DOUBLE, TEXT STREAM 4

BY RAFAEL LOZANO-HEMMER

TABLE OF CONTENTS

GENERAL IMPORTANT INFORMATION

This short section must be read for proper operation.

DOUBLE (2018)

BY RAFAEL LOZANO-HEMMER

Technique

Ultra-stretch display, computer, 3.2 billion bases sequenced from the artist's DNA and 1.8 million bases sequenced from the Haemophilus Influenzae bacterium.

Description

"Double" (Text Stream 4) is a generative turbulent animation of the letters AGTC, representing DNA base pairs. At a given time, the piece shows the entire genetic code of the Haemophilus Influenzae bacterium, the first organism to have its genome sequenced, in 1995, with 1.8 million base pairs. Periodically, the display switches to show the artist's own entire genetic code, featuring 3.2 billion base pairs.

Operation

Please refer to <u>*Appendix I - Installation*</u> *for detailed system information and wiring diagram.*

1. To turn the piece On, press the power button on the computer for one second, then release it. ***Important note: please do not push the button again as this will shut down the piece. Wait at least two minutes before pressing it again, as the computer might need this long to reboot. After two minutes (or less), you should see the piece.***

2. To turn the piece Off, press the power button on the computer. ***Make sure to wait until the display and computer have finished their shutdown routine before turning the piece on again.*** In the eventuality the artwork was configured with an automated schedule, let the artwork run as per schedule. In the case you want to turn Off the display prior to the scheduled time, use the remote supplied with the display, then use it again to turn it On.

3. If the piece doesn't start within two minutes, try turning on the piece again. If it still doesn't turn on, then hold the power button all the way down for 10 seconds to force computer shutdown. Then, wait at least three seconds, then press the power button all the way down for one second, and you should be up and running again.

General Artwork Behaviours

"Double" (Text Stream 4) should show a constantly fluid turbulent animation of the letters AGTC, representing DNA base pairs. Periodically as it is on display the piece will switch to show the artist's own entire genetic code.
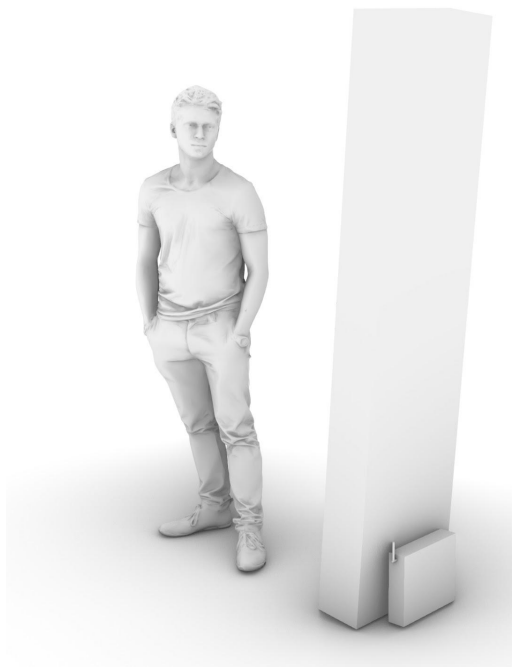
Maintenance

Please do not clean the display surface with Windex or soap. Use a lint-free cloth or compressed air to remove as much dust and debris as possible. Then slightly dampen the cloth with LCD screen liquid cleaner, such as Kensington Screen Guardian found in most computer stores to remove any traces and marks that could remain. We recommend cleaning the piece at least every two months.

Placement Instructions

The display should be positioned so that it is leaning against a wall on a slight angle, with enough room for the computer to fit behind the display without touching the wall. The display should be also positioned so that if you are facing the display, the **bottom** of the display (the side with all of the ports) should be on the **right**.

When using a Zotac computer, the computer should be oriented with the antenna side of the computer facing upwards. This side contains the heat exhaust and blocking it will cause the computer to overheat and die. The computer should also be oriented in such a way that the side with the black-and-white labels is facing the rear of the display, and is positioned almost right up to it. So, if you are facing the piece, the antenna side should be located on the **right** and the side with the power button should be on the **left**. When facing the piece, you should not be able to see the computer at all.

The LG 86BH5C display has a magnetic IR receiver dome that you should connect to the IR receiver port and stick to the side or to the back of the piece. The remote needs to point at that sensor to control the display.

DETAILED TECHNICAL INFORMATION

Normal Software Operations

This piece uses Touchdesigner 099 by Derivative as its primary software. By default, none of the artwork's software can be edited or manipulated, as it is running on TouchPlayer Commercial licence, which allows the playback of content at resolutions above 720p, but disables the usage of the TouchDesigner coding environment. Any software changes should be made by the studio.

Manual Software Operations

Playback

The **spacebar** key can be used to play/pause the video, this play/pause function can also be useful when documenting the piece.

Pressing **key d** will set the piece to **DNA random playback;** this currently is set to fade between the Influenza playback stream and the Homo Sapiens playback stream according to a timer.

Pressing **key p** will set the piece to **Pick DNA playback**, which enables you to pick which DNA stream to playback, and the piece will stay on that stream.

After pressing **key p,** pressing **key i** will switch to **Influenza** playback and pressing **key h** will switch to the **Homo Sapiens** playback.

Pressing **key d** will return the piece to **DNA random playback.**

Presets

Each DNA stream of the piece has six presets which determine the background character turbulence. Normally, it is set to randomly cycle between these six presets.

Pressing **key r** triggers a **Random** cycling of presets.

Pressing **key s** triggers a **Select** option of presets, whereby the **keys 1-6** can be pressed to select a specific preset. Clicking the **key r** will return to the random cycling.

Remote Access to Artwork's Computer

There is a software installed on the computer running this artwork that allows the studio to connect remotely to the artwork. This feature is helpful when you require assistance from the studio, as we can remotely connect to it, do a quick inspection, and do a debugging session of your components, if needed. In order to enable this feature, the computer has to be connected to the internet at all times. Depending on the computer's operating system (Windows 7/8/10, OSX), the procedure to set the computer online will vary. Please look online for tutorials, if necessary.

Preliminary Troubleshooting Steps

After pressing the power button, nothing seems to happen.

If you press the power button and the piece does not start within two minutes, try turning on the piece again. If it still doesn't turn on, then hold the power button all the way down for 10 seconds. Then, wait at least three seconds and press the power button all the way down for one second and you should be up and running again.

Do not worry if you see a window that reads: "Your PC encountered a problem and had to restart". Simply click: "Don't send details" and then the piece will playback normally. Any error like this can usually be fixed by restarting the computer: using the keyboard, press the **Windows key** in the bottom left of the keyboard (next to the **CTRL** button) and then navigate to the power icon at the top right of the screen, and, finally, click **RESTART**.

The image displayed is in the wrong orientation/format.

If the piece appears to have the wrong orientation, press **ESCAPE** to exit to the desktop. Then right click anywhere on the background and from the menu click **SCREEN RESOLUTION.** Here you can adjust the **RESOLUTION** and **ORIENTATION**. Pressing **FN + F1** with the TouchDesigner application selected will put the project back into Perform Mode. Alternatively you can follow the steps above to restart the computer and the piece should open properly.

If the keyboard does not react.

If the keyboard is not working, turn over the keyboard and check to see if the keyboard is turned ON (there is a button that shows red or green; green is ON.) Also, check that the USB dongle is in the computer, and try putting it in different USB ports. You can also open the bottom of the keyboard and check if the batteries are dead, and replace them if necessary.

Troubleshooting Assistance

Prior to contacting the Antimodular Studio with a problem about your artwork, please ensure that you went through the preliminary troubleshooting steps outlined in the previous section.

The troubleshooting process will vary depending on the problem. In order to make the process easier, it is recommended that you collect and send the following information to the studio:

- Date and time when the problem first happened;
- Description of the problem;
- Actions taken so far and conclusions;
- Detailed photographs (or videos) displaying the problem;
- Detailed photographs (or videos) of the suspected faulty component;
- Detailed photographs (or videos) of the whole artwork and its surroundings;
- Personnel involved.

Support (Contact Us)

If you would like support for the piece, please feel free to call Lozano-Hemmer's studio in Canada:

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APPENDIX I - INSTALLATION

Description of Components
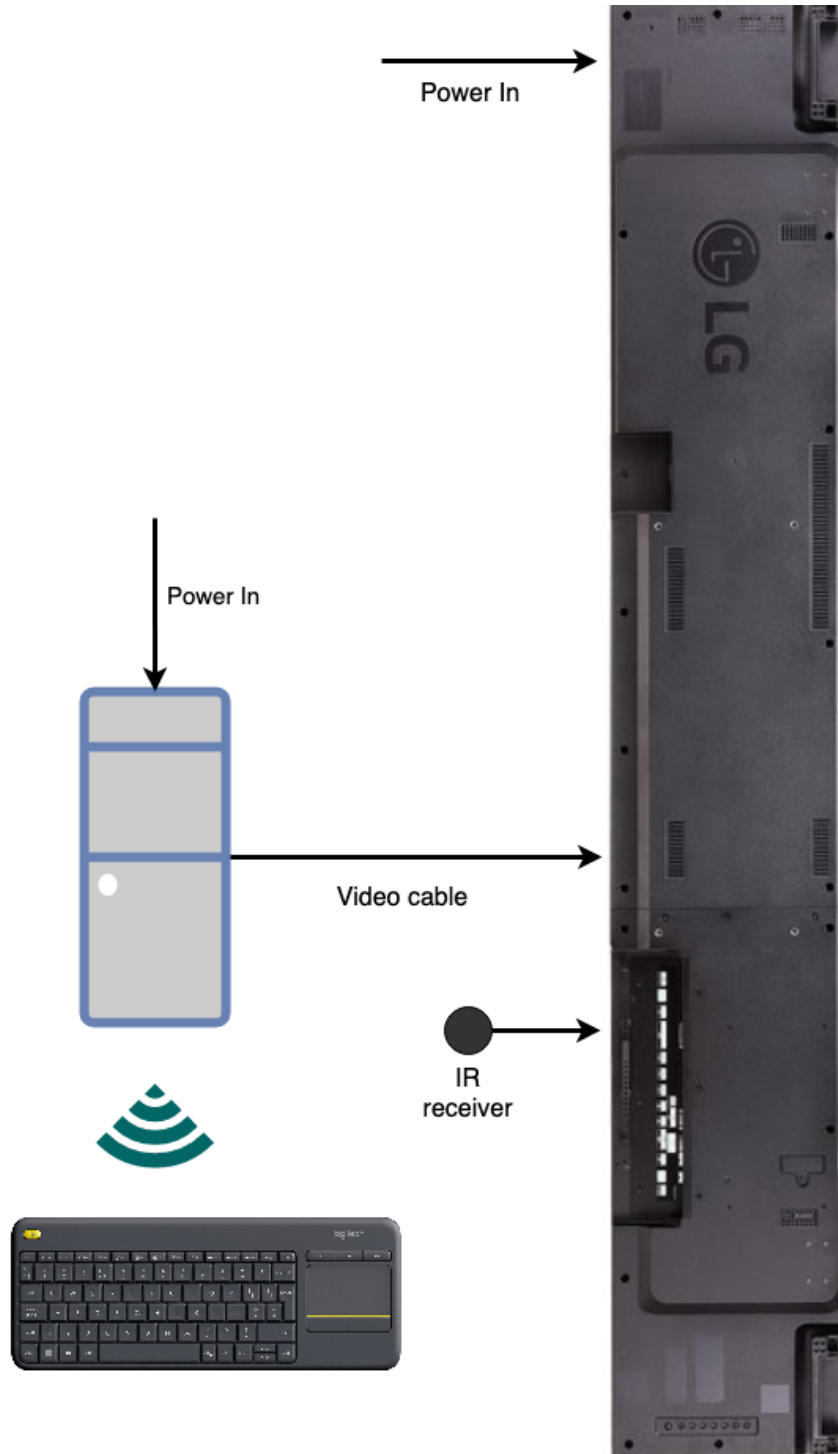
This artwork requires the following components:

Component	Description
Computer	Computer running on at least Windows 8.1, with an NVidia graphics card (at least GTX 1070).
Video cable	Connects the computer to the display. Would typically be a DisplayPort cable, but could also be an HDMI.
Display	A 58:9-ratio display placed in a vertical orientation. Ideally, the monitor would be as matte (non-reflective) as possible, and as slim as possible with bevels as small as possible.
Keyboard	While not required for normal use of the artwork, it allows you to troubleshoot the artwork.

Images of components, for consultation:

Wiring Diagrams and Connections

In order for the piece to run properly, the computer should be connected according to the following diagram. In installations where LG 86BH5C monitor is being used, use the **Menu** button to change the image mode to *Cinema*. Use the **Brightness** button to change the brightness to 55.

Power In

Power In

Video cable

IR
receiver

APPENDIX II - TECHNICAL DATA SHEETS

Display

      With the first iterations of the artwork, the display in use was a LG 86BH5C. The following specifications are the main reasons this display was chosen.

Specification	Notes
Resolution	UltraHD resolution (3,840 x 600)
Size Ratio	58:9
Maximal Brightness	500 nits
Operation Time	Rated for 24/7
Bezels	4.4mm Left/Right (Top/Bottom in the artwork setup) 5.9mm Top/Bottom (Left/Right in the artwork setup)
Power Requirements	100-240V, 50-60Hz
Display Tile Finish	Matte for lower reflectivity