Skin Lesion Classification

By Daniel Logan

Identifying Lesion Types and Cancer Risk in the HAM10000 Dataset Using CNN Modeling

PROBLEM STATEMENT:

Using **Convolutional Neural Networks**, can I develop models which can accurately predict the classifications of new skin lesion images?

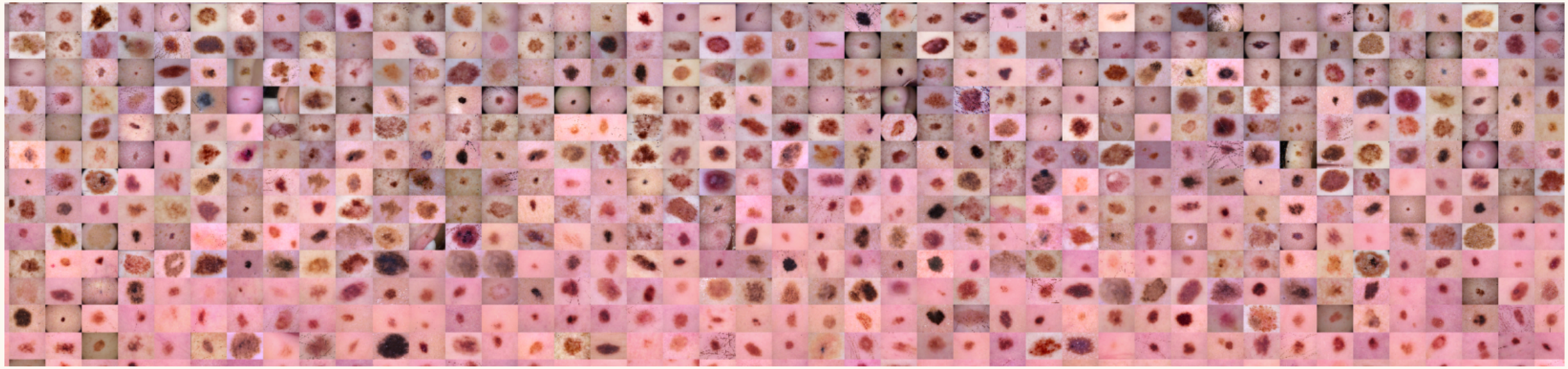
VALUE ADD:

Patients can use my first model to better inform where and when they seek care.

Medical professionals can utilize the model as a second opinion for their own findings.

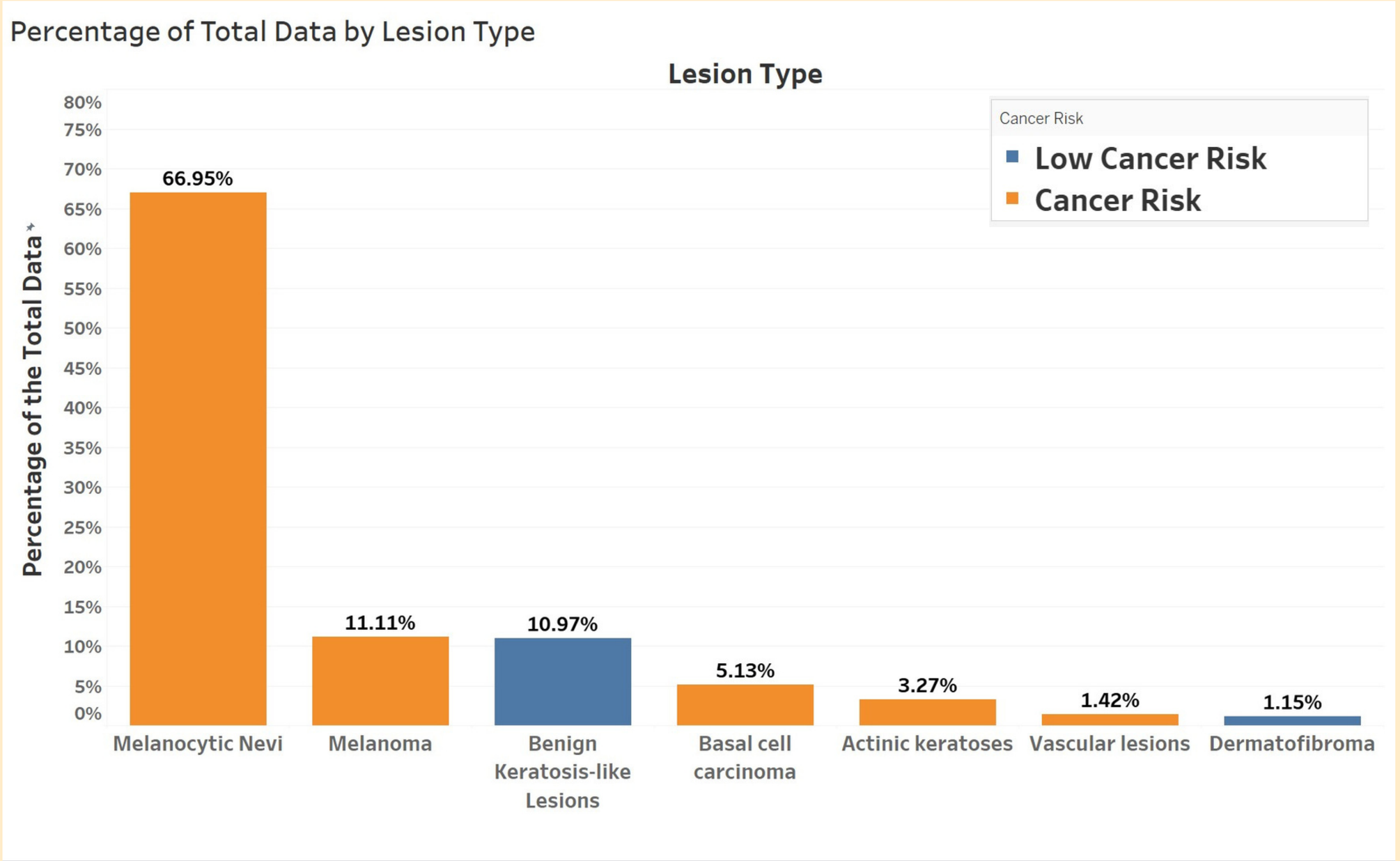
The Data Source

HARVARD UNIVERSITY'S HAM10000 DATASET



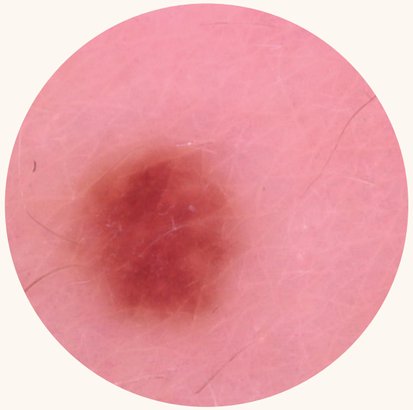
Data Source: Tschandl, Philipp, 2018, "The HAM10000 dataset, a large collection of multi-source dermatoscopic images of common pigmented skin lesions", https://doi.org/10.7910/DVN/DBW86T, Harvard Dataverse

CLASS IMBALANCE IN THE DATA



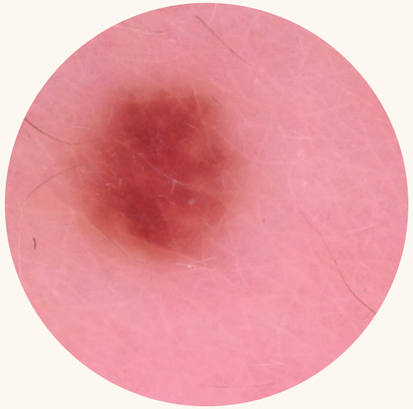
SOLVING THE CLASS IMBALANCES

Original

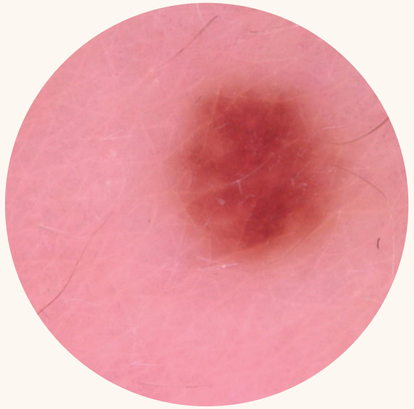


Horizontal Flip

Vertical Flip



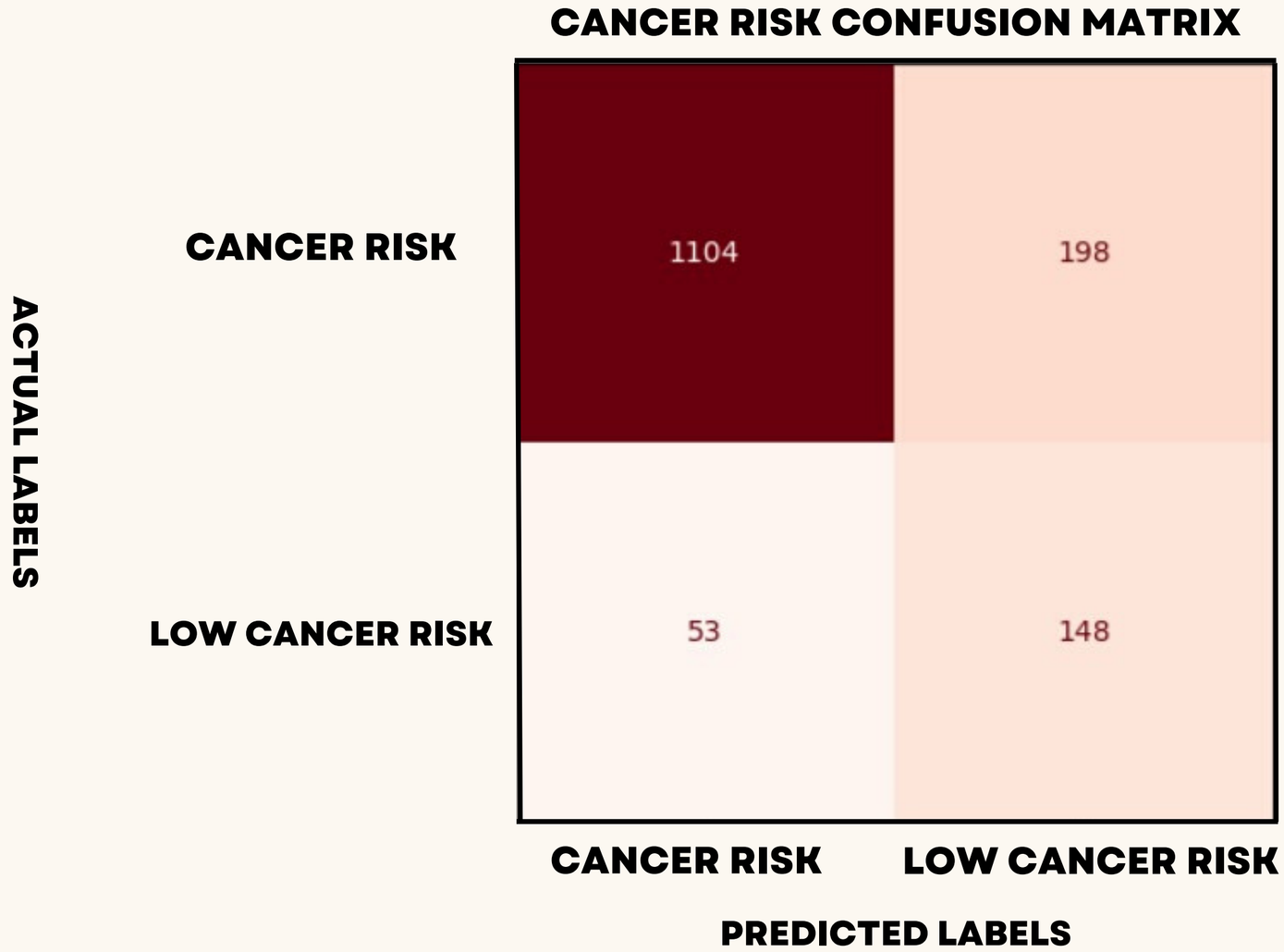
Horizontal & Vertical Flip



Model Performance

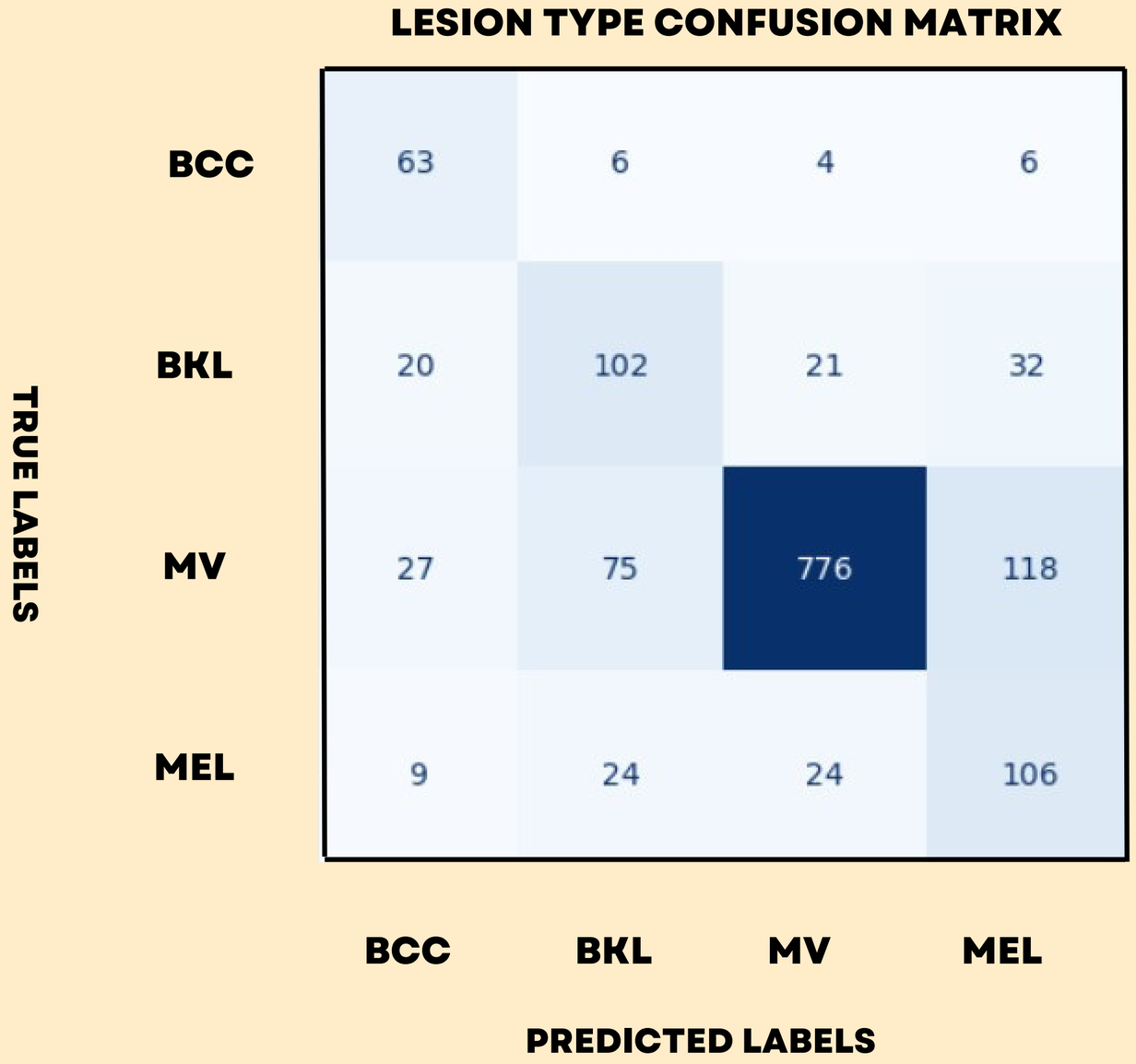
CANCER RISK

Accuracy: 83.3%



LESION TYPE

Accuracy: 74.1%



Applications for Models

CANCER RISK

GET IT ON Google Play

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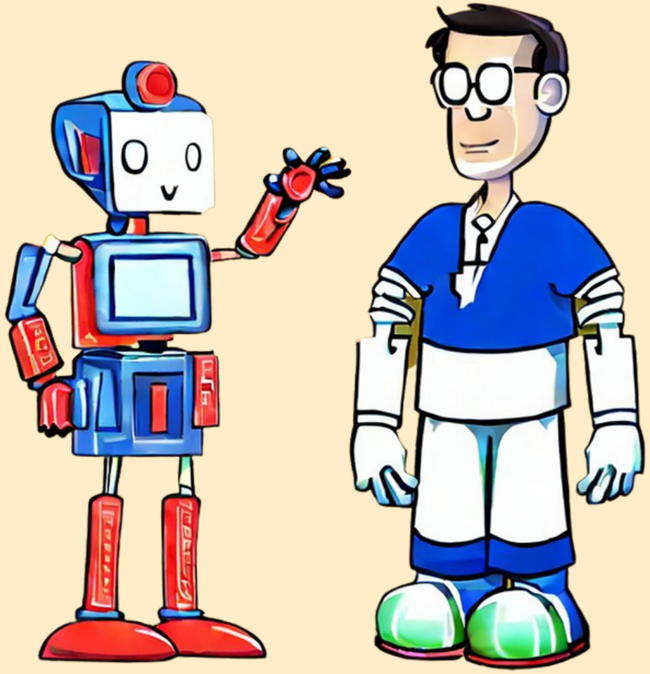
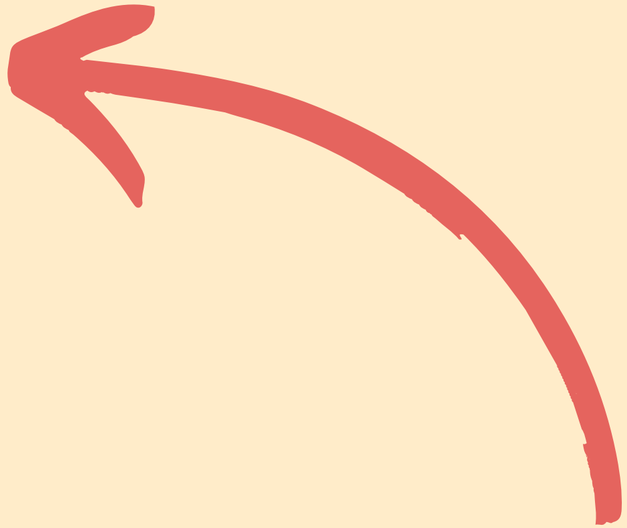
LESION TYPE



Future Direction

ACQUIRE DATA ON MORE LESION TYPES



COMPARE MODELS WITH PROFESSIONALS AND OTHER MODELS

Thank you for listening!

MY LINKS:

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