Skin Cancer Image Classification

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Presentation Outline

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Business Understanding

Skin cancer most commonly diagnosed cancer in the U.S.

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1 in 5 Americans

will develop skin cancer by the age of 70

More than 2 people

die of skin cancer every hour in the U.S.

When detected early,

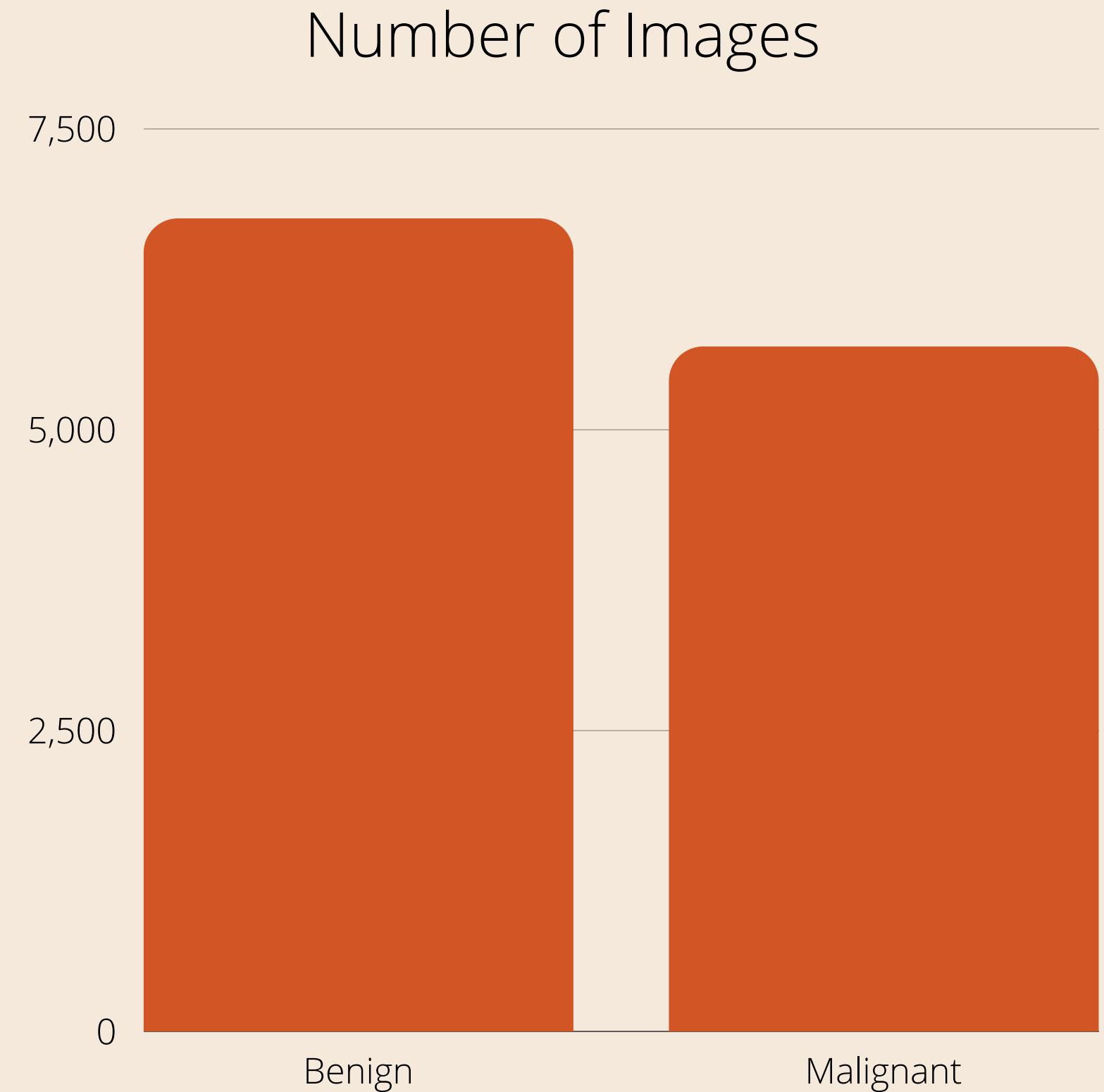the 5-year survival rate for melanoma is 99%.

Project Goal

to predict whether a skin lesion is malignant or benign by image classification

Data

The International Skin Imaging Collaboration (ISIC) Archive

12,436 Skin Lesion Images

Number of Images

7,500		
5,000		
2,500		
0	Benign	Malignant

Data Sample
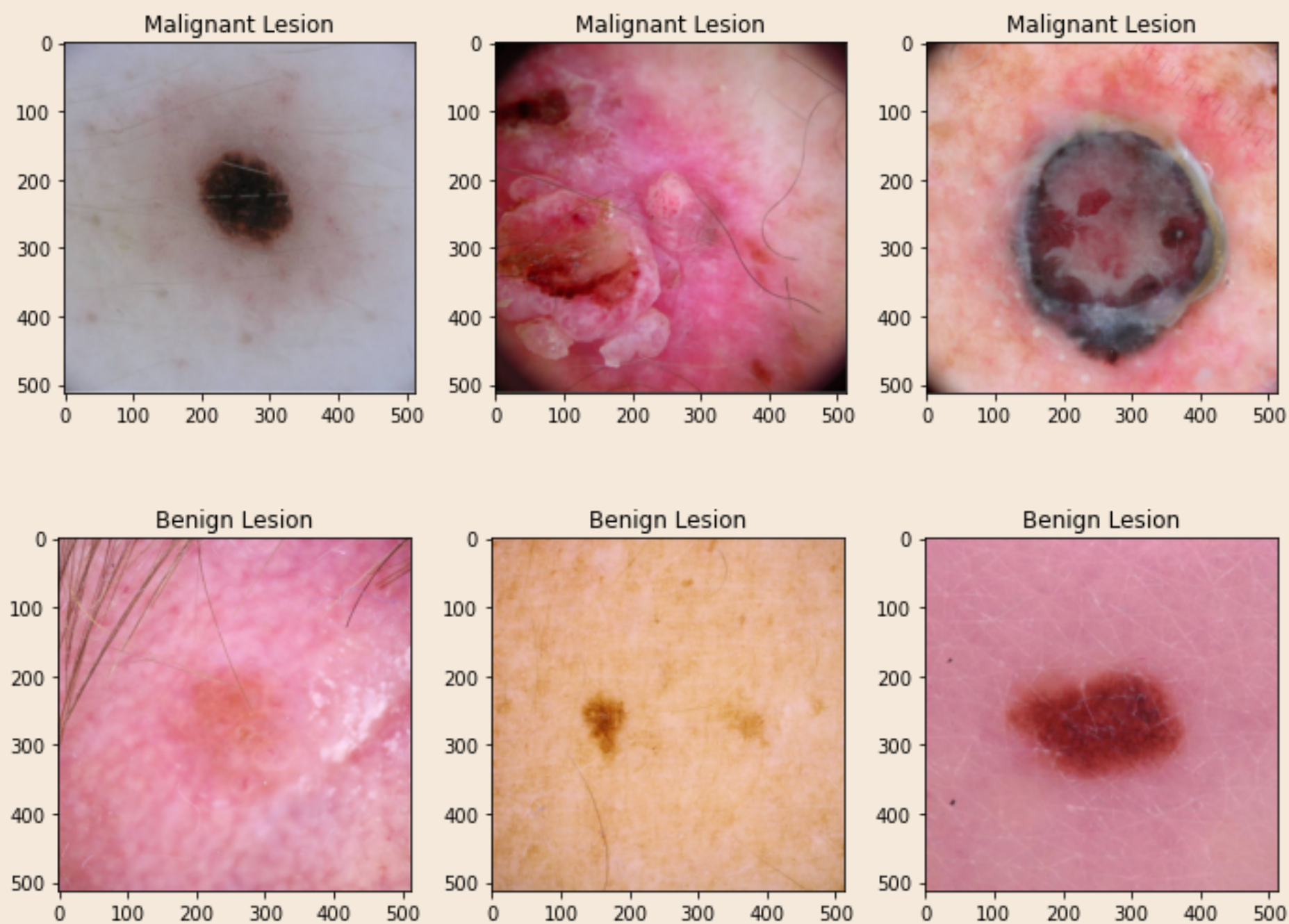
Modeling

False Positive

Classifying image as Malignant
when it is Benign

Unnecessary Biopsies

Financial Burden

False Negative

Classifying image as Benign
when it is Malignant

Delay in Treatment

Mortality Rate Increase

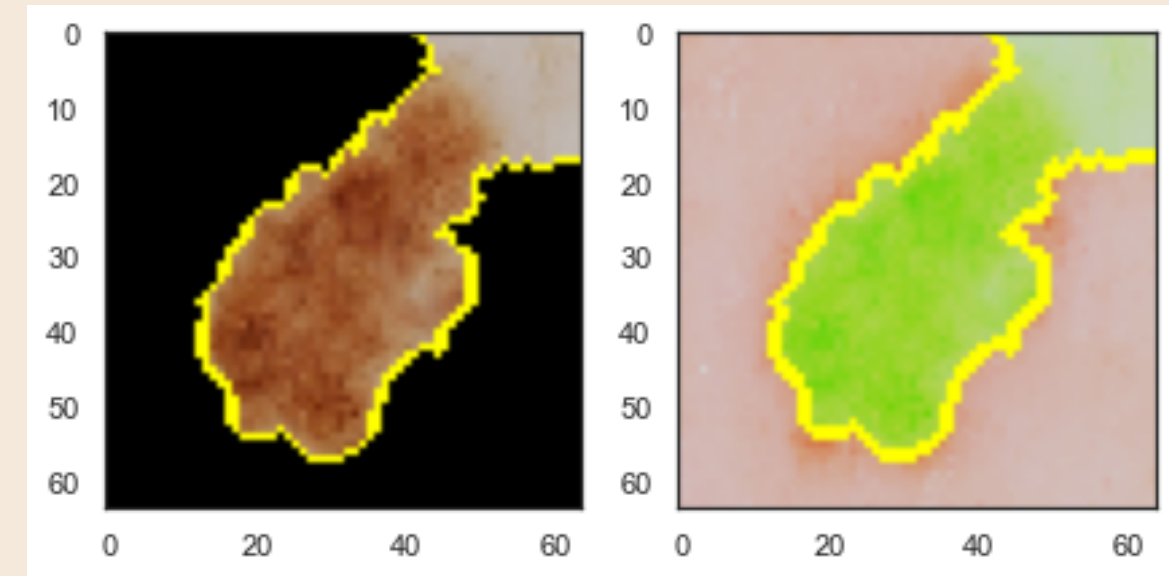# Results

**Convolutional
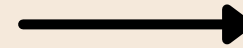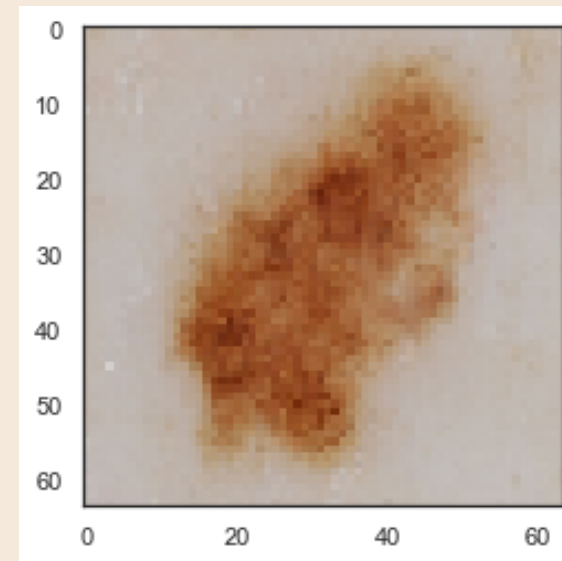Neural Network**

Scores:
91% Accuracy
90% Recall

	Predicted Benign	**Predicted Malignant**
Actual Benign	**92%** correctly predicted benign	**8%** predicted malignant but actually benign
Actual Malignant	**9%** predicted benign but actually malignant	**91%** correctly predicted malignant

Actual

Benign   **Malignant**

Predicted

Exploring the Black-Box
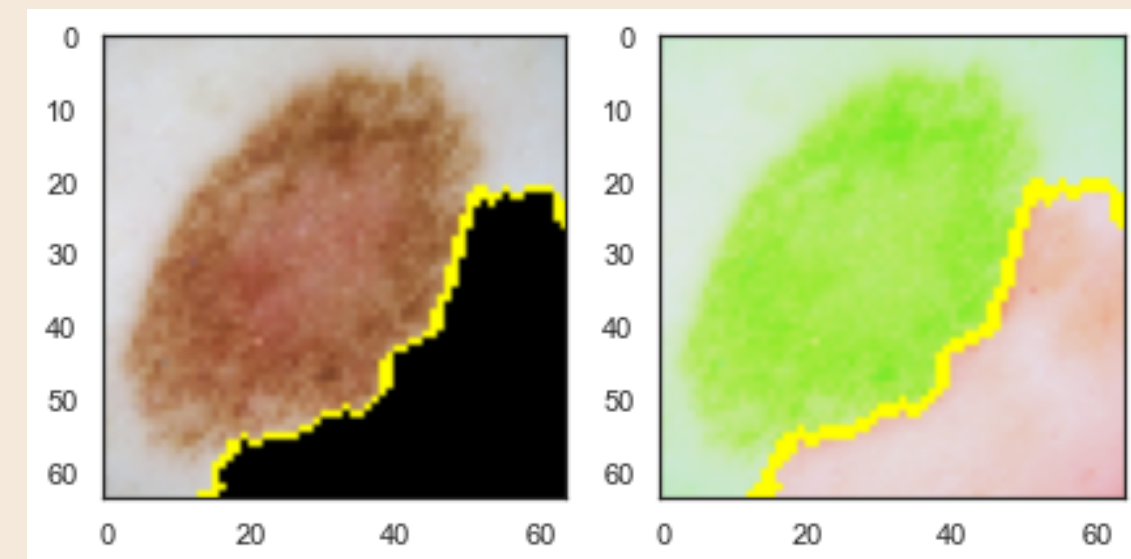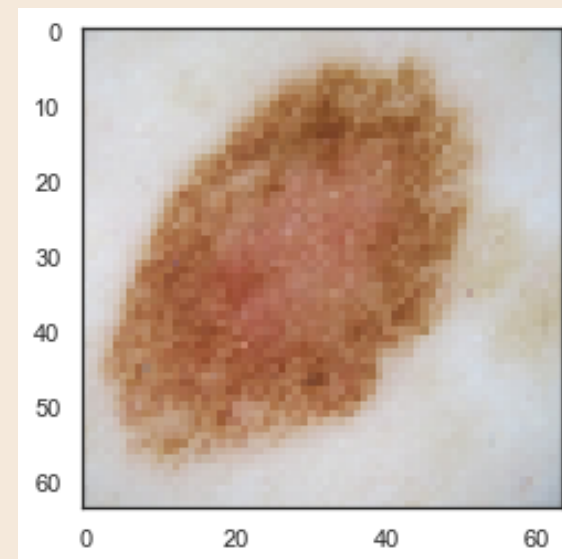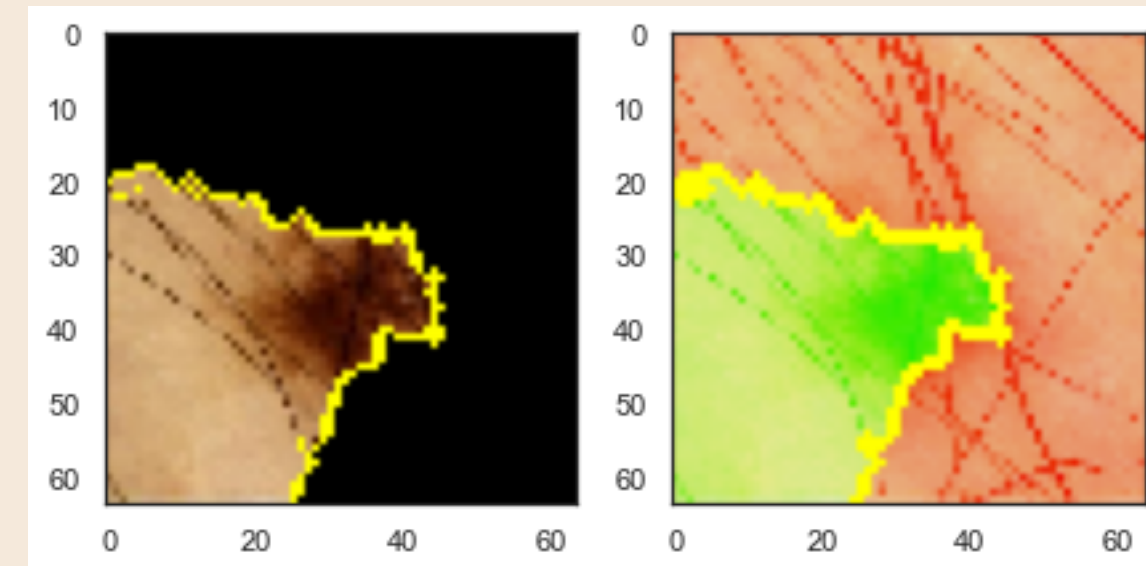
The reasoning behind final model predictions

Exploring the Black-Box

The reasoning behind final model predictions
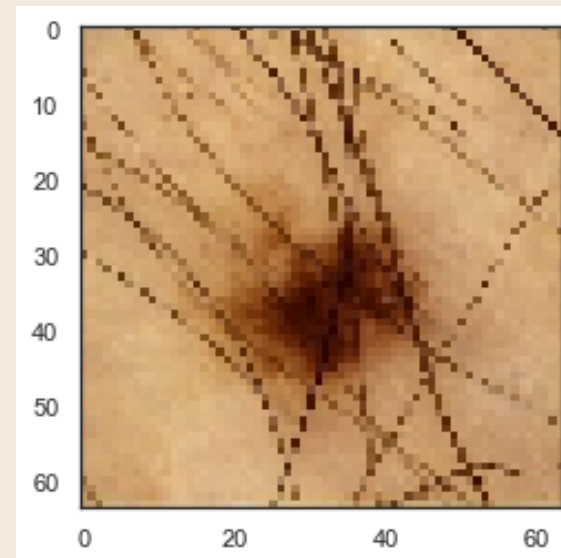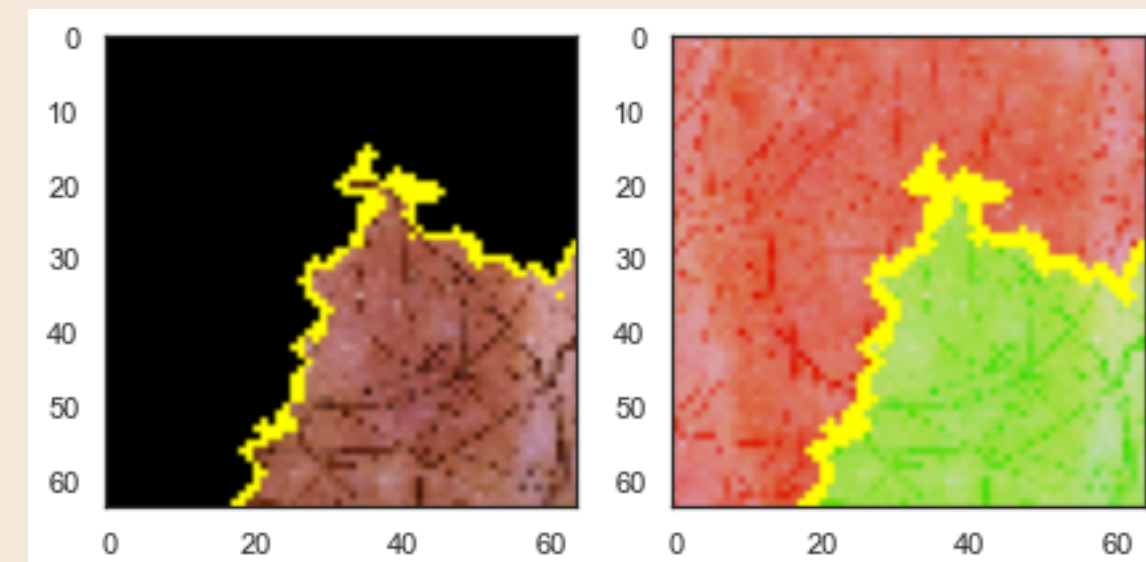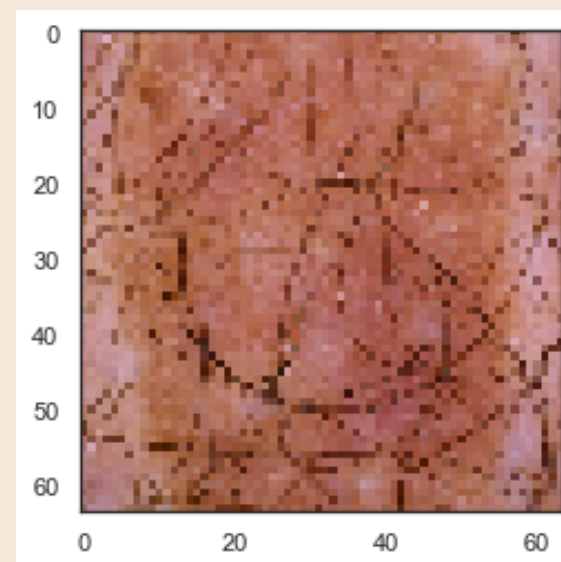
Recommendations

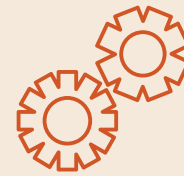|	
Decision Support Tool	For dermatologists and/or medical professionals
Clean Image Usage	No extra disturbances on the images

Next Steps

Image Cleaning

Remove disturbances from images

More dermoscopic images

Increase number of training images

Deep Learning Classifier

Metadata info + skin lesion image

Thank You!

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🌐 https://github.com/emykes