

Visualisator

SEASON 7 – ROUND FIVE



General

- 1) **Generate Input File** – with this button you can generate and save an input file based on the current loaded painting and palette. This lets you easily create test data.
- 2) **Clear All** – this button clears all loaded data and puts the visualisator in step 1.
- 3) **Palette**
 - **Add Color** – adds one color to the palette. The maximum colors in a valid palette is 12, and the minimum is 2.
 - **Remove Colors** – this button switches to a mode in which you can remove colors. Removing a color is done by clicking on it.
 - **Randomise Palette** – creates a random palette containing between 2 and 12 colors. The colors are generated independently and hence it is not guaranteed that they will be different
- 4) **Current information** – contains information about the current state of the simulation or the step in which the visualisator is in. In this panel you can find the final result of your solution after the simulation is finished.
- 5) **Active Color** – contains information about the current active color of the robot during simulation.

Step 1 – loading a palette and a painting

The visualisator offers a few different ways of choosing an input to be visualized:

- 1) **Load Input File** – using this button you can load an input file in the format described in the problem statement. This will load a palette as well as a painting and will move the visualisator state directly to step 2.
- 2) **Add Color / Remove Colors / Randomise Palette** – these buttons make it possible to create an arbitrary valid palette.
- 3) **Generate Random Picture (Method #1/Method #2)** – these buttons make it possible to generate a random painting in one of the two ways described in the problem statement in the “Testcases” part. Method 2 requires a valid palette.
- 4) **Load Picture** – this button lets you load any painting from a JPG, JPEG, Bitmap or a PNG file. The visualisator works only with pictures of size 300x300, but if a larger picture is chosen, then only its upper left corner of size 300x300 will be used. If the picture chosen is smaller, the leftovers will be filled with white.
- 5) **Use current picture and palette** – use this button to move to step 2, fixing the current palette and painting.

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Step 2 – loading an output file

Loading an output file is done through the button “**Load Output File**”. The file must be a valid output file for the current painting and palette. After successfully loading it, the visualisator moves to step 3 and unlocks “**Running Settings**”.

The button “**Edit current picture and palette**” moves the visualisator back to step 1.

Step 3 – Visualisation

The panel “**Running Settings**” lets you control the visualisation.

- 1) **Number of steps per tick** – this value gives you the option to visualise a few commands at once. Since visualising thousands of operations separately could be considerably slow, changing this value is a way to speed up the visualisation. The value has effect both on automatic and manual control.
- 2) **Do not visualise color mixing** – ticking this option means commands of type 1 and 2 will not be visualised. This means that they will be skipped when grouping operations according to the “**Number of steps per tick**” parameter. Hence, if for example there are 100 commands of type 1 or 2, followed by 1 command of type 3 or 4, then with a parameter **Number of steps per tick** = 1, all 101 commands will be grouped and visualised at once.
- 3) **Automatic Control** – this option gives you the ability to automatically control the visualisation
 - **Time between ticks** – this parameter gives the amount of milliseconds to wait between visualising two groups of commands.
 - **Start/Stop** – the button starts and stops the automatic visualization
- 4) **Manual Control** – this option gives the ability to manually control the visualization
 - **Next** – the next group of commands is visualized
 - **Show Final Result** – all commands are visualised at once and the final result is printed in the “**Current information**” panel. Since the operations may be many, this operation could take a few seconds in which the visualisator may be unresponsive.
- 5) **Reset simulation** – this button restarts the simulation from the first command.

Note: If you try to load an invalid input/output file, then you will get a message box describing the error. If you are notified that a value is equal to -1, then this means the visualisator could not successfully read this value (e.g. if parts of the input/output are missing).