

HOLOMAKERS PROJECT

**Motivating secondary school students towards STEM careers through
hologram making and innovative virtual image processing practices
with direct links to current research and laboratory practices**

Erasmus+ KA2 2017-1-PL01-KA201-038420

Worksheet for Activity 2

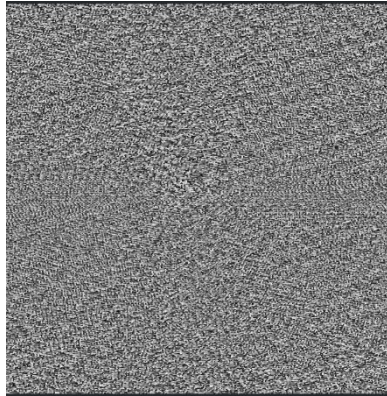
The cultural artefacts

Team:



Working with holographic patterns

1. This is an encrypted image/picture (see figure 1), sent from another country, and is currently appearing as a holographic pattern. It comes along with the following note (see below):



"She was a poetic symbol of wisdom, purity and reason"

Can you easily tell what the encrypted image is about? Write down your guesses using the text box below:

2. If you want to reveal/discover the content of the picture above you need to get familiar with some basic principles of optics and particularly with Fourier transform, as well as with procedures related to computer-generated holography (GS algorithm).

Can you apply with your team the GS algorithm using the Octave software to reveal the content of the encrypted image?

Useful material:

Write in the text below what does the picture represent:

Turning cultural artefacts into holographic interference patterns

1. Select a cultural artefact that you like and prepare the holographic interference pattern
2. Save the pattern (following your teacher's guidelines) in order to send it to your classmates later on.
3. Type a message without revealing too much information to challenge a bit your classmates thinking, exactly like they did above. Save the message together with the pattern in the corresponding folder (indicated by your teacher)

Reflect upon your experience with pattern construction and reconstruction and briefly explain how the following figures (1-4) can be possibly connected to one another.

Figure 1



Figure 2

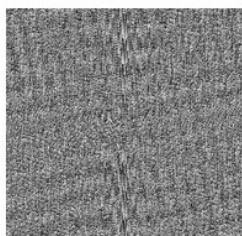


Figure 3

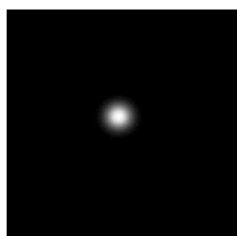
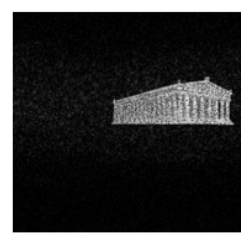


Figure 4



Write your answer below:

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Declaration

This report has been prepared in the context of the HOLOMAKERS project. Where other published and unpublished source materials have been used, these have been acknowledged.

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