

How to Use DART

1. Navigating the main menu

The main menu, shown in Figure 1, provides a link to different functionalities the user may wish to partake. The main functionality includes creating the model using a user-provided dataset, retrieving a created model via unpickling, exporting a created model to a user decided location and finding recommendations using a specified model. Other functionality include accessing the DART documentation, a log of historical model exports and a input for recommendations or critique of DART.

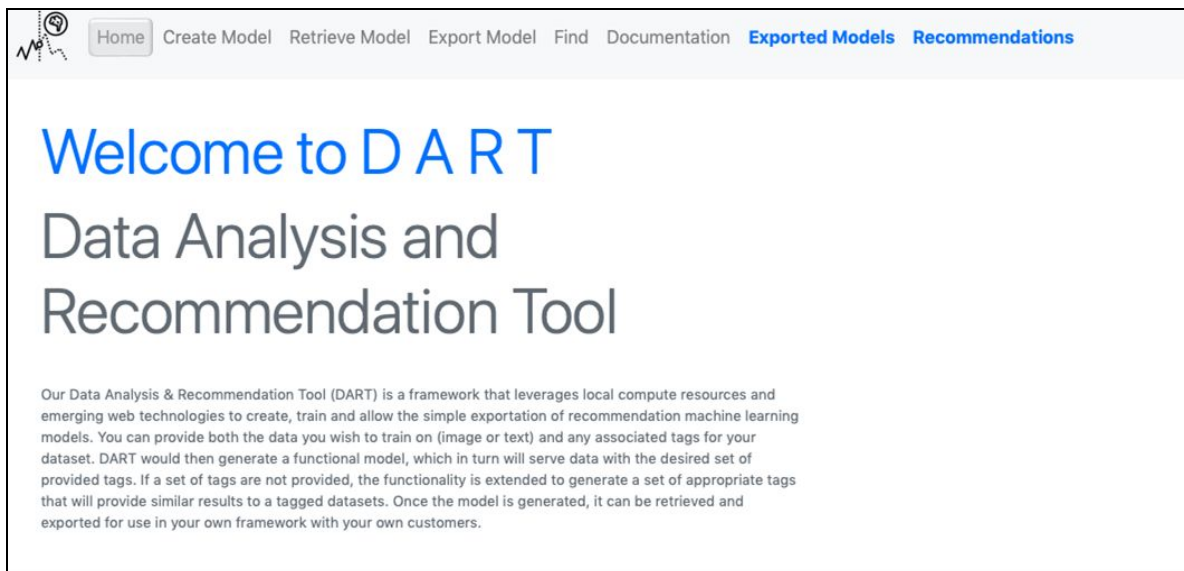
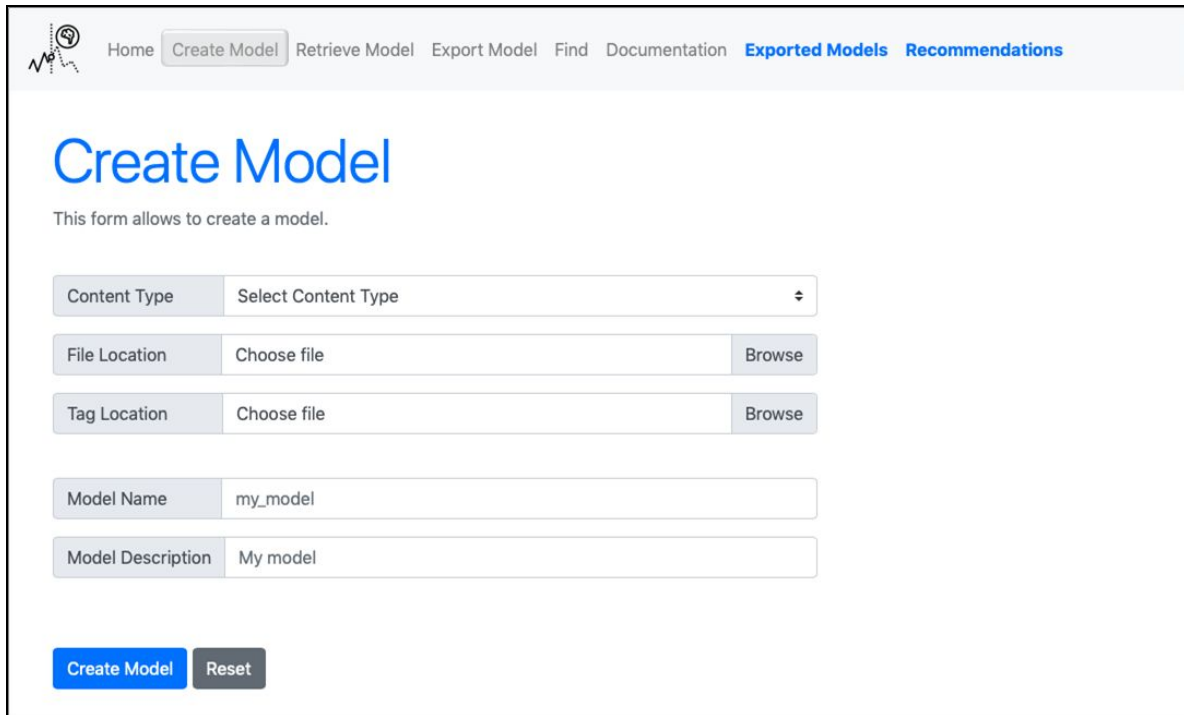


Figure 1: Main Menu

2. Creating a model

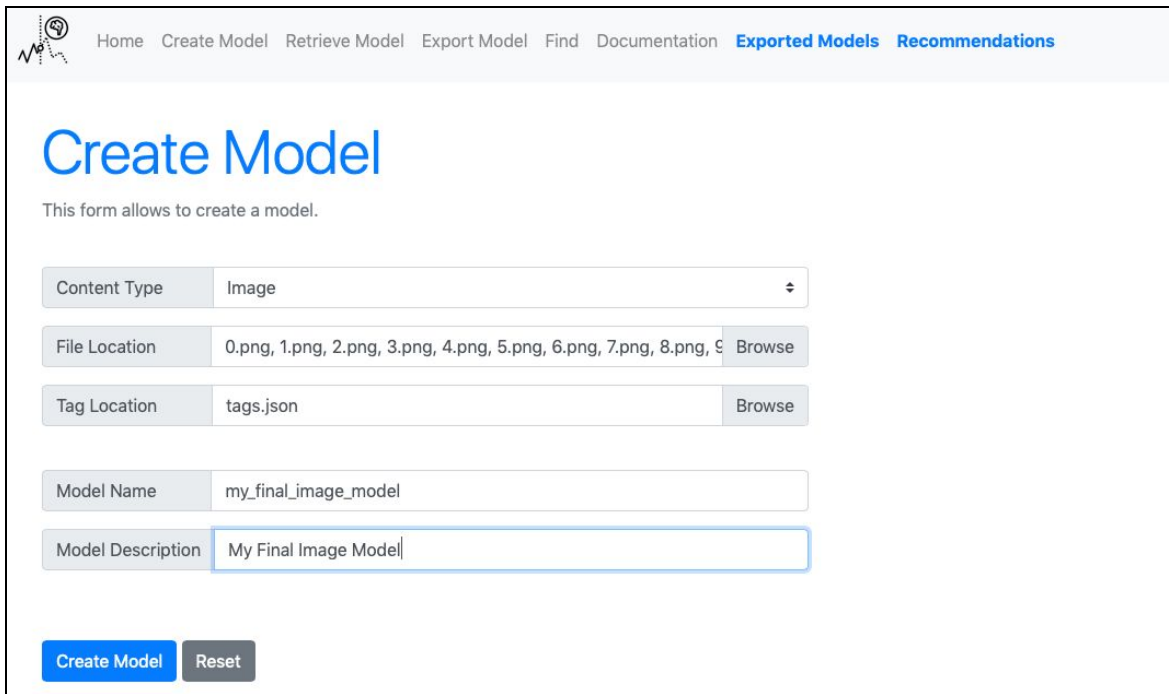
In order to create a model using a user provided dataset, navigate onto the Create Model page shown in Figure 2.



The screenshot shows the 'Create Model' page of the DART application. At the top is a navigation bar with links: Home, Create Model (highlighted), Retrieve Model, Export Model, Find, Documentation, Exported Models, and Recommendations. The main heading is 'Create Model' in large blue text, followed by the instruction 'This form allows to create a model.' The form contains several input fields: 'Content Type' with a dropdown menu showing 'Select Content Type'; 'File Location' and 'Tag Location' each with a 'Choose file' text box and a 'Browse' button; 'Model Name' with a text box containing 'my_model'; and 'Model Description' with a text box containing 'My model'. At the bottom are two buttons: 'Create Model' (blue) and 'Reset' (grey).

Figure 2: Create Model Interface

DART requires the user to define the content type (Image or Text), file location of the training dataset, file location of the dataset tagging and finally defining a name and description of the user model. An example is shown in Figure 3. Note that text is not currently supported in this version.



The screenshot shows the 'Create Model' page of the DART application. The page has a navigation bar at the top with links: Home, Create Model, Retrieve Model, Export Model, Find, Documentation, Exported Models, and Recommendations. The main heading is 'Create Model' in large blue text. Below it, a subtitle says 'This form allows to create a model.' The form contains several input fields: 'Content Type' with a dropdown menu set to 'Image'; 'File Location' with a text input containing '0.png, 1.png, 2.png, 3.png, 4.png, 5.png, 6.png, 7.png, 8.png, 9' and a 'Browse' button; 'Tag Location' with a text input containing 'tags.json' and a 'Browse' button; 'Model Name' with a text input containing 'my_final_image_model'; and 'Model Description' with a text input containing 'My Final Image Model'. At the bottom of the form are two buttons: 'Create Model' (blue) and 'Reset' (grey).

Figure 3: Create Model Example

If successful, the notification; shown in Figure 4 should appear.

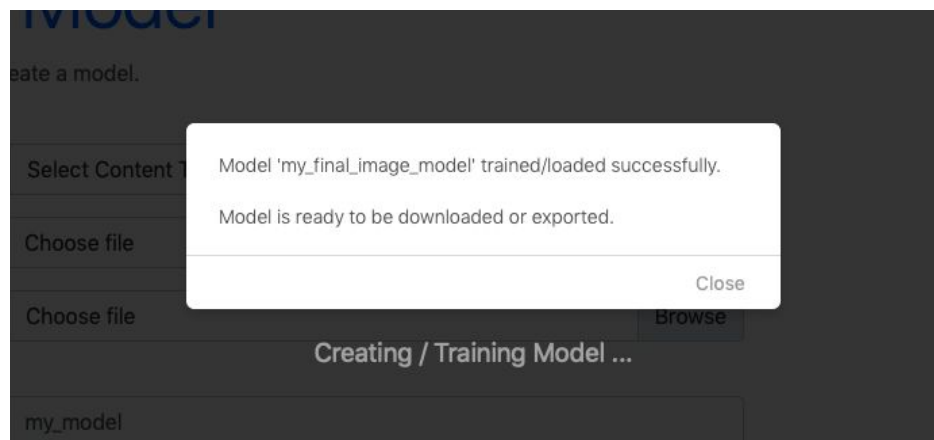


Figure 4: Create Model Success

3. Retrieve existing model

An existing model can be retrieved via selecting the model file, shown in Figure 5, that should be in the pickled (.pkl) format. The user must also define the content type of the model, in this case image should be selected as text is not supported in this version.

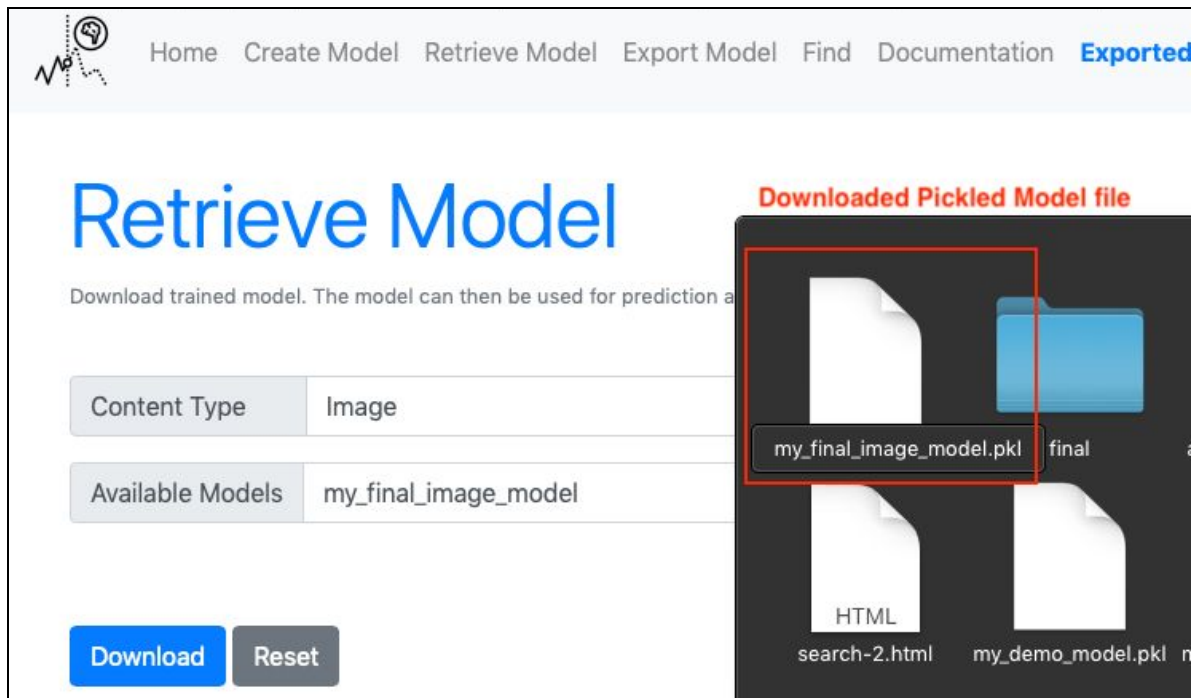
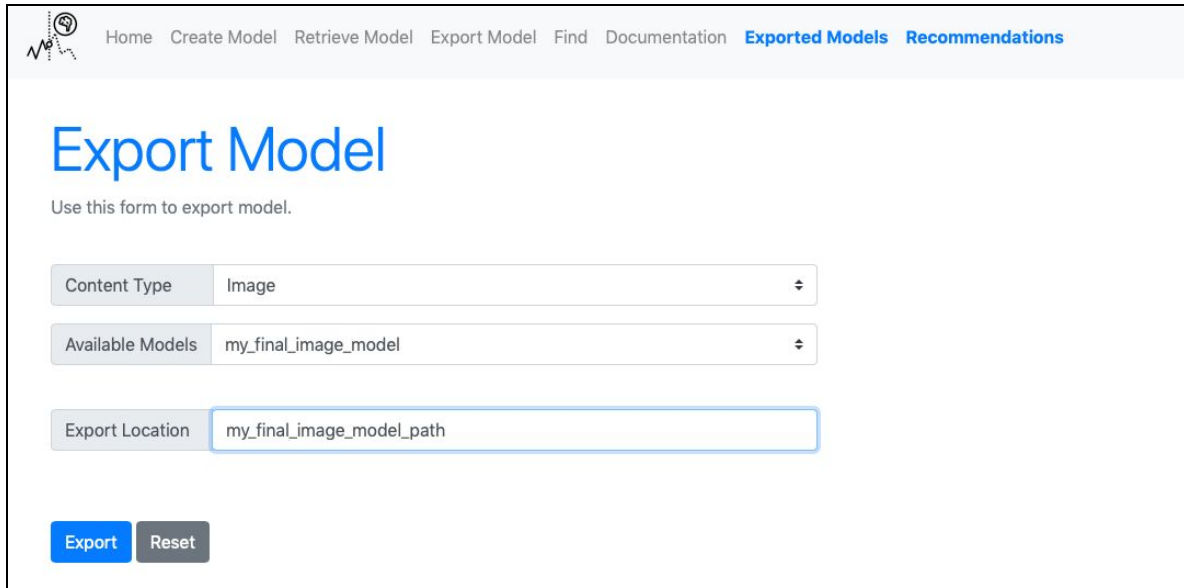


Figure 5: Retrieve Model Example

4. Exporting Model

A model can be exported to a user defined destination through specifying the model name, type and the path of the export location. This is shown in Figure 6.

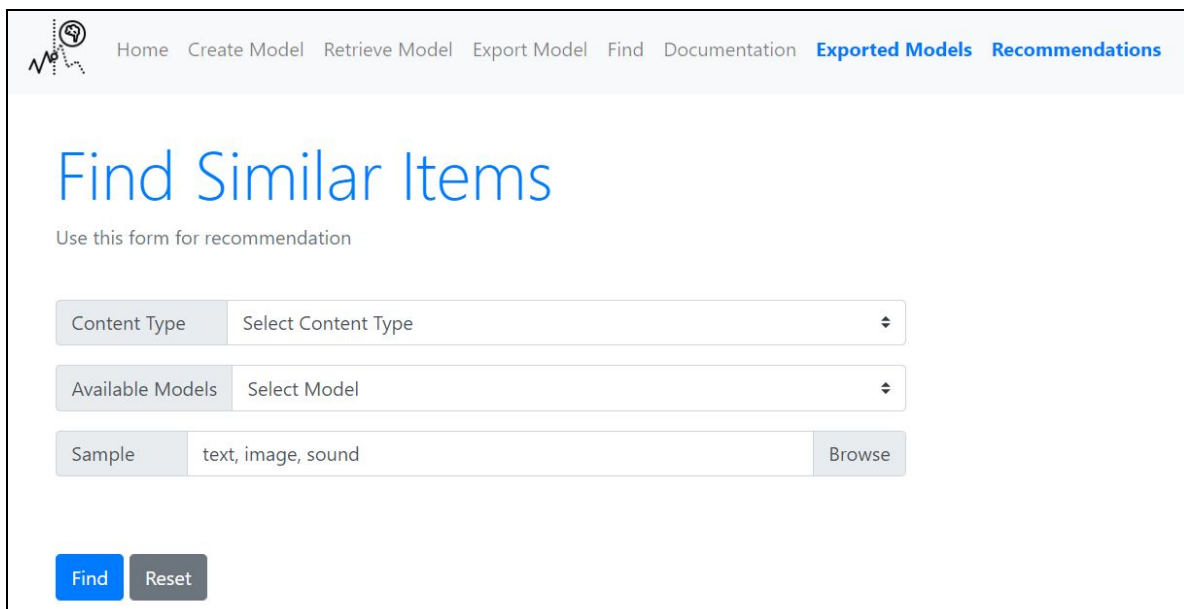


The screenshot shows the 'Export Model' page of the DART application. The page has a navigation bar at the top with links: Home, Create Model, Retrieve Model, Export Model, Find, Documentation, Exported Models, and Recommendations. The main heading is 'Export Model' in blue. Below it, a subtitle says 'Use this form to export model.' The form consists of three rows: 'Content Type' with a dropdown menu showing 'Image', 'Available Models' with a dropdown menu showing 'my_final_image_model', and 'Export Location' with a text input field containing 'my_final_image_model_path'. At the bottom of the form are two buttons: 'Export' (blue) and 'Reset' (grey).

Figure 6: Export Model Interface

5. Finding Recommendation

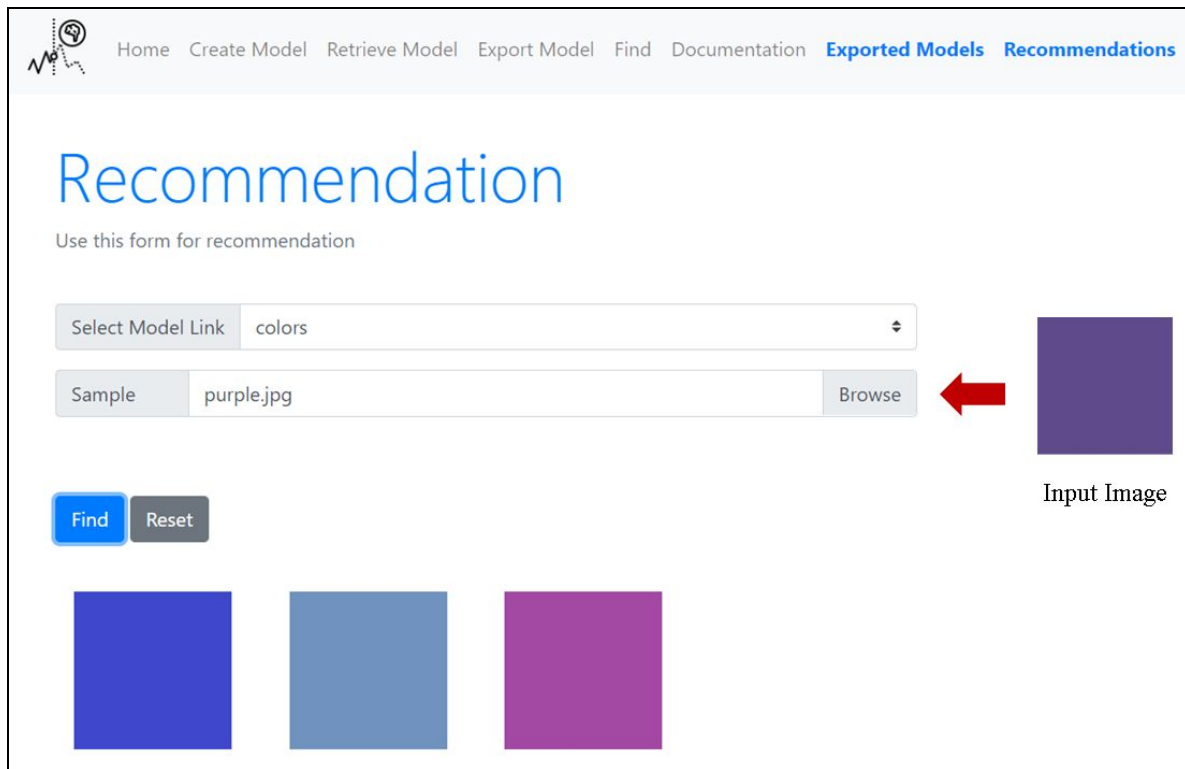
A model can be used to create a recommendation using an input image. This function requires defining the content type and selecting an available model; along with uploading the image to prompt the recommendation. This is shown in Figure 7.



The screenshot shows the 'Find Similar Items' page of the DART application. The page has the same navigation bar as Figure 6. The main heading is 'Find Similar Items' in blue. Below it, a subtitle says 'Use this form for recommendation'. The form consists of three rows: 'Content Type' with a dropdown menu showing 'Select Content Type', 'Available Models' with a dropdown menu showing 'Select Model', and 'Sample' with a text input field containing 'text, image, sound' and a 'Browse' button. At the bottom of the form are two buttons: 'Find' (blue) and 'Reset' (grey).

Figure 7: Find Similar Items Interface

In Figure 8, we show an example that demonstrates recommendations using the first dataset (Block Colour), prompted by a purple block image. Three similar colors form the recommender are displayed.



The screenshot shows the 'Recommendation' page of the DART application. The page has a navigation bar at the top with links: Home, Create Model, Retrieve Model, Export Model, Find, Documentation, Exported Models, and Recommendations. The main heading is 'Recommendation' with the subtitle 'Use this form for recommendation'. Below this, there is a form with two input fields: 'Select Model Link' (with a dropdown menu showing 'colors') and 'Sample' (with a text input showing 'purple.jpg' and a 'Browse' button). To the right of the 'Sample' field is a red arrow pointing to a purple square image labeled 'Input Image'. Below the form are two buttons: 'Find' (in blue) and 'Reset' (in grey). At the bottom, three colored squares are displayed: a blue square, a light blue square, and a purple square, representing the recommended items.

Figure 8: Find Similar Items Example (Dataset 1)

In Figure 9, we show another example that demonstrates recommendations using the second dataset (Museum Painting), prompted by an image of Van Gogh's painting. Three similar paintings form the recommender are displayed.

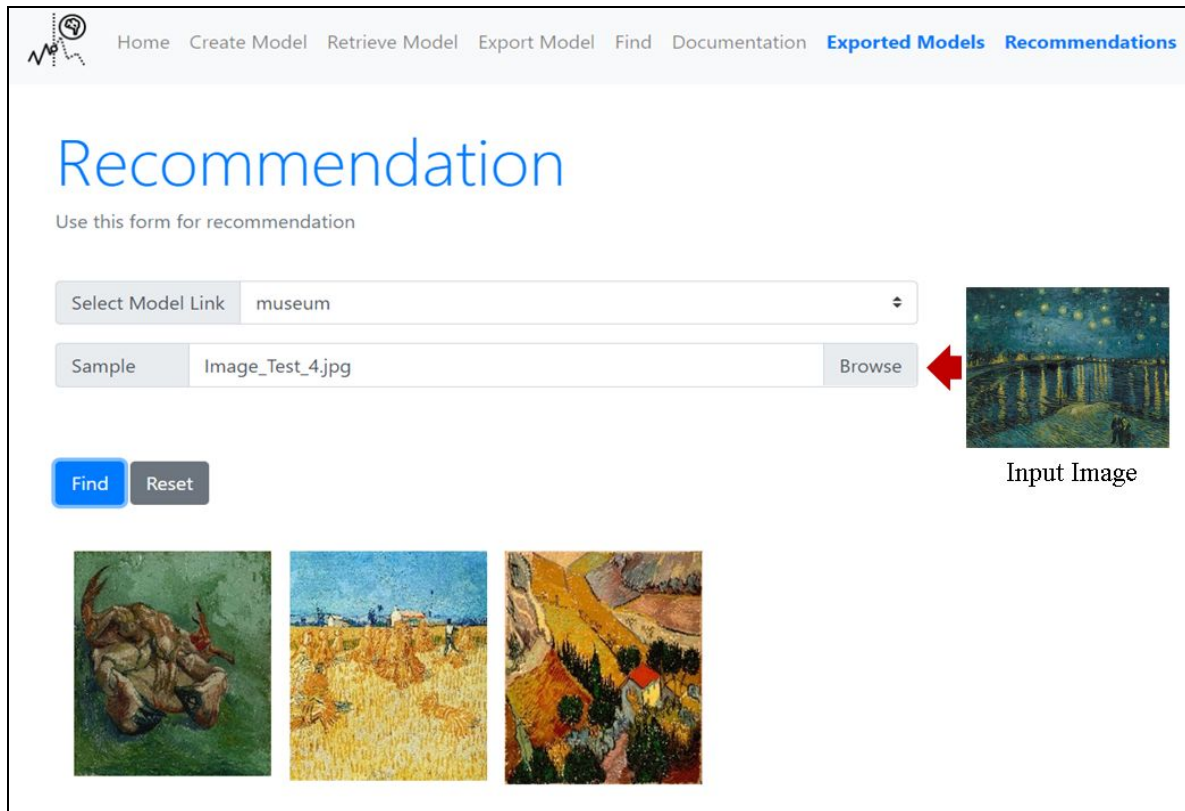


Figure 9: Find Similar Items Example (Dataset 2)

6. Additional features

DART allows the user to see a list of historical model exports; through the Exported Models page, shown in Figure 10.

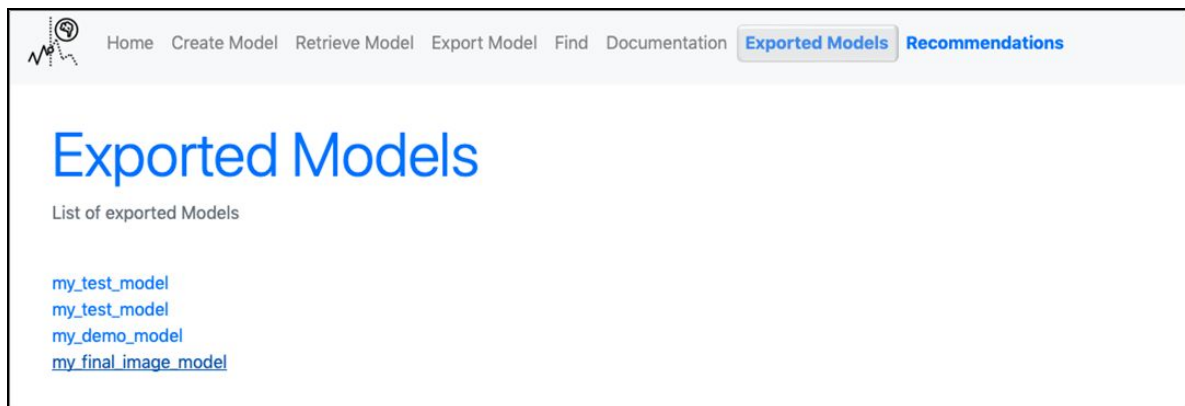


Figure 10: Exported Model History