

Information Extraction from Uterine Cervical Images

Proposal

I - Introduction

"Information Extraction from Uterine Cervical Images" project's first phase is completed. This report will summarize current status of the project.

Project Reminder:

Uterine cervical cancer is the second most common cancer among women worldwide. If early detection is available, its death rate can be dramatically reduced by appropriate treatment. This project aims increasing image quality for diagnosing cancer easily and extracting as much information as possible from uterine cervical images. Various image analysis and machine learning techniques will be studied and implemented.

II - Project Phases and Achieved Progress:

Agile Software Development methodology is being embraced for project. Agile is an iterative process and allows instant requirement changes within development period. It is an excellent methodology for unclear projects.

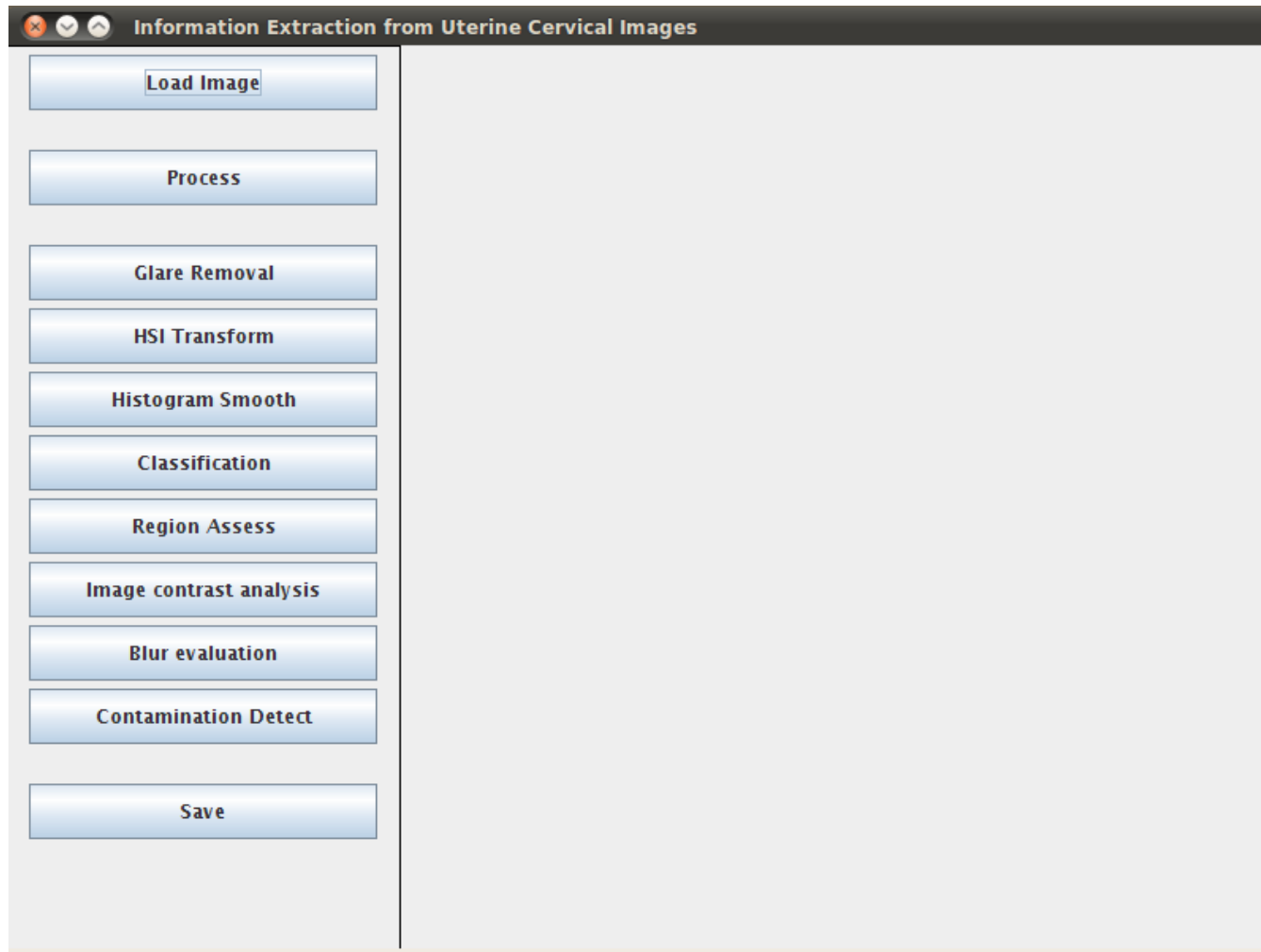
First phase of the project mostly consists of researching and analyzing. On the other hand user interface design and showing images are also accomplished within this phase.

III - Used Technologies

Java 1.6 technology is being used. Main JDK libraries include many image processing functionalities. For further necessities there are some popular image processing libraries like JMagick (Java API of famous ImageMagick), ImageJ etc which can be used. WEKA is going to be used for contamination detection part. WEKA is a famous open source library which was developed by Machine Learning Group of University Of Waikato.

IV - User Interface

Application has a clean design. There is a control panel on the left side and image panel on the right side.



Processing of loaded image consists of 8 phases below:

Glare Removal

HSI transform

Histogram Smooth

Classification

Region assess

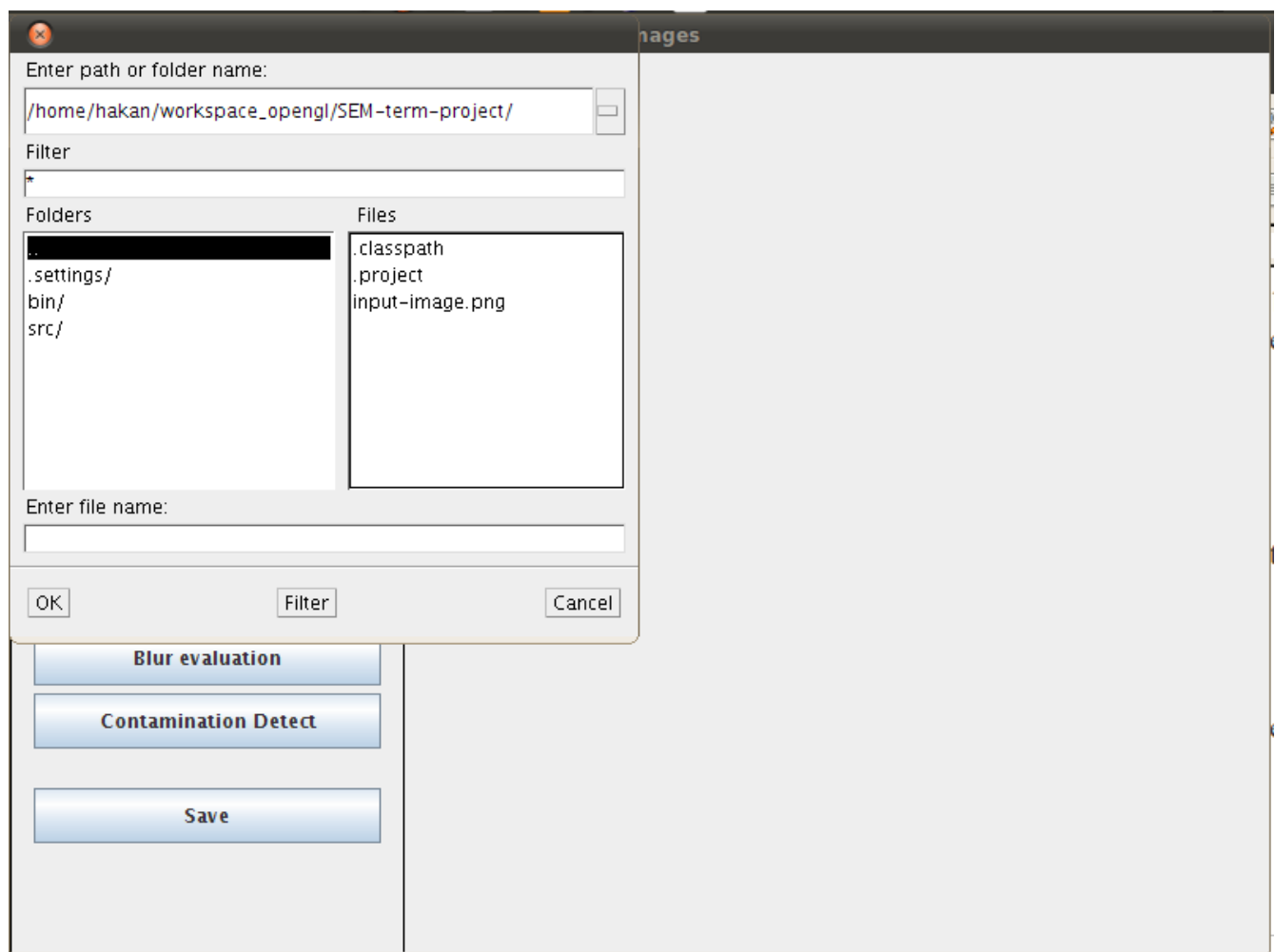
Image contrast analysis

Image blur evaluation

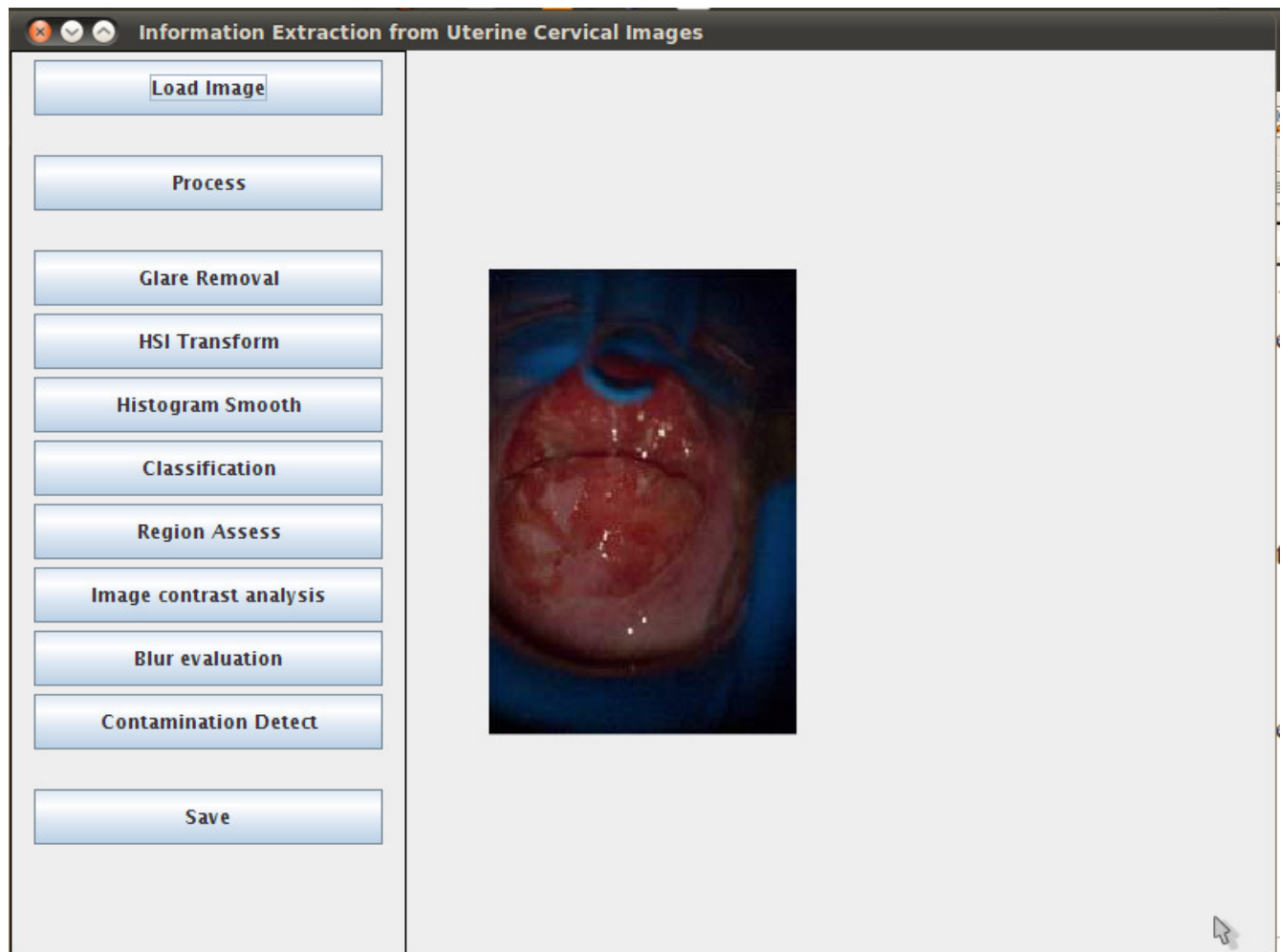
Contamination detection

At the top of the control panel, "Load Image" button exists. "Process" button lays below to initiate all phases in order. Each phase has a button to be triggered separately. The "Save" button saves image currently seen in image panel (on the right side).

The phase buttons, process and save buttons are not functioning yet. But "Load Image" button is functioning. When "Load Image" button is clicked, a file dialog is seen as below:



A sample file loaded and showed on image panel:



V - Supported File Types:

Standart Java Image library is used. JPEG, GIF and PNG file types are supported.