

3-State Automata

User Documentation

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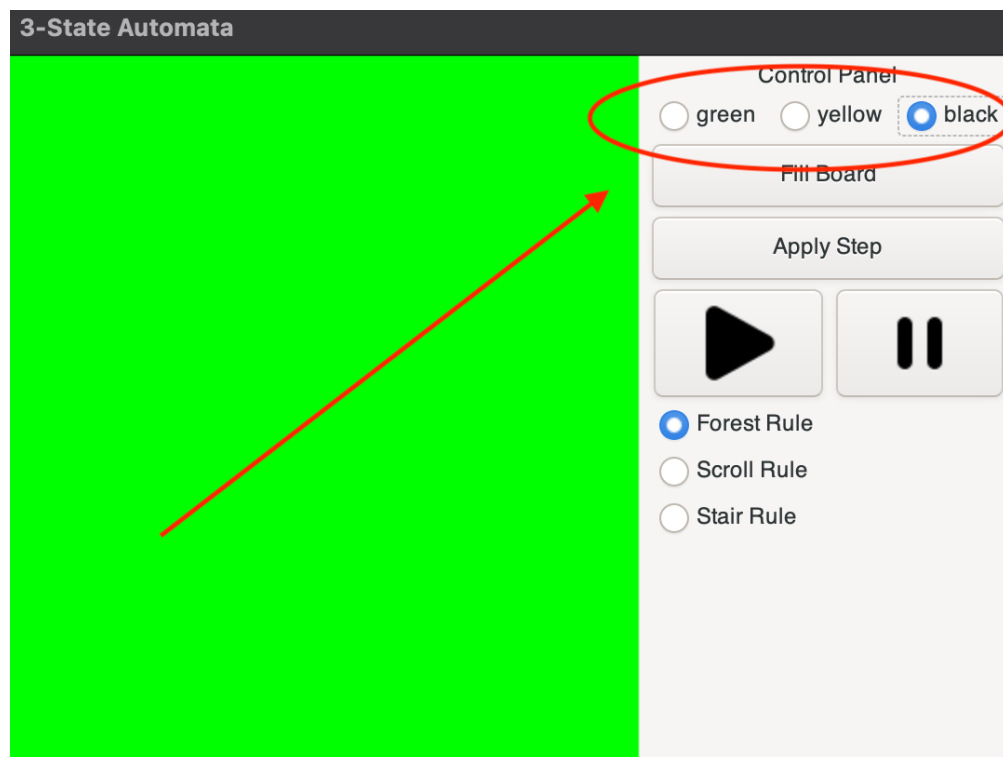
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Introduction:

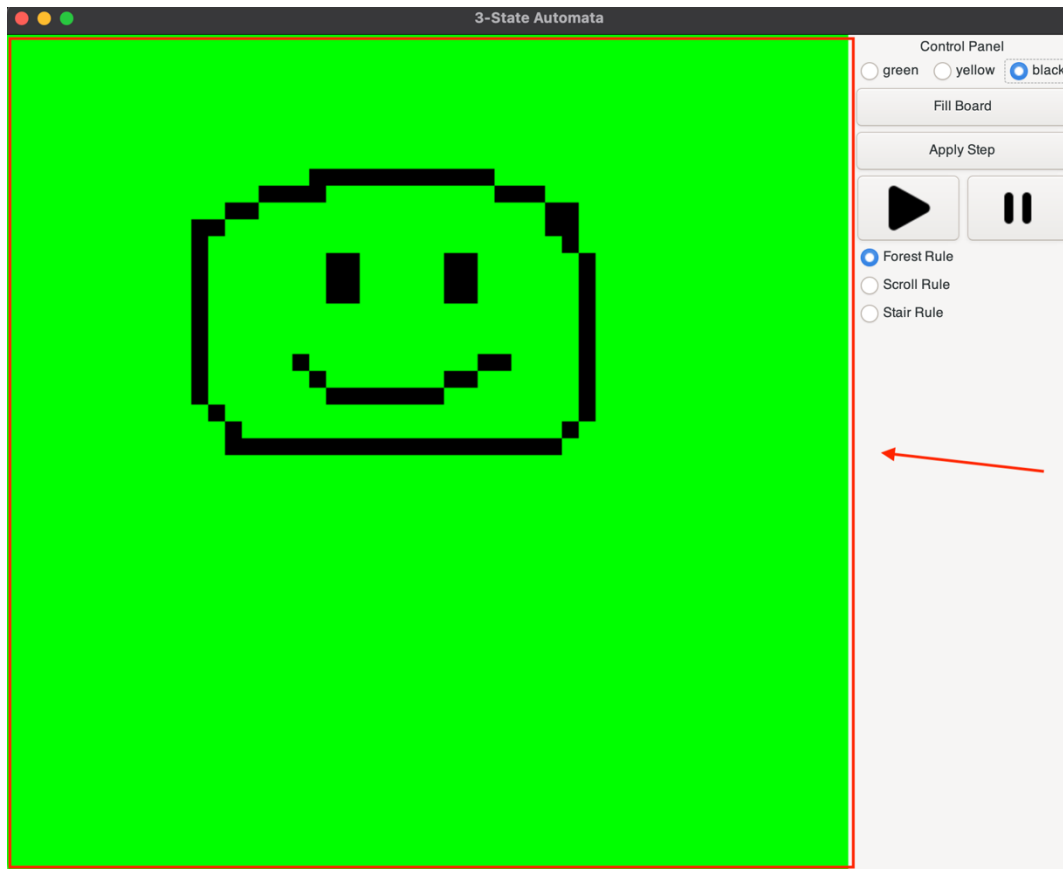
The 3-State Automata program is designed to be an interactive board that lets the user simulate several preset rules as a visual image of pixels using the colors green, yellow and black. The user can either apply said rules to the board step by step or choose to run the rules automatically. The board can be interacted with in all possible ways and is completely responsive to active changes.

Interacting with the Board:

The simulation board is present on the left side of the application window and is colored entirely green on startup. To change pixels on the board, the user must first pick which color they the interacted pixels to be. This can be chosen on the right side of the program in the control panel. Simply tick the desired color in the color radio box, which is situated at the top.

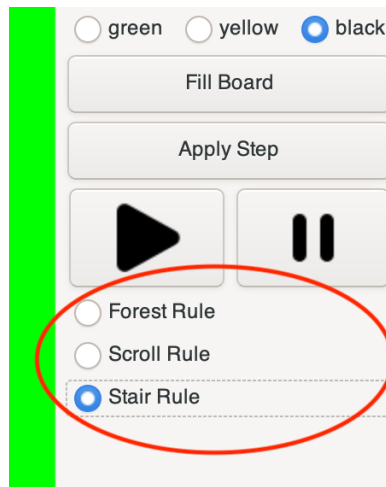


After the desired color has been chosen the user can simply click on the board and start coloring it as they wish. The entirety of the green box on the left is clickable.

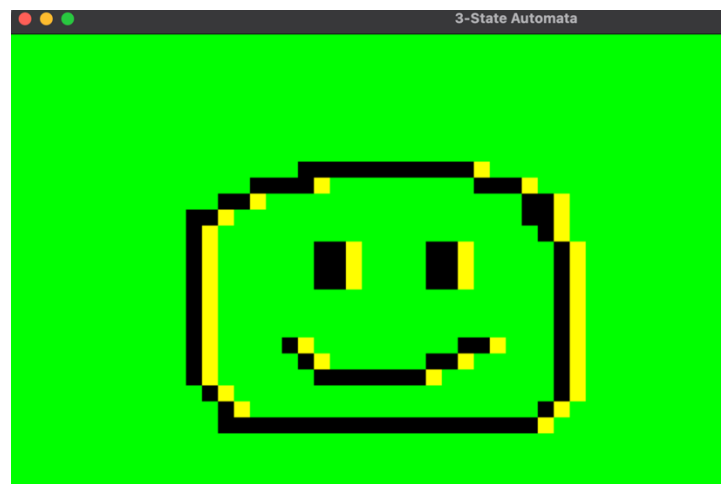
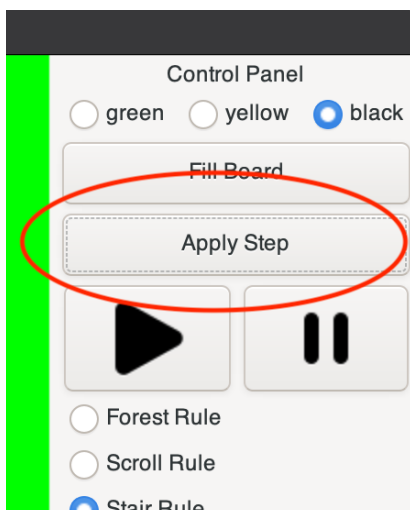


Choosing and Simulating Rules:

To choose a rule the user must head to the right side of the program to the control panel and pick between three preset rules displayed in a horizontal radio box at bottom of the panel.



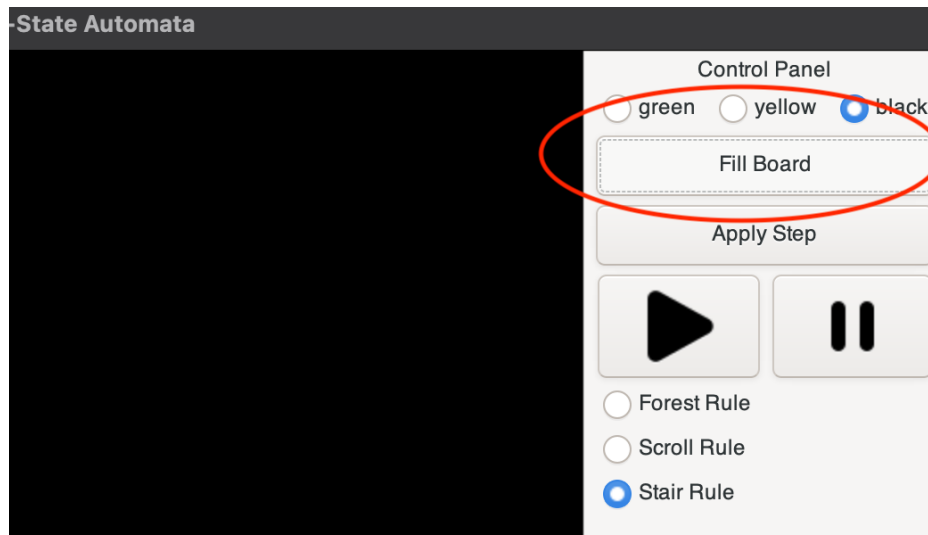
After the rule has been chosen, the user can either press the “Apply Step” button in the control panel to apply one singular step:



Or alternatively, the user can use the play and stop buttons placed under the “Apply Step” button to apply steps automatically creating a sort of animation.

Clearing the Board:

The board can be filled by any chosen color after clicking the “Fill Board” button in the control panel. The color with which the board will be filled is the one that is chosen by the user in the color radio box.



Additional In-Depth Interaction:

The preset rules of the board are stored in the “rules.cs” file and can be modified to change into any 3-state rule the user desires, however this is not part of the intended program functionality and requires code editing. However, the main code of the board is fully capable of simulating any 3-state rule and even 2 different ones horizontally and vertically.