# SkinScreen™ A Decision Augmentation Tool for Skin Lesion Analysis

SkinScreen can identify 9 common skin maladies through advanced learning technology improving operational efficiency and enabling value to the business!

The user process is simple:
- User uploads an image of concern
- AI algorithms detect possible skin lesions and assign likelihood percentage
- User makes informed decision on next steps to take based on technology that allows a better prediction than visual analysis

Probabilities of classification are generated for each target site to augment human decision making!

The SkinScreen software application offers the capability to detect malignant and benign skin lesions in real-time through a highly accurate and precise solution. The solution leverages the power of deep learning, a method under artificial intelligence, in the detection of the skin lesions. Currently, visual detection is performed by a dermatologist through a heuristic approach taught in medical school known as ABCDE (Asymmetry, Border Irregularity, Color, Diameter, Evolution).



**AI Decision Methodology Enhances Human Cortex for Visual Examination Methodology (ABCDEs)**

Asymmetry: One half doesn't match the other half.

Border irregularity: The edges are ragged, notched, or blurred.

Color: The pigmentation is not uniform. Shades of tan, brown, and black are present. Dashes of red, white, and blue add to the mottled appearance. Color may spread from the edge of a mole into the surrounding skin.

Diameter: The size of the mole is greater than 6 mm (0.25 in.), or about the size of a pencil eraser.

Evolution: There is a change in the size, shape, symptoms (such as itching or tenderness), surface (especially bleeding), or color. A melanoma may also look like a bruise that isn't healing.

## Drives Data to Analytics to Insight

**The Need!** More people across the world are being damaged by excessive exposure to harmful ultraviolet (UV) rays. Twenty percent of Americans will be diagnosed with skin cancer before age 70. (65 million). SkinScreen provides AI facilitated skin analysis anytime, anywhere

The only thing worse than suffering from a nagging skin issue is waiting for an appointment with a dermatologist, which can be weeks or months in many areas of the country. SkinScreen, LLC. can reduce that wait time for an initial data supported analysis to less than 24 hours. That way, you can get a diagnosis that has more precision and accuracy than other common solutions in order to facilitate determination of a doctor's treatment plan quickly and easily.

**Why Now?** Machine performance exceeds humans in vision. In 2015 machine-vision systems for the first time outperform humans in a series of vision-related tasks. (MIT Technical Review)

**The Challenges!** Most of the measurable challenges regarding SkinScreen output center on the quality of the data—the size and quality of the data sets have a demonstrable impact on the relative accuracy of the outcome.
SkinScreen and machine learning are very powerful, but if you apply those algorithms to bad data, you'll only get bad results faster.
SkinScreen operates under a set certain conditions, such as Health Care, that require human validation before acting. (Ethical Rules)

# Service Features and Benefits

## TECHNICAL SUPPORT

All 3 SkinScreen platforms will receive software and security updates on a periodic basis. Only the API level will receive additional onsite and training support.

## ZERO DOWNTIME

Safeguards are in place to limit downtime at the application and infrastructure level.
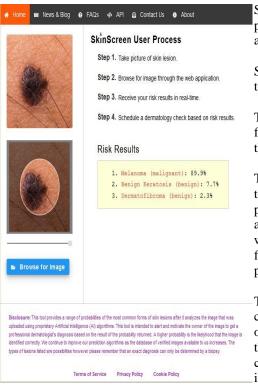
## TURNKEY SOLUTIONS

Frictionless installation and configuration of the API and application.

## OUR CHALLENGES

Challenges include ensuring the AI model is not biased during the training phase, and how to ensure AI systems such as SkinScreen are safe, ethical, and adhere to privacy regulations.

SkinScreen can be accessed through 3 different platforms: web application, smart phone application, and API.

SkinScreen web application is intended to allow users to provide one (1) photo at a time for prediction.

The web application will allow a user to browse for a file on their file system, crop it, resize it, and perform the prediction on the device itself.

The SkinScreen smart phone application is intended to provide a mobile, customized solution for lesion prediction. The application operates on both Android and iOS mobile devices. The smart phone application will allow a user to either take a picture of the lesion for classification or access their photo library on their phone and provide that image for classification.

The SkinScreen API is intended for third-party customers who need to classify hundreds of images on a periodic basis. The API has service endpoints that can support streaming and batch processing and can run our infrastructure or the customer's infrastructure.

*SkinScreen provides a greater precision and accuracy on detecting and classifying skin lesions than trained personnel. This degree of accuracy and precision is performed with 3 forms of AI:*

**Neural Networks** allow SkinScreen to sift thru data in minute detail, thus allowing the software to learn to recognize patterns that even the most intelligent humans may overlook,

**Machine Learning** allow SkinScreen to respond without human interaction to specific tasks it handles.

**Deep Learning** combines both neural Networks and machine learning to analyze vast amounts of data contained to recognize lesions and make an accurate prediction.

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