

# Topics in Virtual Reality: Mathematical Methods for Visual Computing

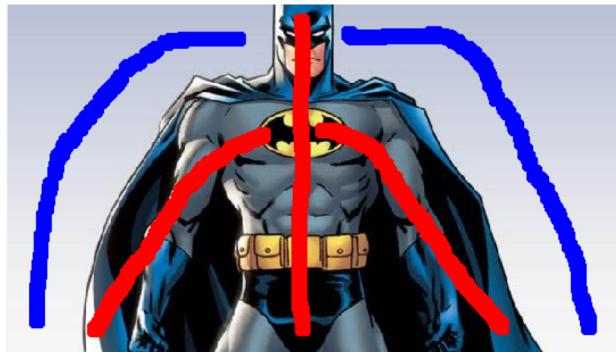


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# Organization

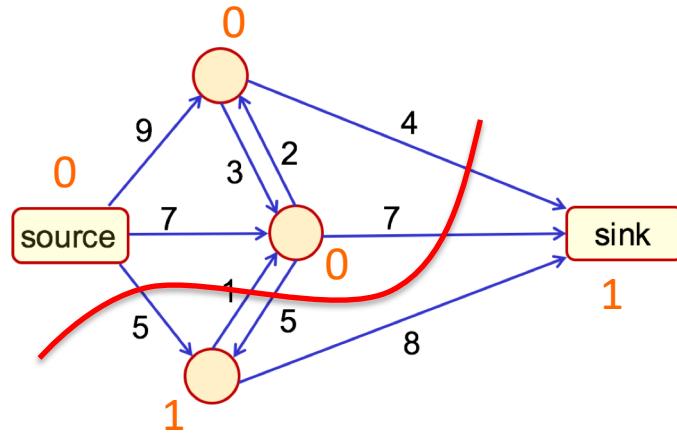
- Homework#4:
  - Handout date: Monday 12 November 2018
  - Submission deadline: Monday 26 November, 17:59
  - Demo date: TBA



# Goal - Interactive segmentation



# Part1

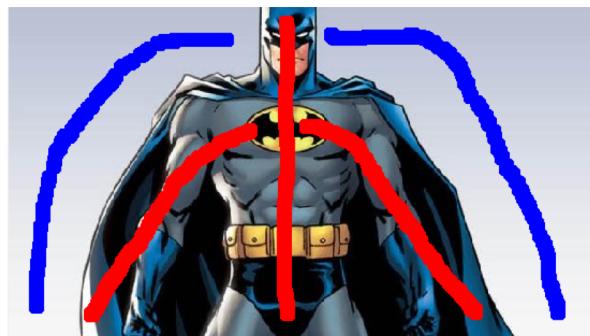


Two methods:

1. Solve it **manually**
  - Show the first and last iterations
2. Apply the provided Max Flow **code**

Show result: labeling and cut

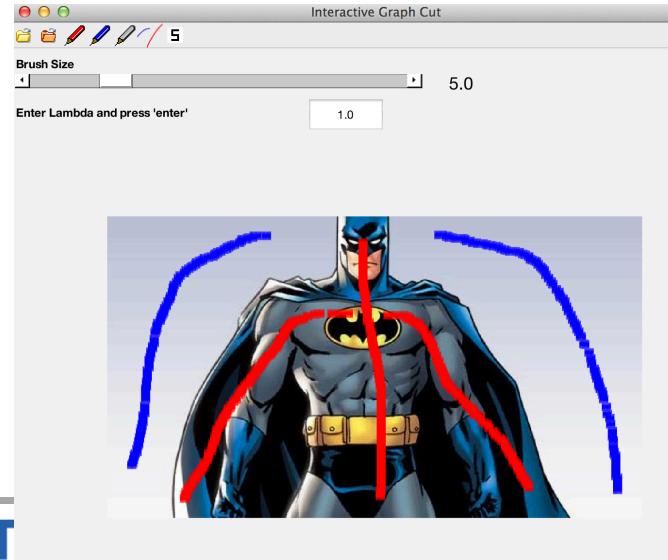
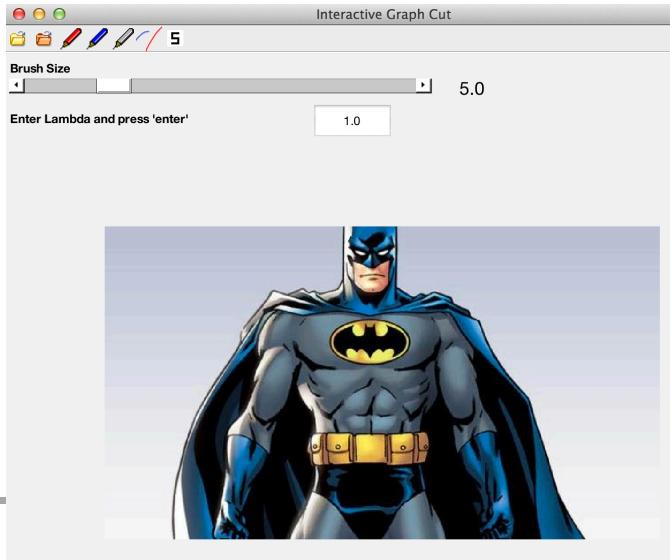
# Part2 – Interactive segmentation



# Part2

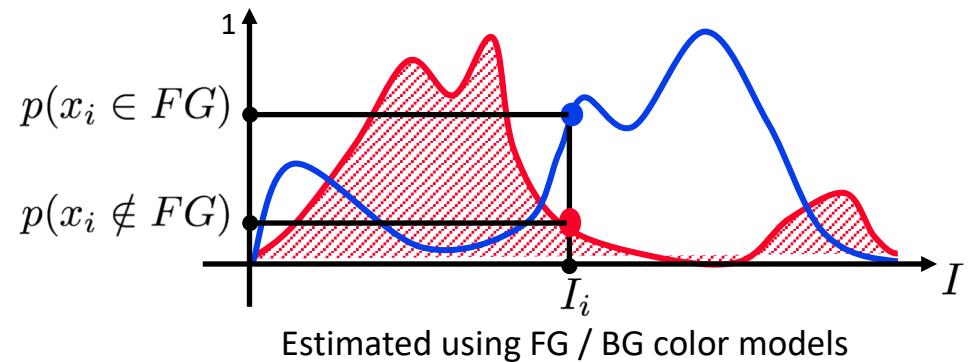
Step1: interaction:

- Interactive strokes
- Positions of the stroke points



# Part2

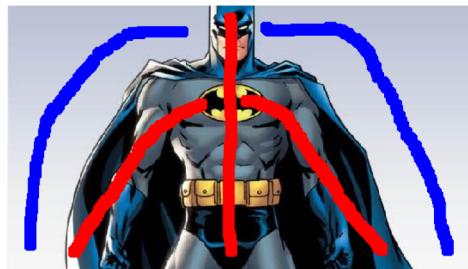
Step2: build the FG/BG color models



# Part2

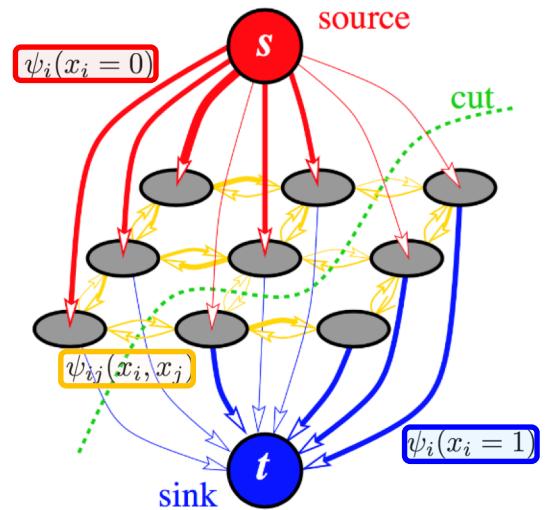
Step3: build the graph

- compute the data and smoothness terms
- assign the values



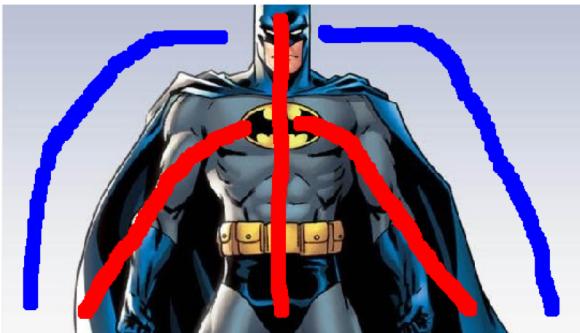
$$E(\mathbf{x}) = \sum_{i \in \mathcal{V}} \psi_i(x_i) + \sum_{i \in \mathcal{V}, j \in \mathcal{N}_i} \psi_{ij}(x_i, x_j)$$

Data term                      Smoothness term

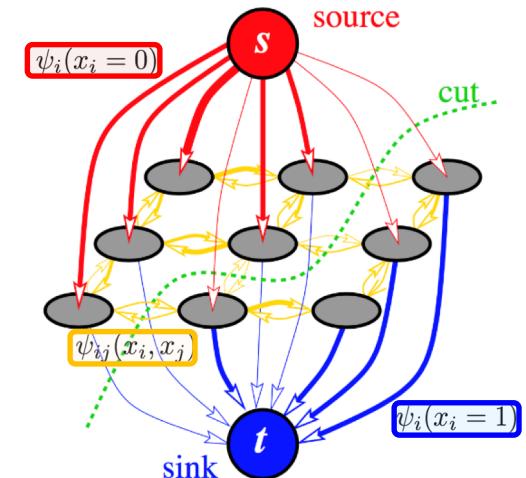


# Part2

Step4: solve the graph



Binary segmentation



# Part2

Step5: change the background



# Part2

Step5: change the background



# Questions?

