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GUI Interfacing of DICOM images including 3D Model Creation

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GUI Interfacing of DICOM images

including 3D Model Creation

Members

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- Michael Tapia

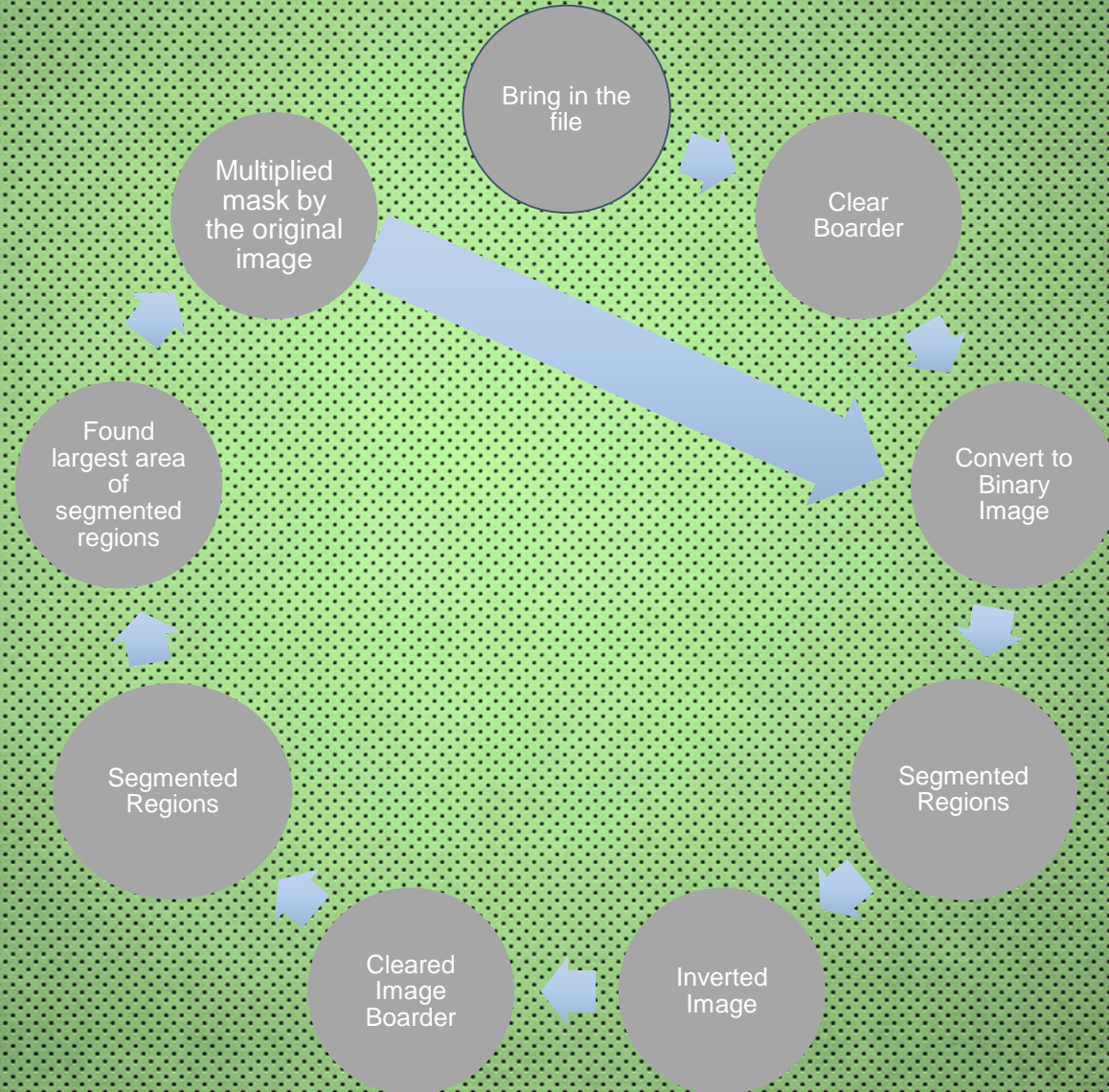
Goal

- Load DICOM Images
- Create a Simple and Fast GUI
- Create a 3D Model of Subject

Image Processing

- Definition: What is Image Processing?
- Terms: MATLAB, DICOM, CT, GUI
- How Did We Do It? The Mask, a.k.a. “Cookie Cutter”
- The Algorithm, or Flow Chart

Flow Chart



Step 1: Load Image



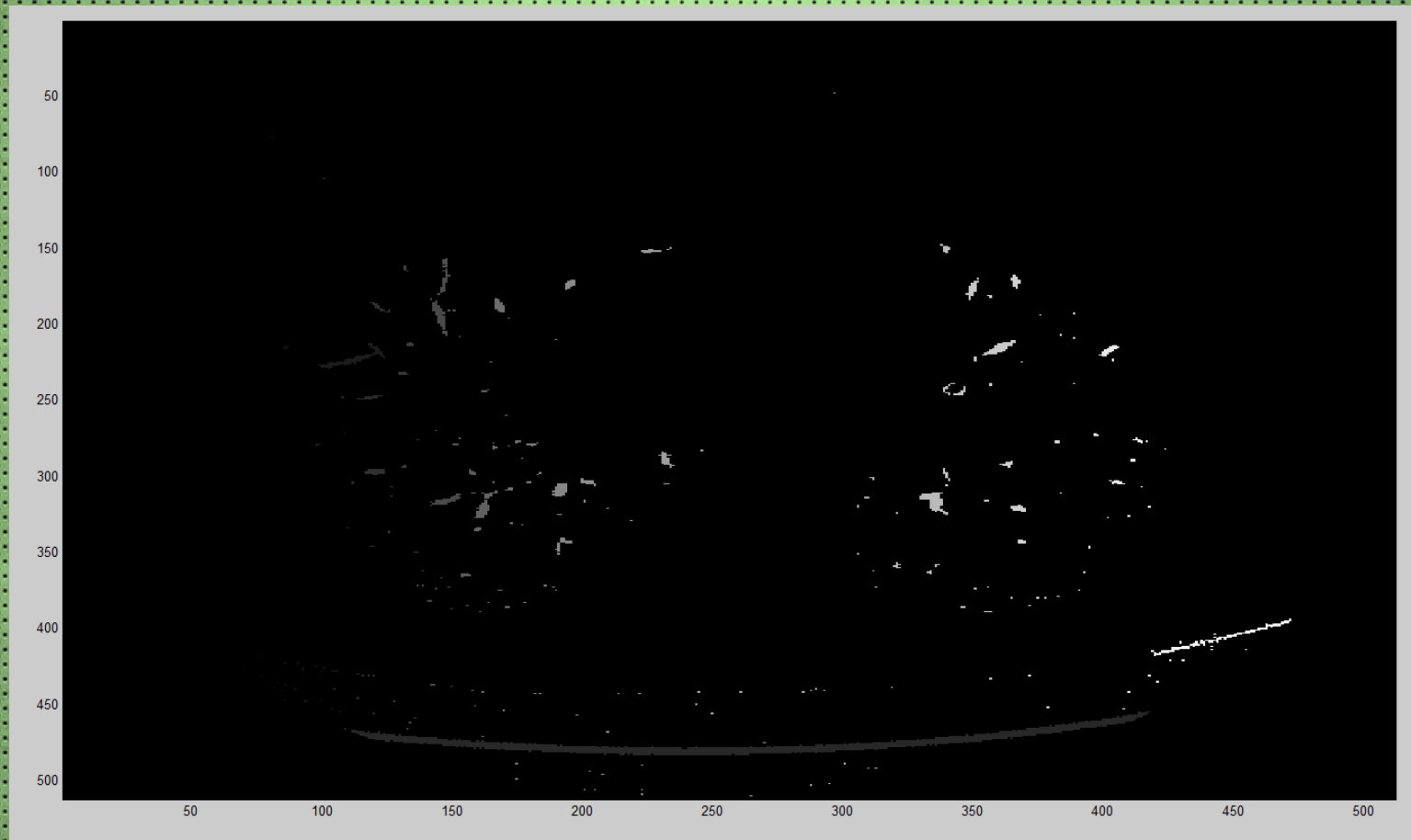
Step 2: Clear Border



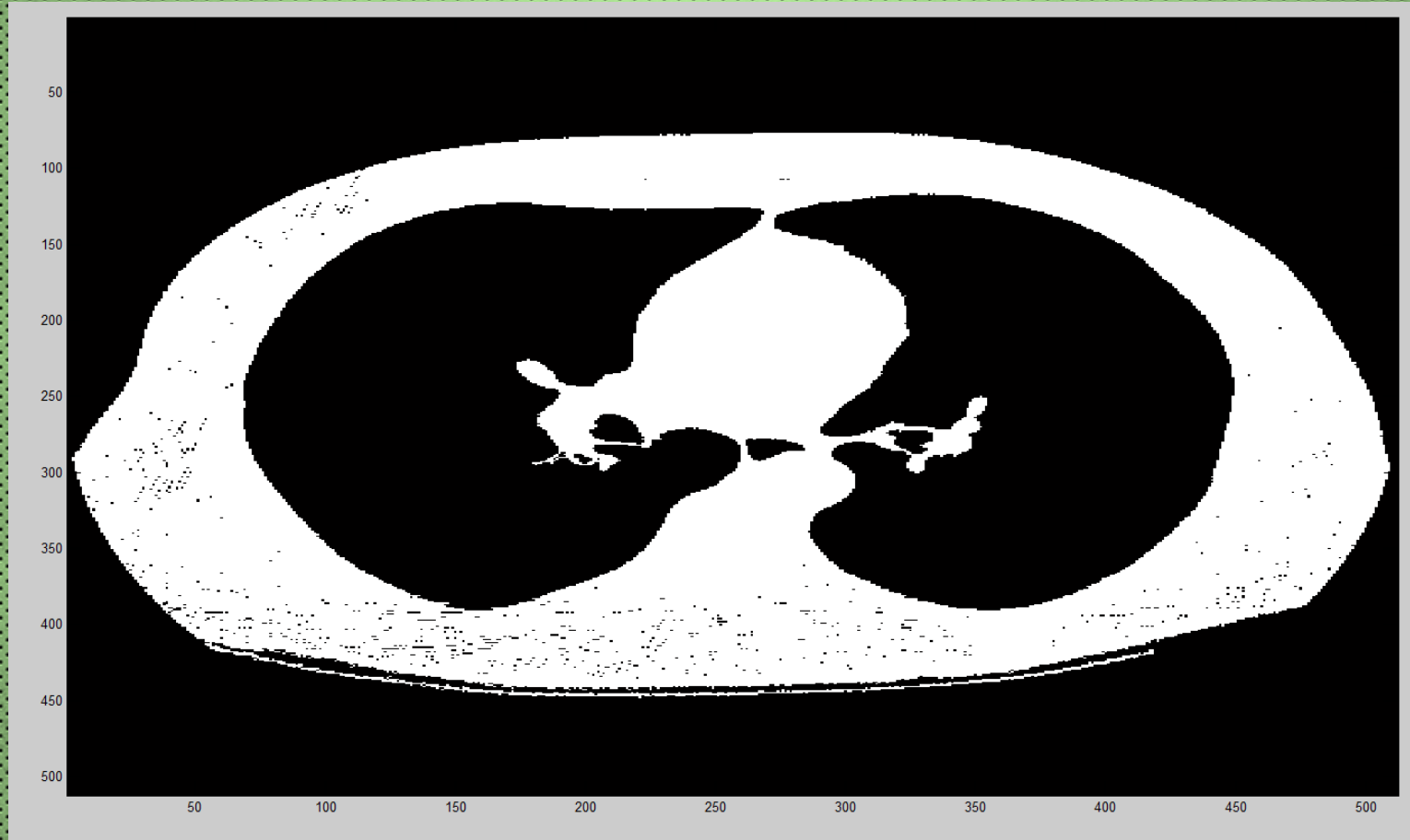
Step 3: Binary Image



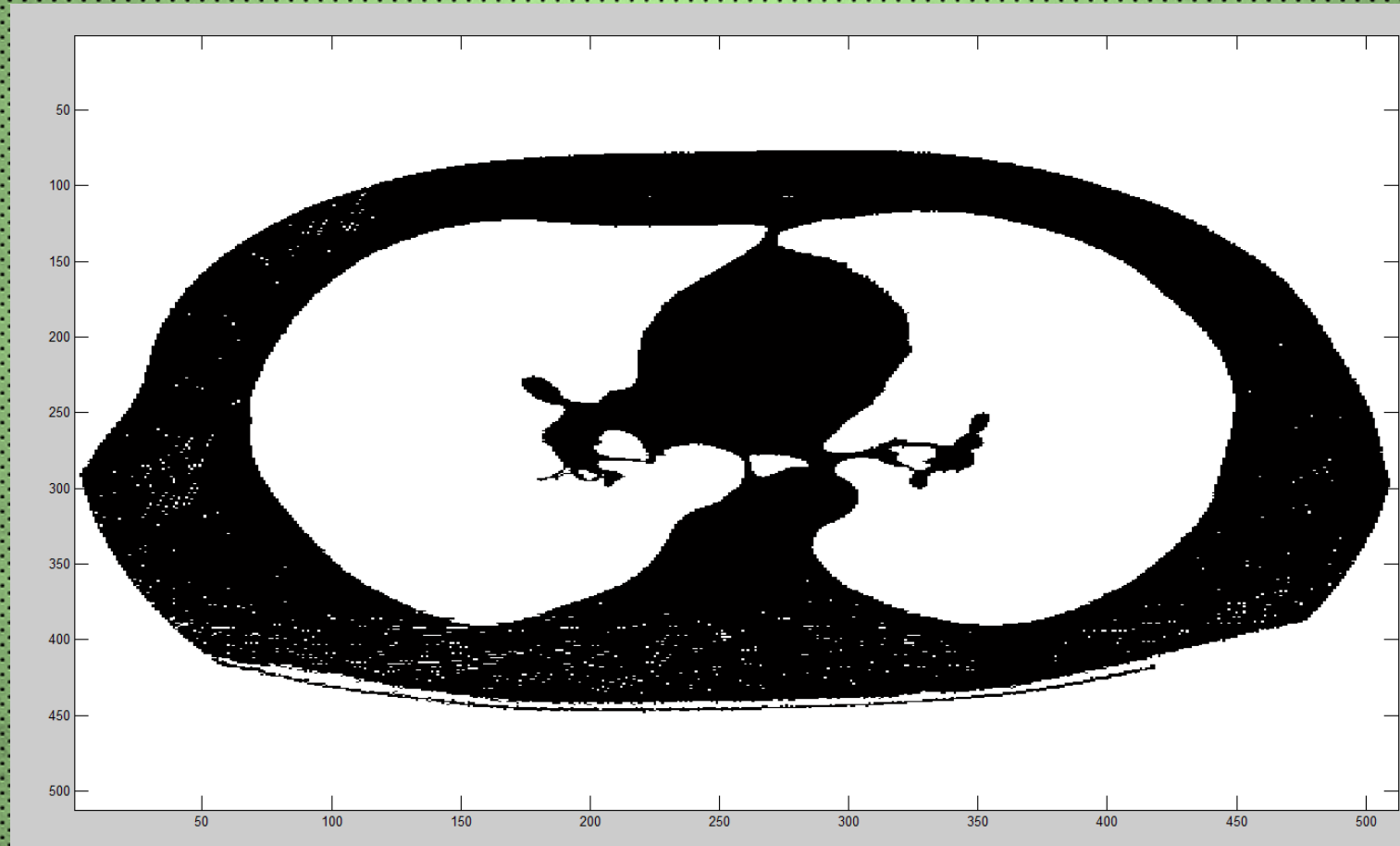
Step 4: Segmented Regions



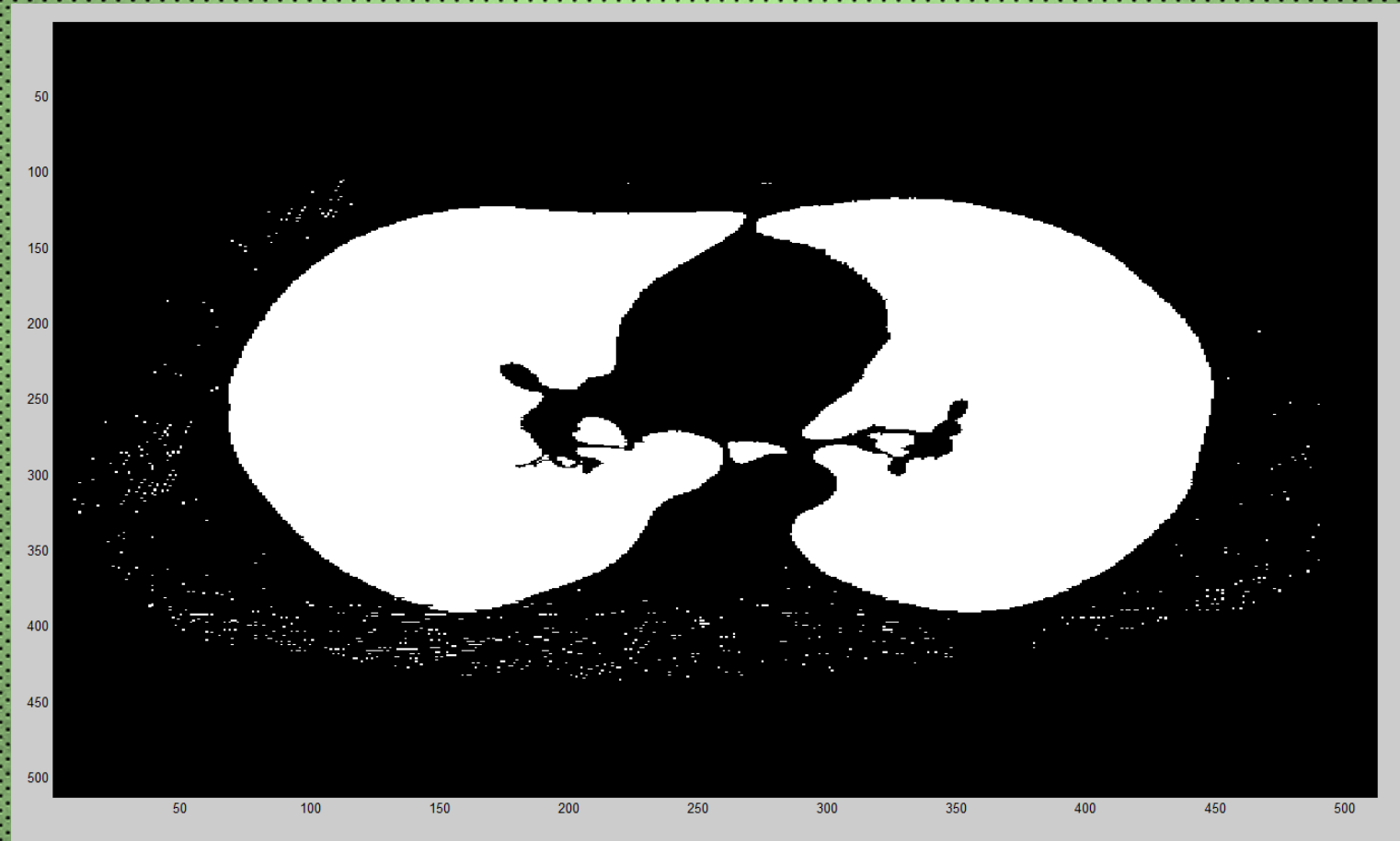
Step 5: Kept White Background



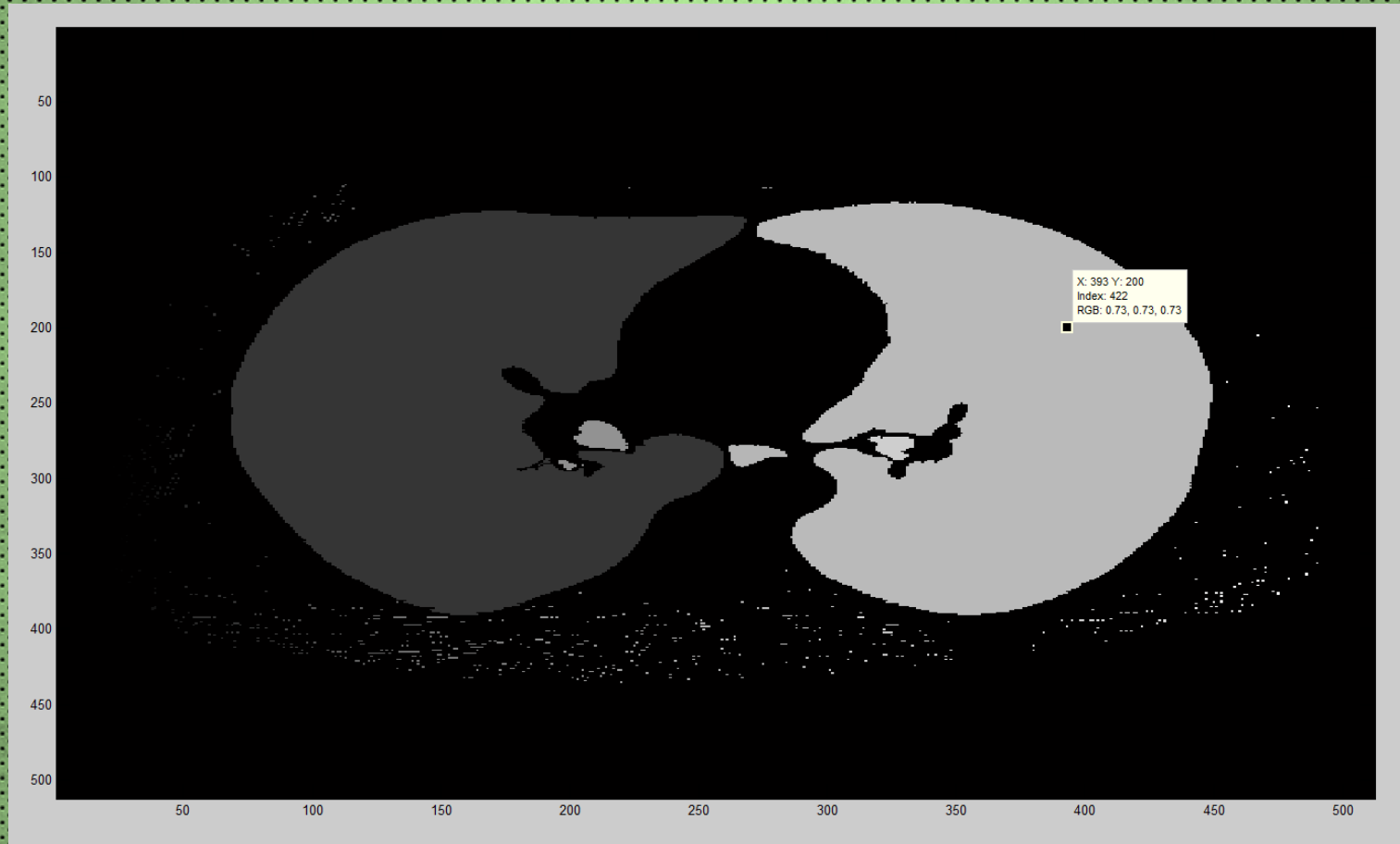
Step 6: Inverted Image



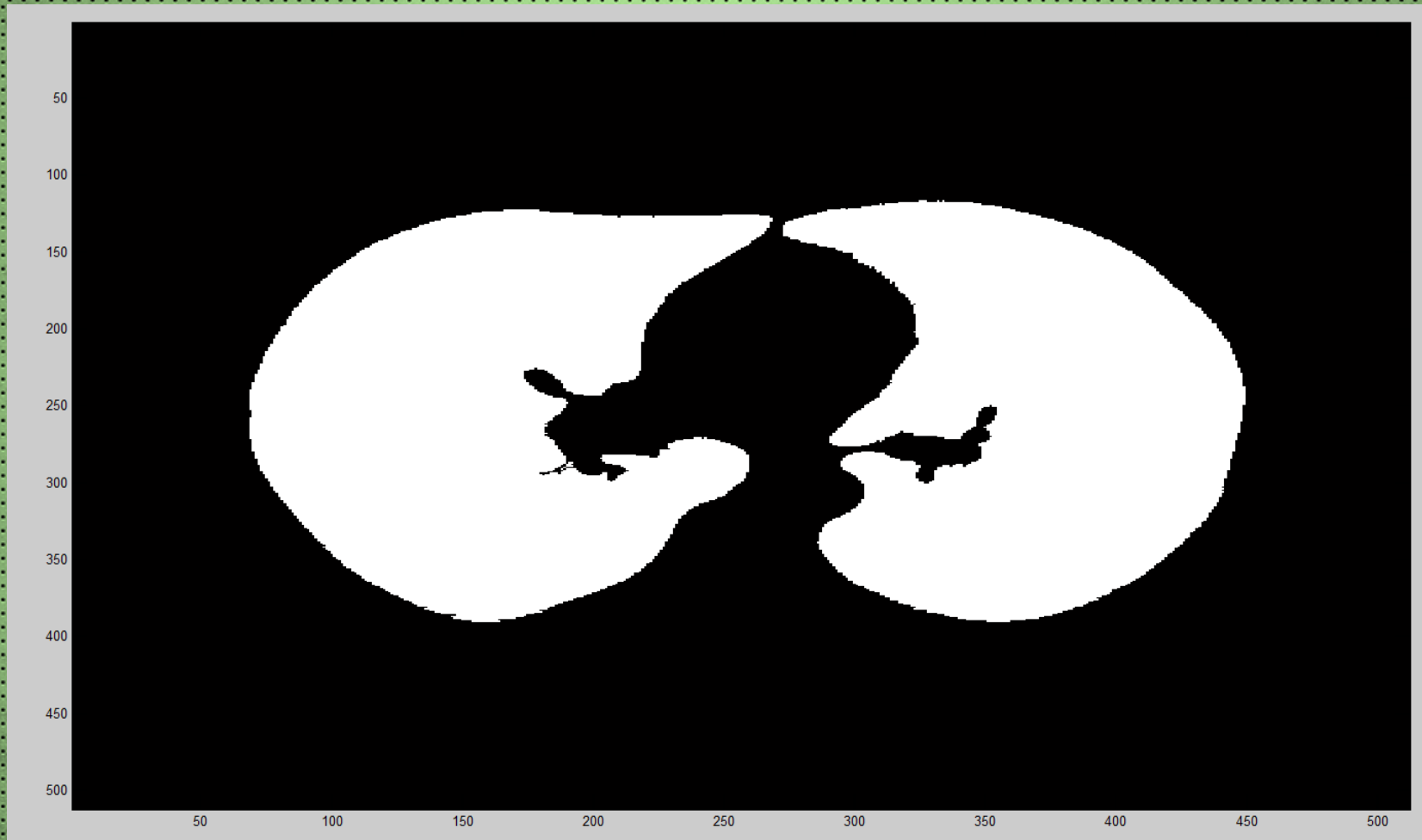
Step 7: Cleared Image Border



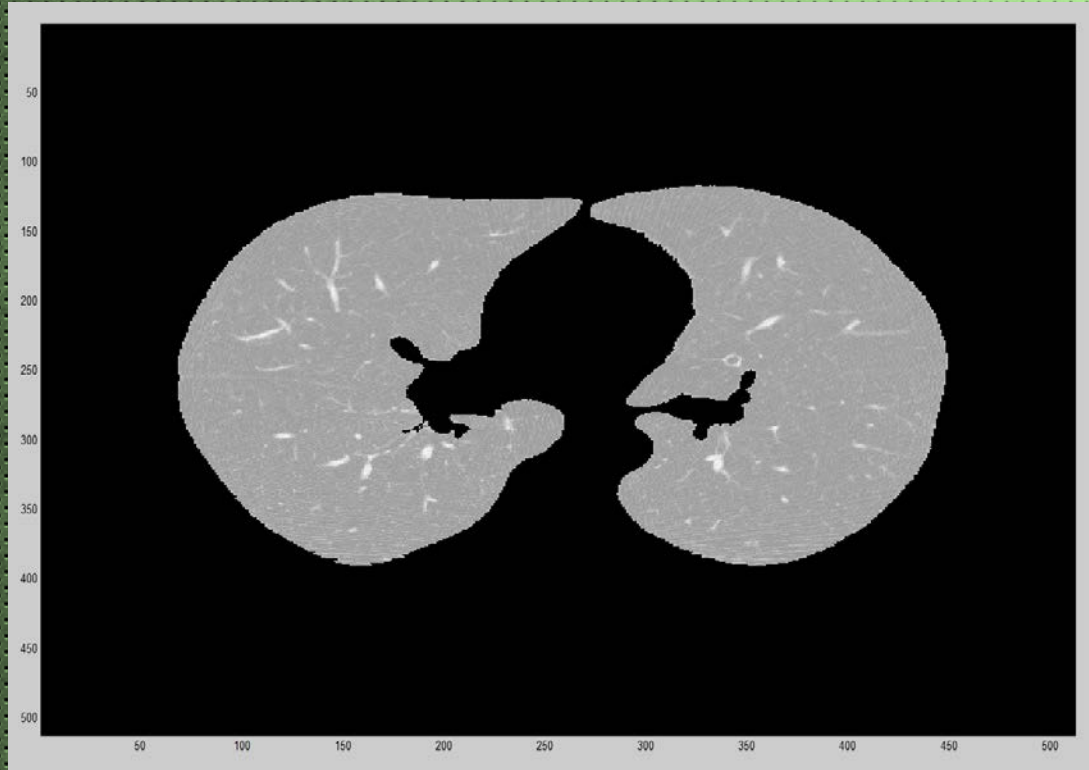
Step 8: Segmented Regions



Step 9: Created the Mask

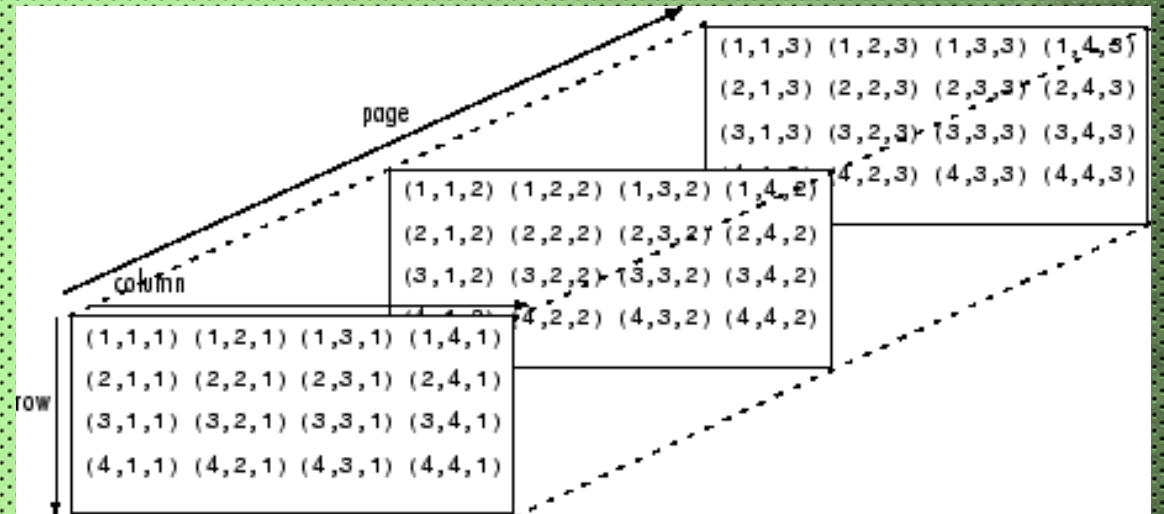


Step 10: Mask Times Original Image



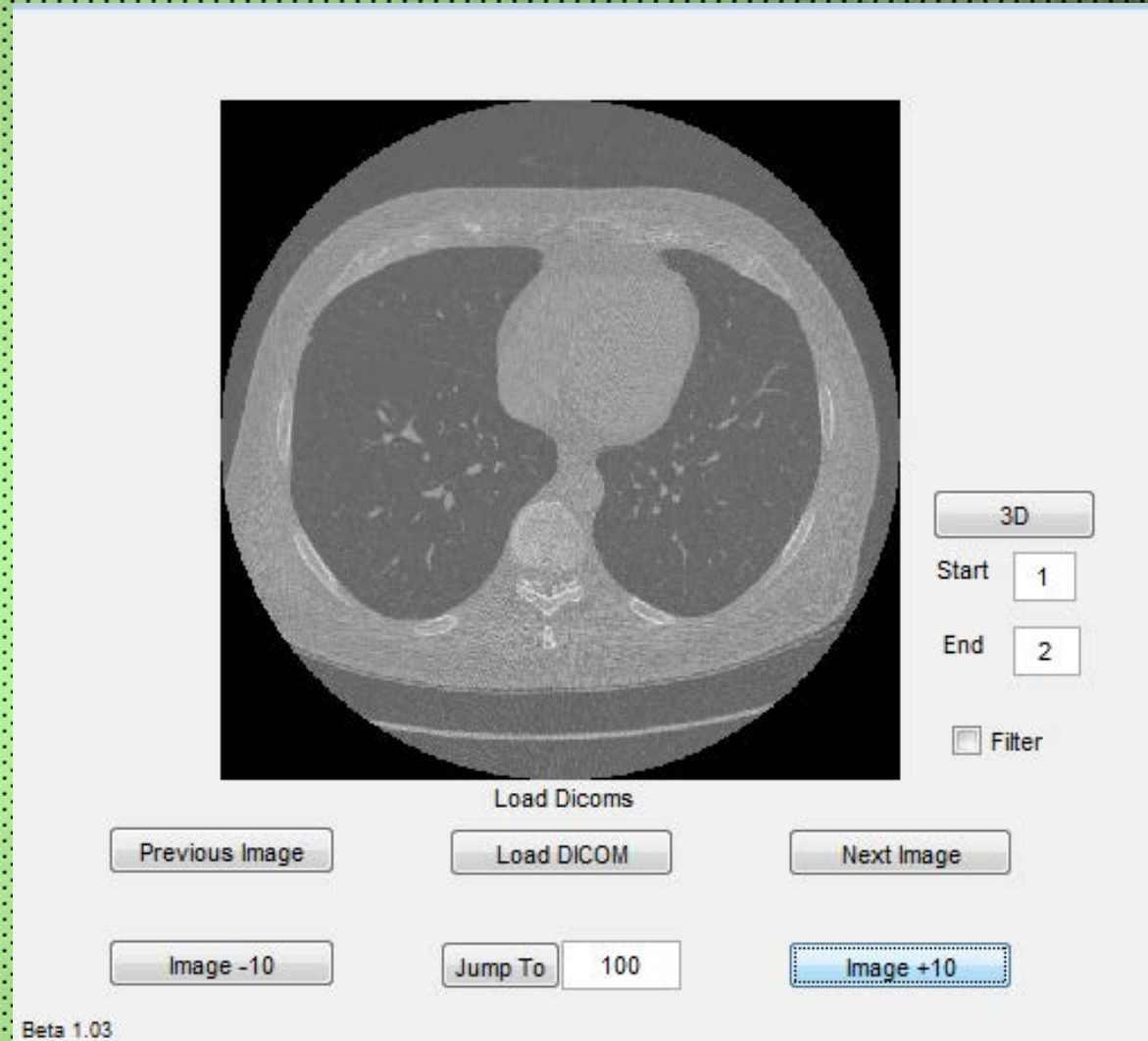
3D Modeling Process

- Used the masked images
- Forfeited resolution for the sake of time
- Excluded images not prominently displaying lungs



GUI

- Graphical User Interface
- MATLAB



Demonstration