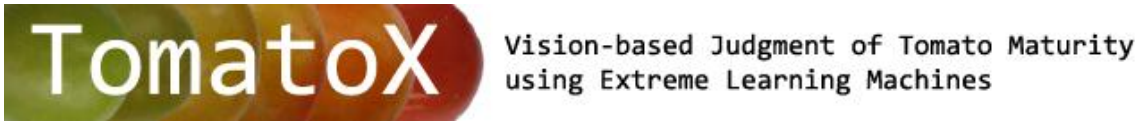
USER'S MANUAL

The program entitled TomatoX is composed of seven (7) sections namely:

- ELM Training page
- Individual Classification page
- Batch Classification page
- Feature Extraction page
- Generate Data page
- About page
- Help page

A splash screen is displayed upon running the program as shown below. The Home page is set to the ELM Training page by default.



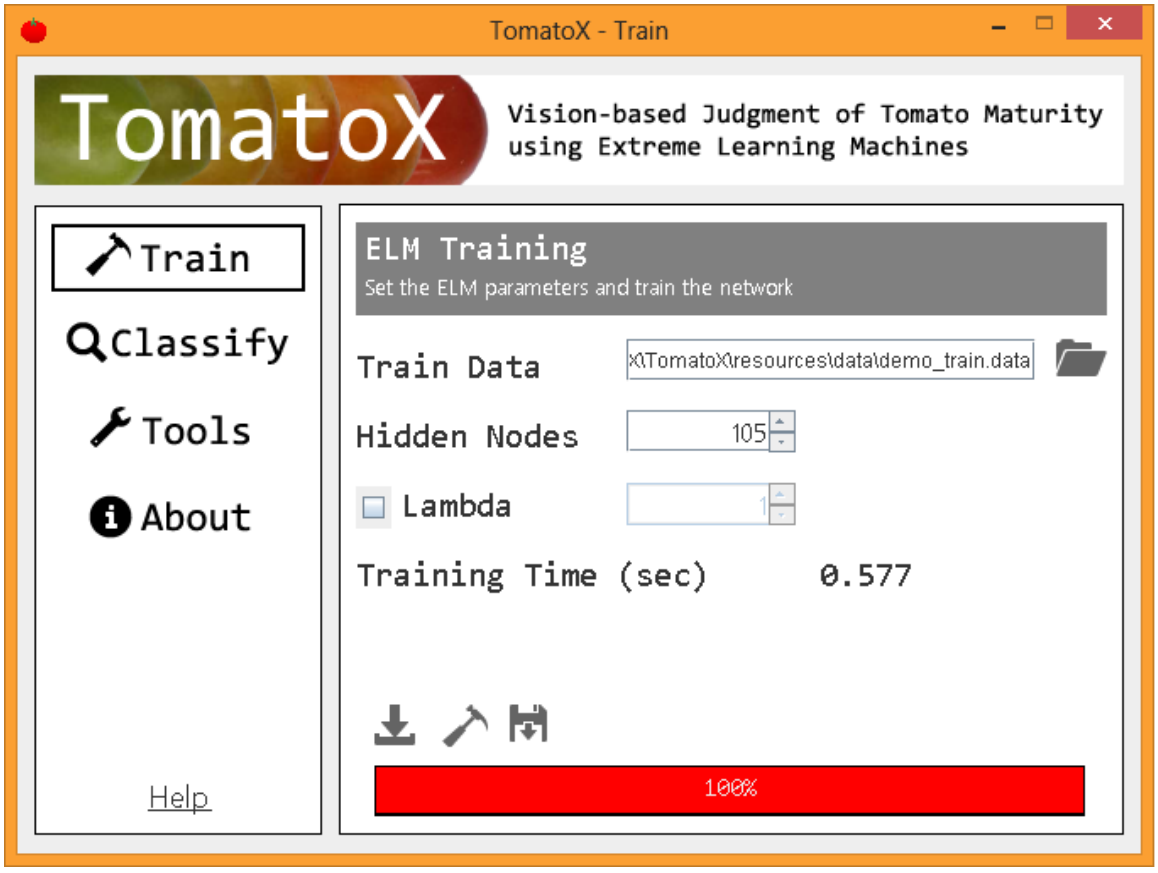
Buttons

Icon	Name	Description
	Browse	Browse for a directory, test/train data, TomatoX classifier
	Load	Loads the test/train data
	Train	Trains the ELM network using the user-specified ELM parameters
	Save	Saves the trained ELM as a TomatoX Classifier
	Classify	Classify an individual or a set of tomato
	View Table	Views the result of the batch classification as a table

Extract	Extract the color features from a tomato image
View Process	Views the process of extracting the color features
Generate	Generates a train and test data using the specified dataset

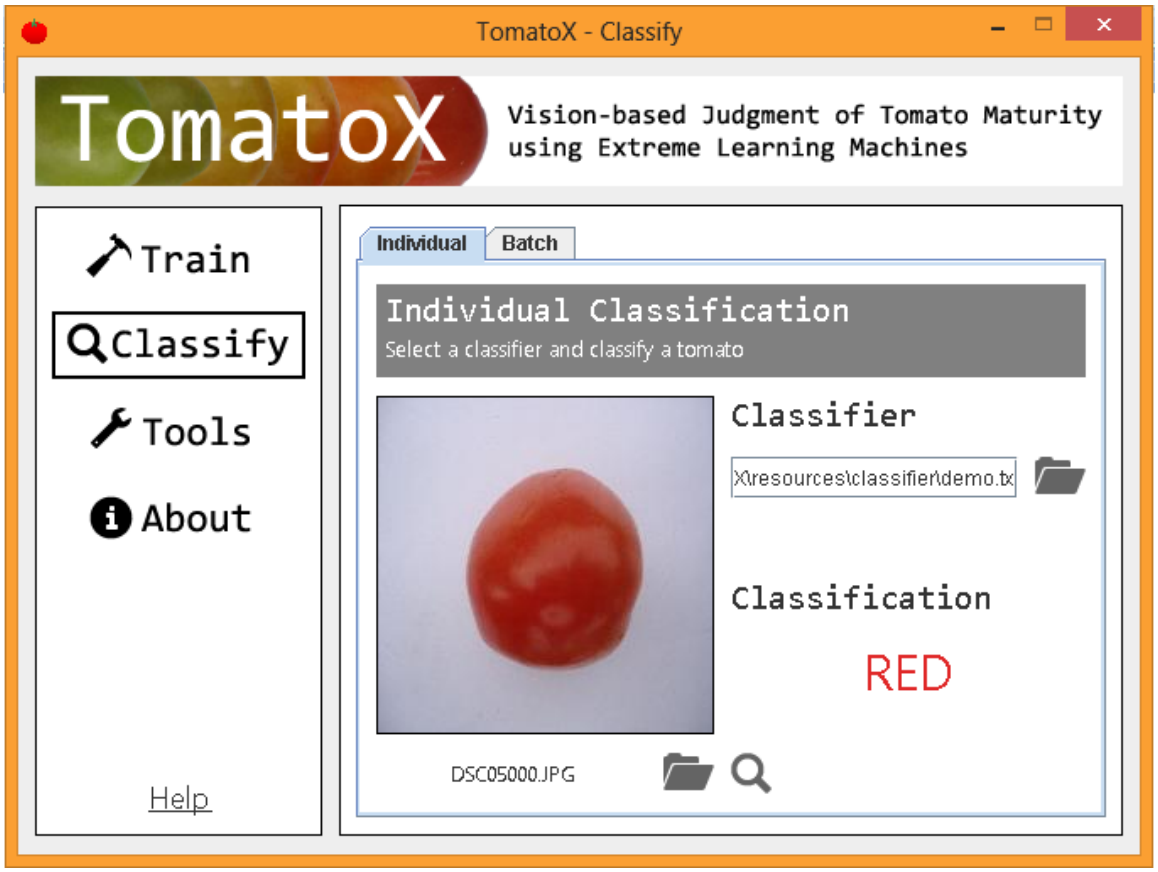
ELM Train page

This page allows the user to train the ELM network. The user specifies the train data and the ELM parameters such as the number of Hidden Nodes and the Lamda. It also displays the time it takes to train the ELM Network and it allows the user to save the trained ELM.



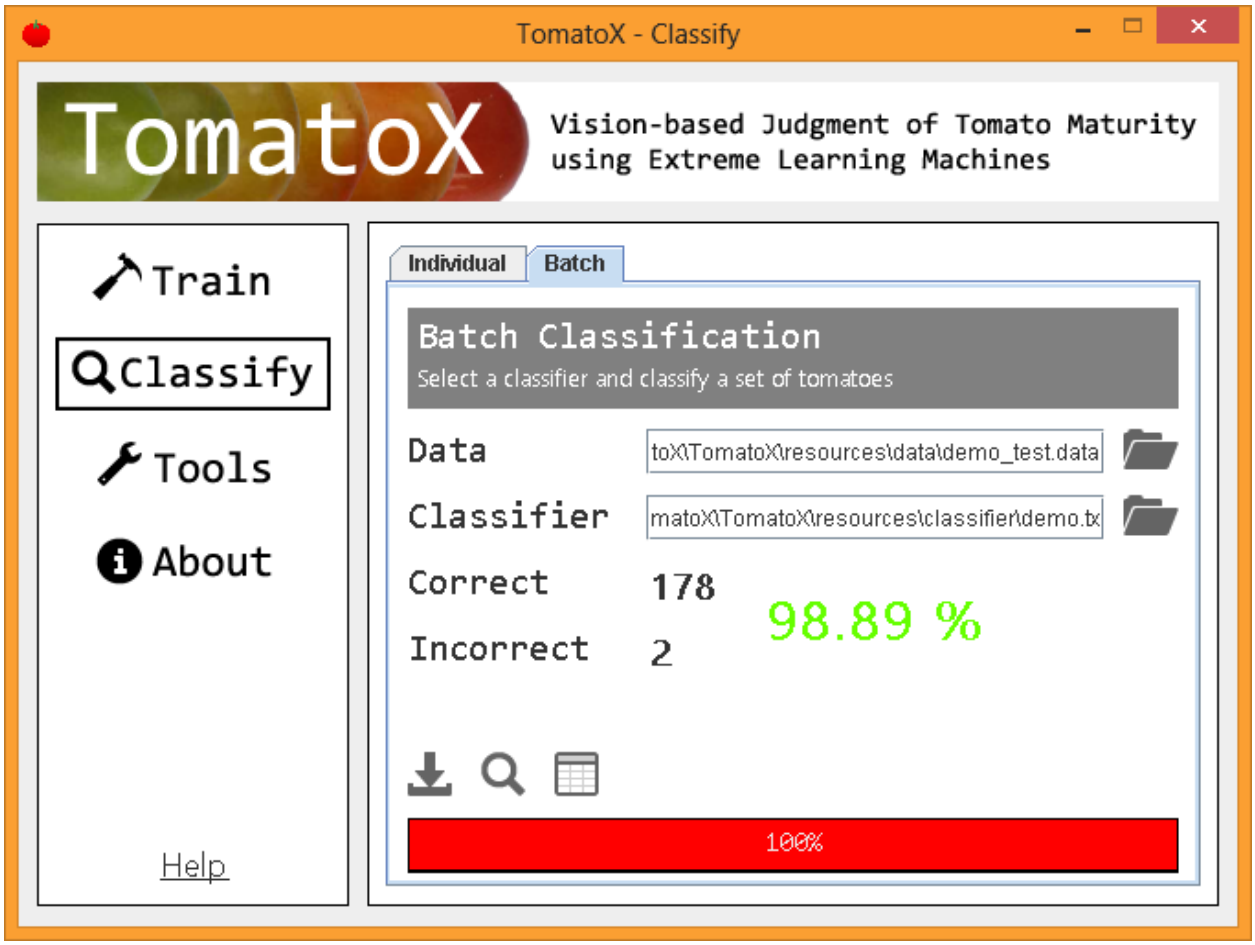
Individual Classification page

This page allows the user to classify an individual tomato. The user inputs the TomatoX Classifier and the tomato image. It displays the corresponding maturity stage of the input tomato image.

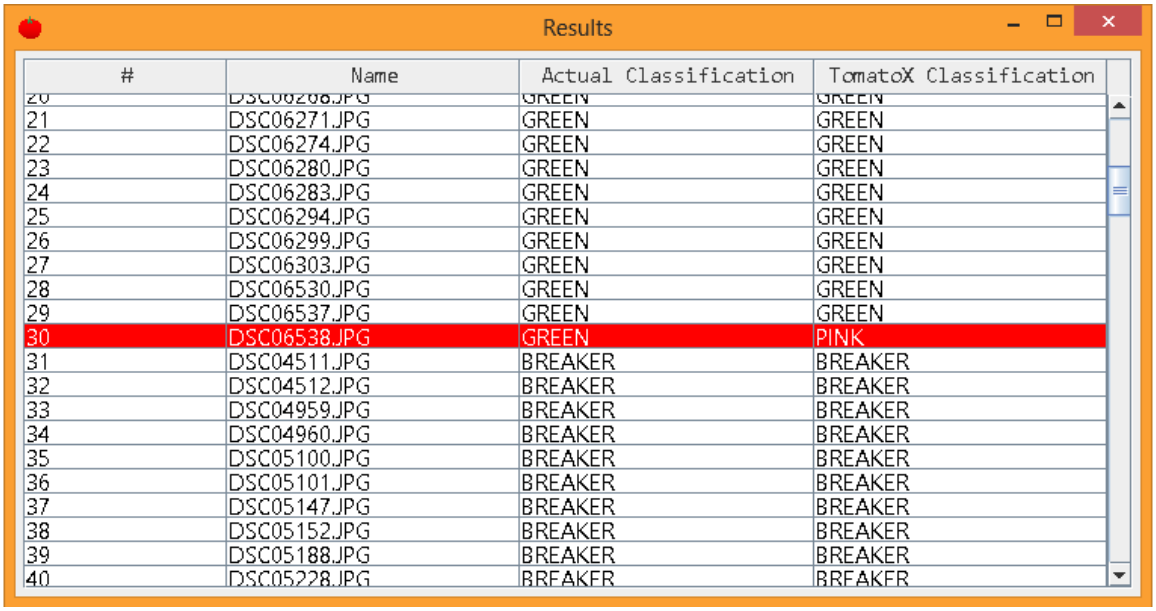


Batch Classification page

This page allows the user to classify a set of tomato. The user specifies the data containing the location of the tomatoes and a TomatoX Classifier. It displays the number of correct and incorrect classification. Also, it displays the accuracy of the TomatoX Classifier in percentage.

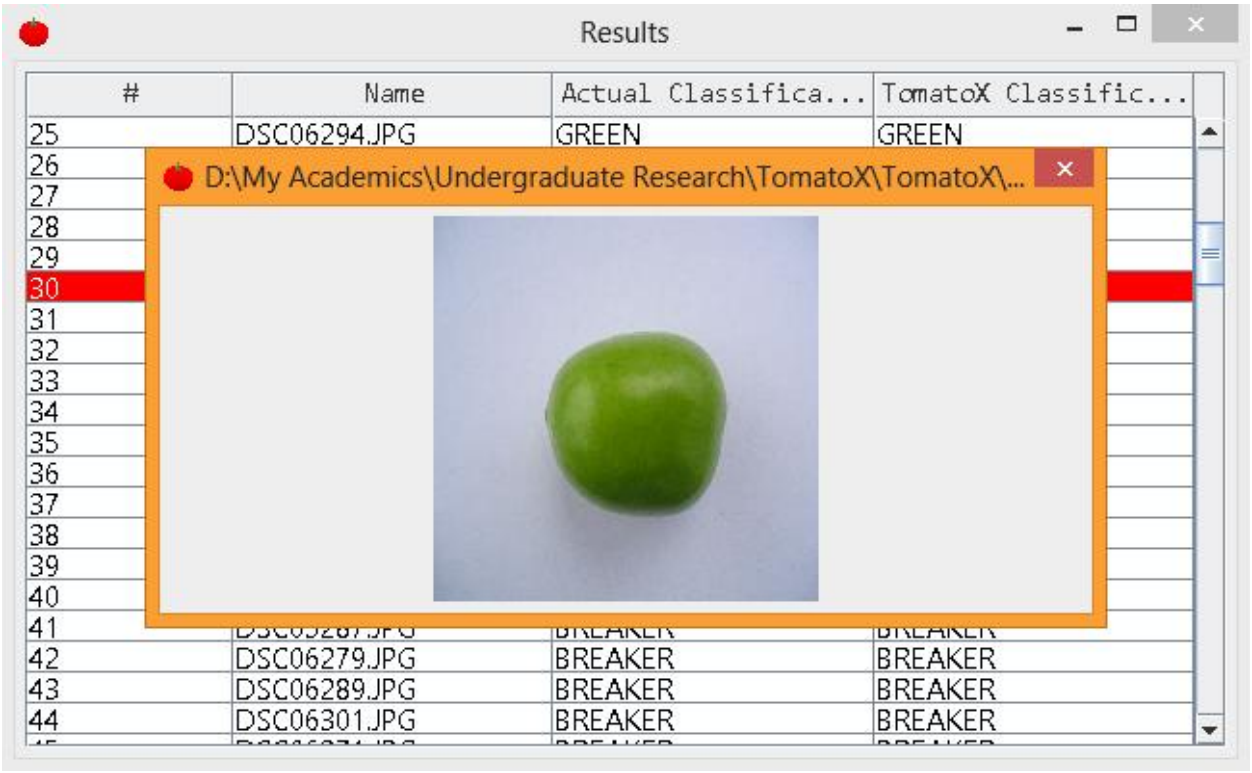


By clicking the View Table button, a frame containing a table showing the result of the classification is displayed as shown below. Incorrect result is highlighted in red.



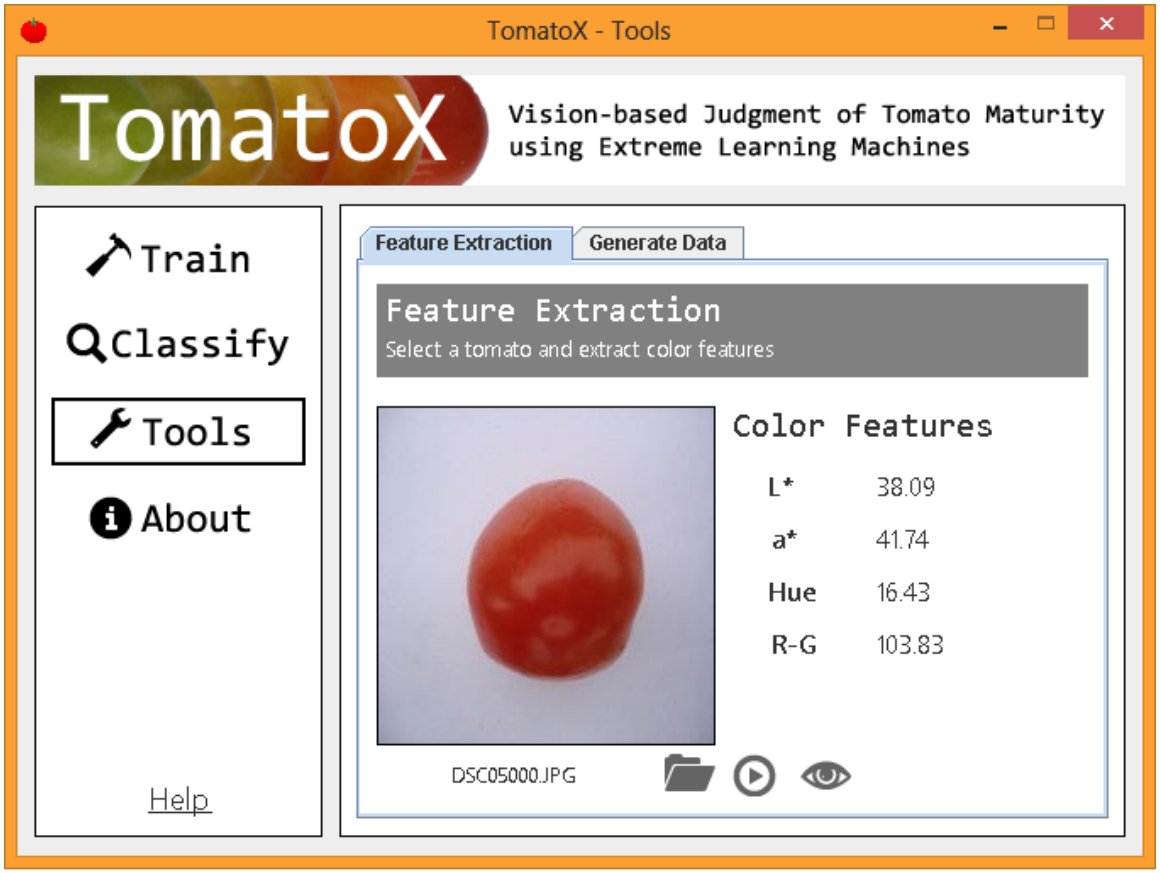
#	Name	Actual Classification	TomatoX Classification
20	DSC06268.JPG	GREEN	GREEN
21	DSC06271.JPG	GREEN	GREEN
22	DSC06274.JPG	GREEN	GREEN
23	DSC06280.JPG	GREEN	GREEN
24	DSC06283.JPG	GREEN	GREEN
25	DSC06294.JPG	GREEN	GREEN
26	DSC06299.JPG	GREEN	GREEN
27	DSC06303.JPG	GREEN	GREEN
28	DSC06530.JPG	GREEN	GREEN
29	DSC06537.JPG	GREEN	GREEN
30	DSC06538.JPG	GREEN	PINK
31	DSC04511.JPG	BREAKER	BREAKER
32	DSC04512.JPG	BREAKER	BREAKER
33	DSC04959.JPG	BREAKER	BREAKER
34	DSC04960.JPG	BREAKER	BREAKER
35	DSC05100.JPG	BREAKER	BREAKER
36	DSC05101.JPG	BREAKER	BREAKER
37	DSC05147.JPG	BREAKER	BREAKER
38	DSC05152.JPG	BREAKER	BREAKER
39	DSC05188.JPG	BREAKER	BREAKER
40	DSC05228.JPG	BREAKER	BREAKER

By clicking on the name of the tomato image, a dialog containing the tomato image is displayed as shown below.

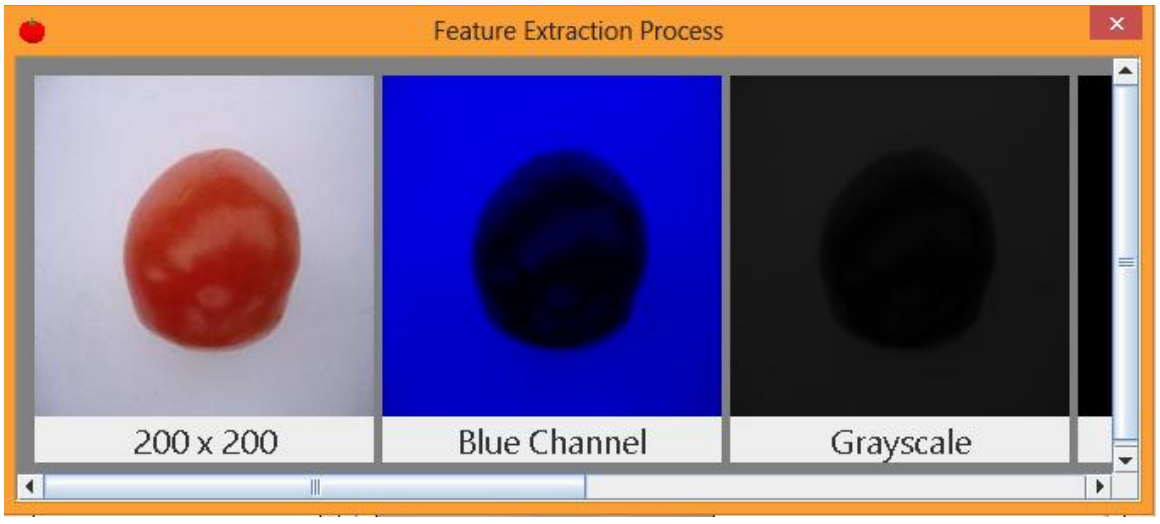


Feature Extraction page

This page allows the user to extract the color features from the input tomato image. The extracted features are displayed. It also allows the user to view the process of extracting the features.

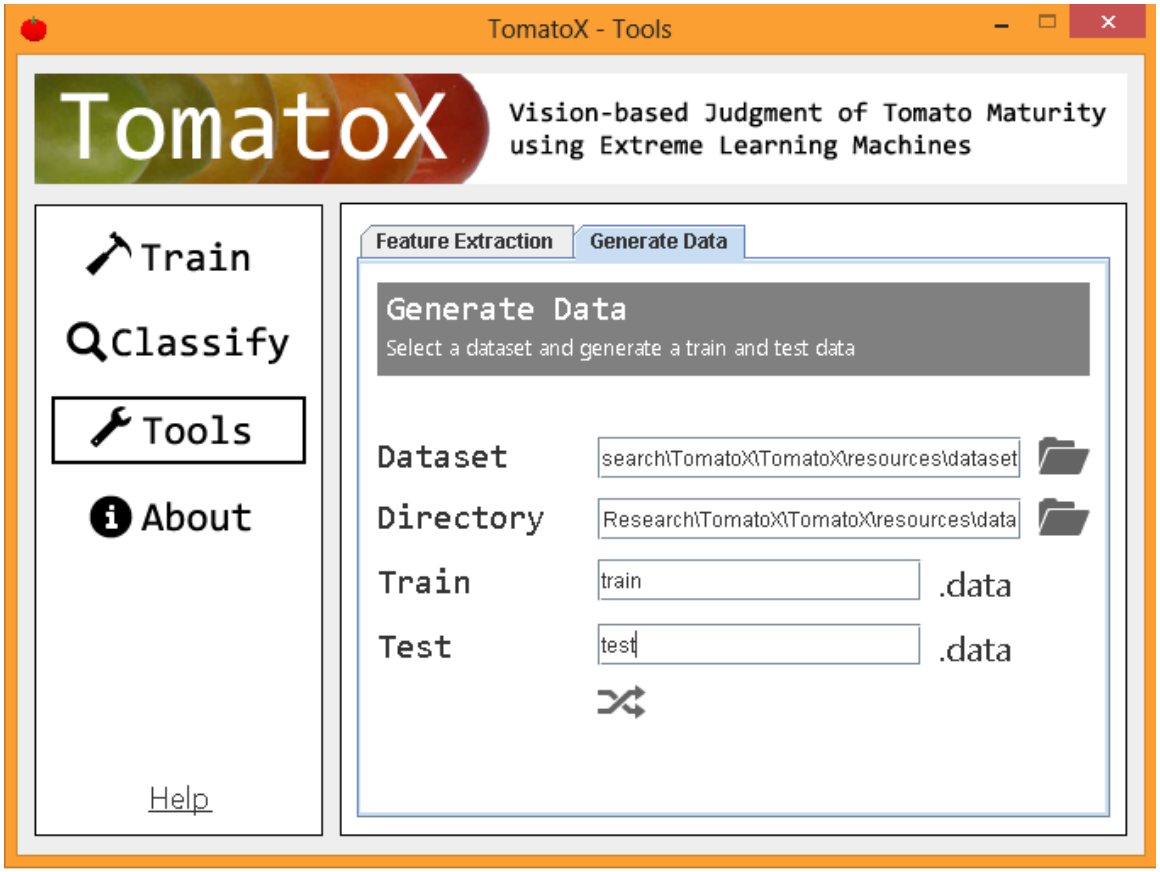


By clicking the View Process button, a dialog showing the process is displayed as shown below.



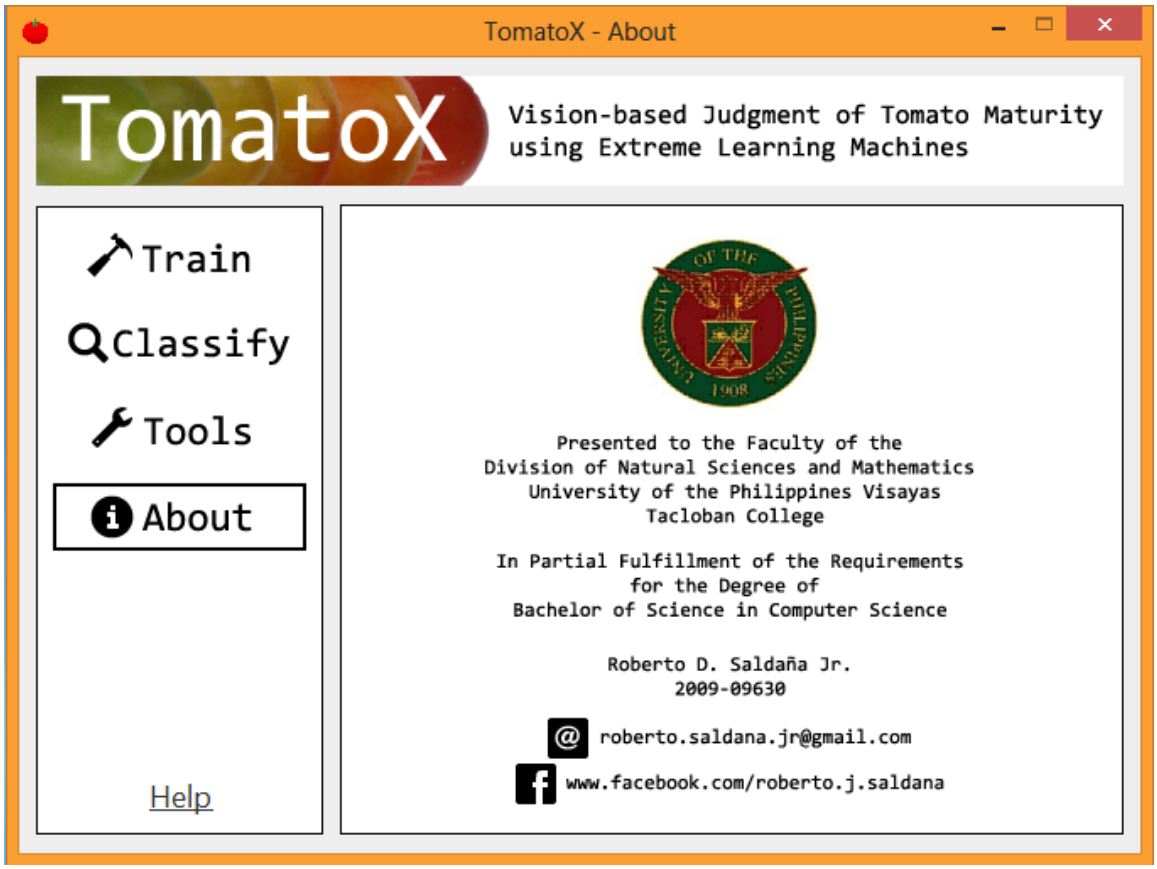
Generate Data page

This page allows the user to generate a train and test data from a given dataset. The user specifies the dataset and the directory in which the data will be saved.



About page

This page displays a brief overview of the program and the some information about author.



Help page

This page links to this user's manual.