

# Report: Assignment - 4

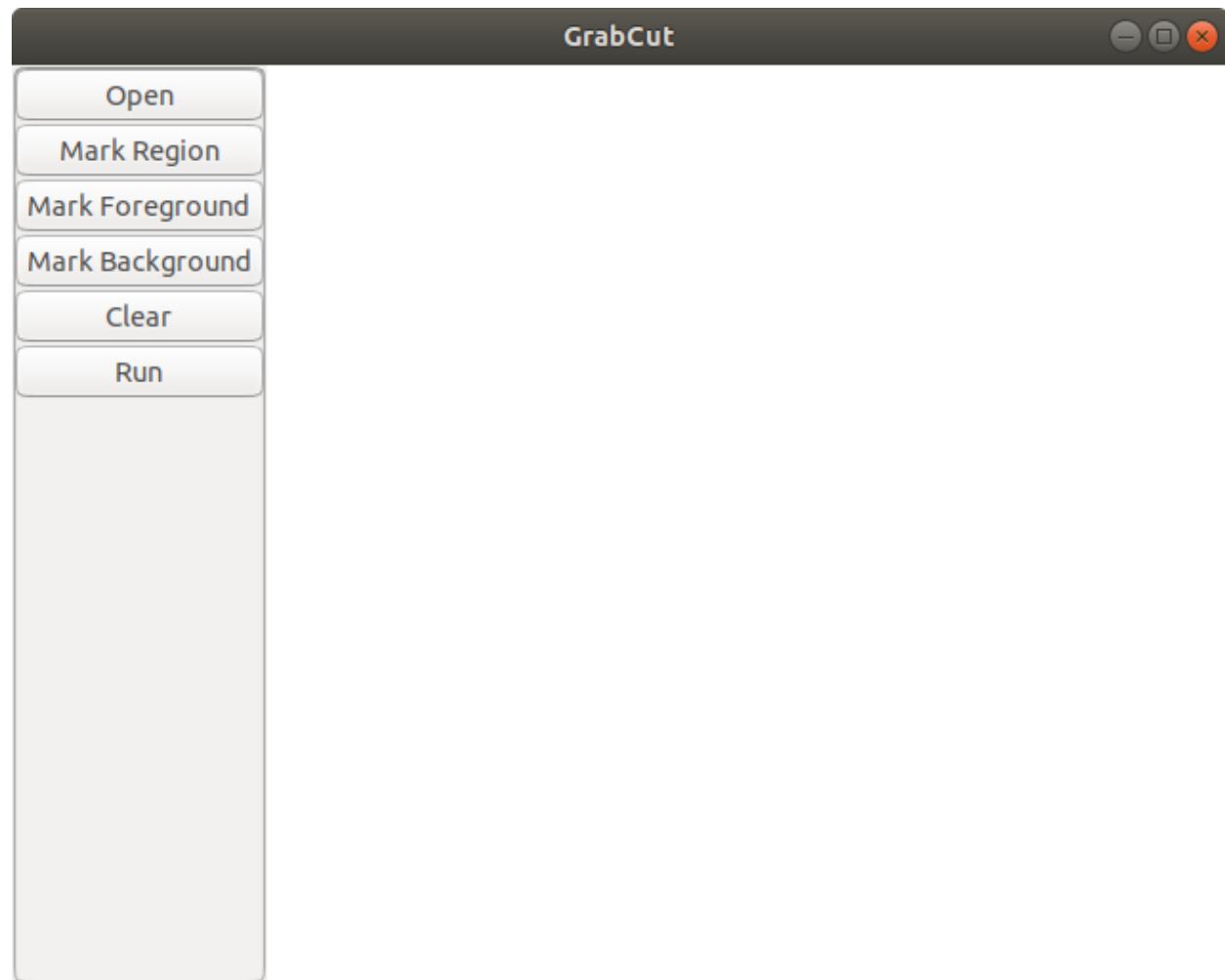
Chris Andrew  
2018701019

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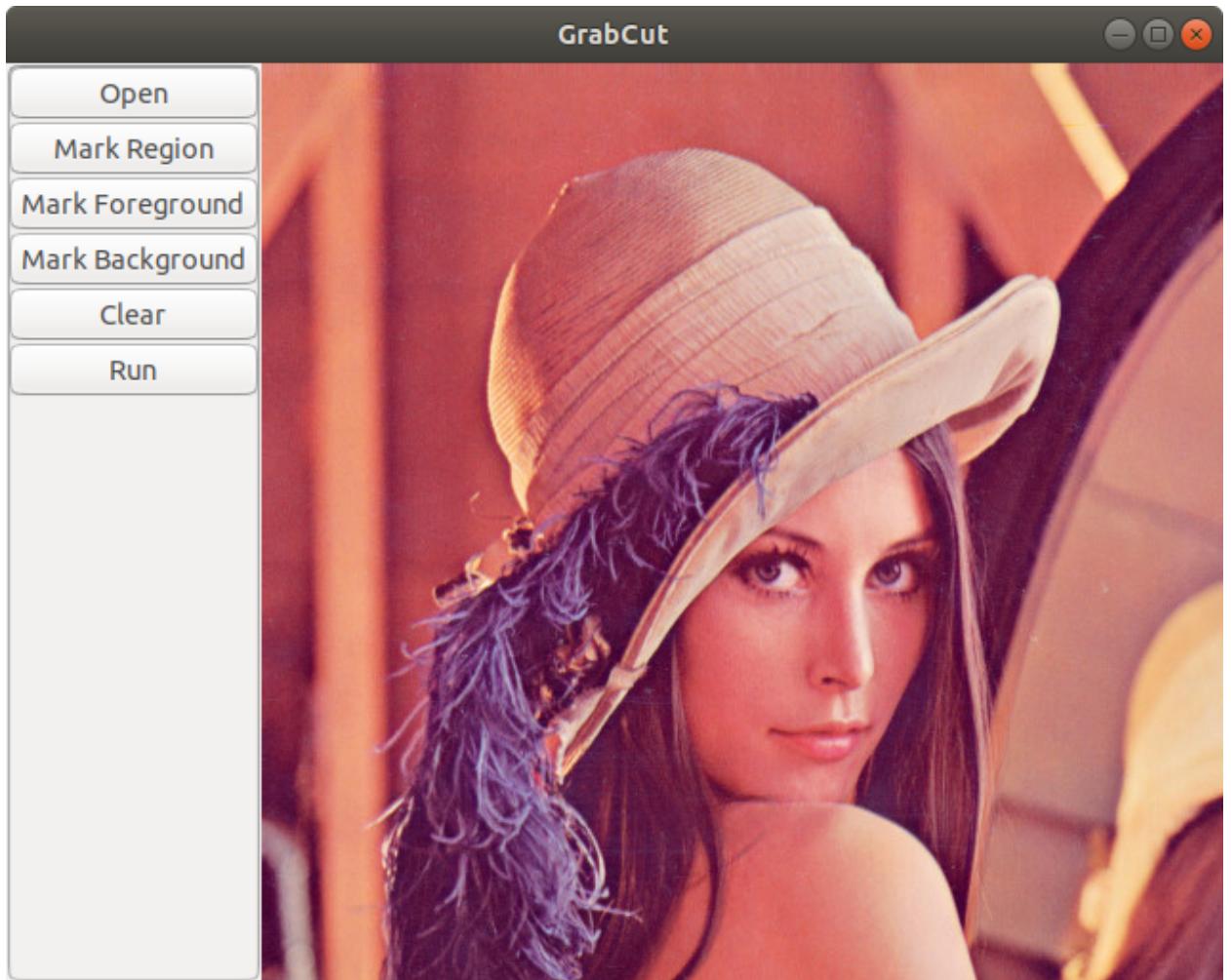
## Grab cut

- **Basic algorithm for GrabCut is:**
  - Estimate the color distribution of the target object and that of the background using a Gaussian mixture model.
  - Construct a Markov random field over the pixel labels, with an energy function that prefers connected regions having the same label.
  - Run a graph cut based optimization to infer their values.
  - Repeat till convergence
- **Tools used:**
  - The application uses Scikit-learn for creating the Gaussian Mixture models
  - Python-igraph is used for mincut calculation
  - wxPython is used for the GUI
- **GUI:**

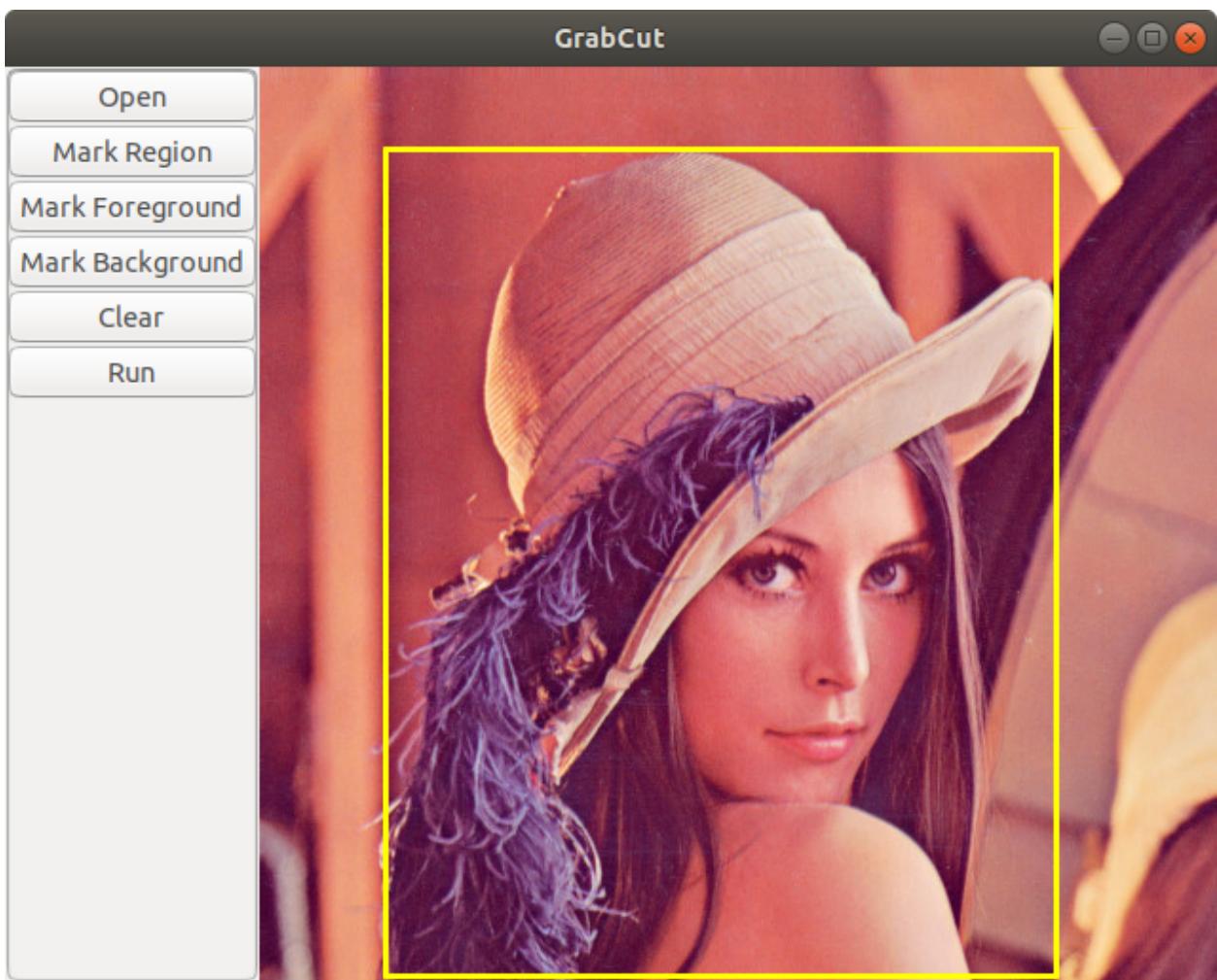
- Basic GUI, use Open button to open a new image.



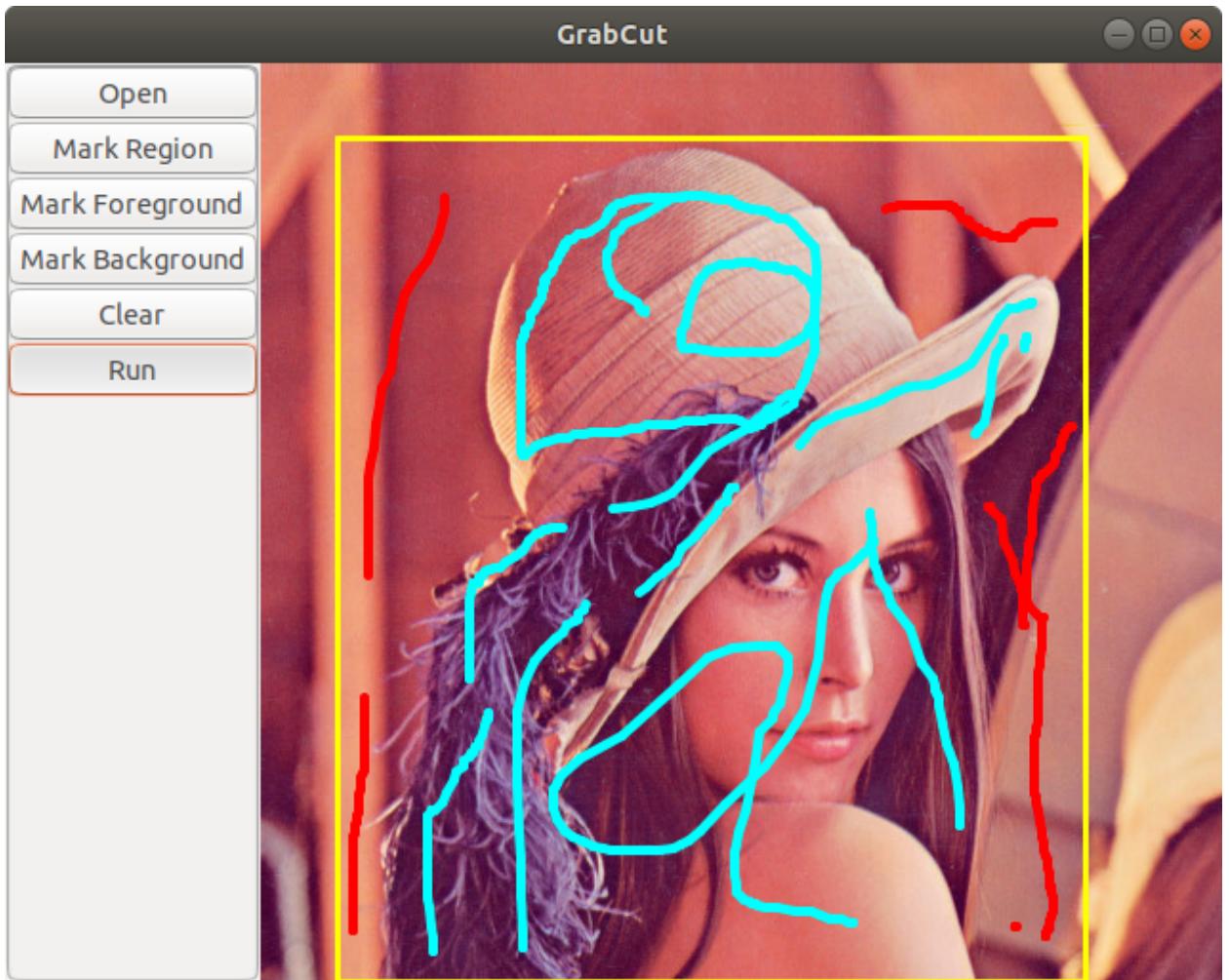
- Once new image is opened use the Mark Region button to mark the region.



- Mark the region by dragging on the canvas.



- Mark the background and foreground using the mark buttons.



- Click Run to get the GrabCut result.



- Variations for number of iterations.
  - Results are better when the algorithm runs for more number of iterations, however MinCut calculation is very expensive and take long to compute.

- Result with one iteration:



- Result with 3 iterations:



Output for given images(Algo run only for 1 iteration):

