated using her/his facial parts. This allows the artwork to feed on the users who visit and interact with it.

The artificial portraits exhibited in the artwork web page are generated by blending the elementary facial parts (eyebrows, eyes, nose and mouth) of different faces captured from the users. This process is detailed in [3]. The selection of the faces that are blended to create each new portrait is random while taking into account the timestamps of the faces, in order to select faces captured more recently. Each new portrait is displayed during a certain lifespan.

Figure 2: Examples of *portraits of no one* exhibited at the National Museum of Contemporary Art (MNAC), in Lisbon, Portugal, 2019–2020.

After the lifespan is over, the portrait is replaced by a new one. This dynamic array of artificial portraits is accompanied by an ambient sound that is generated by intertwining multiple sounds randomly selected from the set of all sounds recorded from the users when they captured their faces.

A demonstration video of the presented artwork can be visualised at https://cdv.dei.uc.pt/2020/portraits_of_no_one_web.mp4. Additionally, further information about the work *Portraits of No One* can be found at https://cdv.dei.uc.pt/portraits-of-no-one/.

ACKNOWLEDGMENTS

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