SKINCHECK.ai

SCAN. *SCREEN*. **STOP**.

The following project was completed as part of the Data Science and AI development bootcamp by Le Wagon Tokyo in Dec 2024.

THE PROJECT WAS A TEAM EFFORT

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SKIN CANCER IS A GLOBAL ISSUE

7M+ PEOPLE DIAGNOSED ANNUALLY

- ~300k Melanoma
- ~4M BCC (Basal Cell)
- ~2.4M SCC (Squamous Cell)
- ~100k deaths
- Lifetime risk of ~20%

CASES ARE EXPECTED TO DOUBLE

- 50%+ increase by 2040 of cases expected
- 70% of cases in those over 50

TESTING IS NOT ALWAYS ACCESSIBLE

- Hard for people to monitor effectively
- Checkups can be costly or simply not available
- Often require specialist care and equipment

STOP SKIN CANCER BY MAKING SCREENING ACCESSIBLE

SCAN IT.

- Simple user flow to enable self testing through photo or image

SCREEN IT.

- Images are assessed using combination of Neural Networks to provide assessment

STOP IT.

- A grading is provided enabling the user to take action and track their health over time.

BUT WE NEED A MODEL TO STOP IT. . .

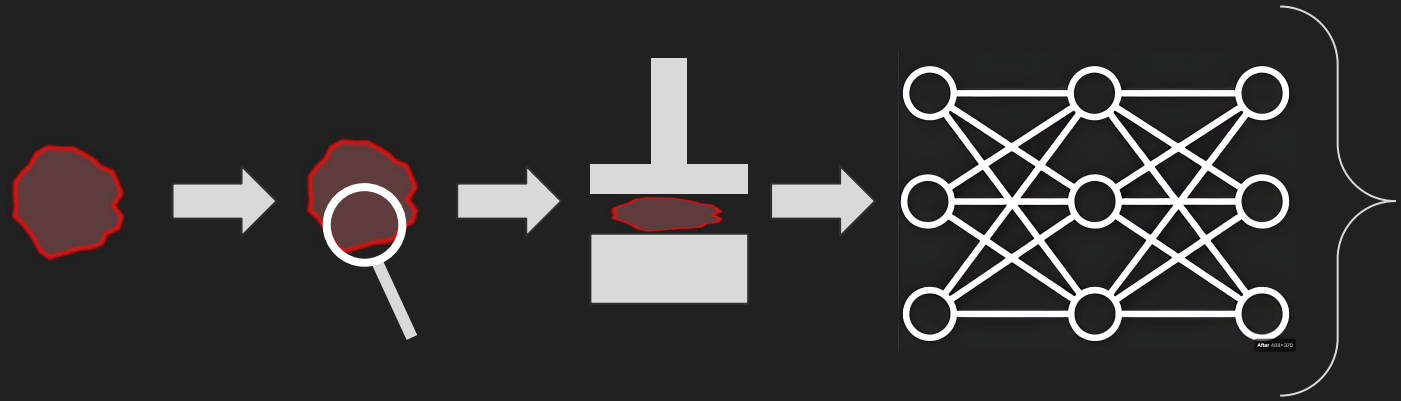
CAPTURE

REVIEW

COMPRESS

ANALYSE

CLASSIFY



% MELANOMA

% BCC / SCC

% BENIGN

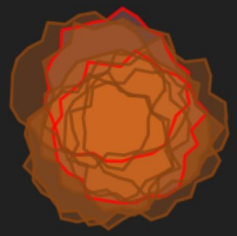
200M+ Parameters
300+ Layers

SKIN IS COMPLEX. DETECTION IS TRICKY.

THERE ARE 50+ DIFFERENT TYPES OF SKIN DISORDERS BUT THEY SHARE SIMILAR CHARACTERISTICS

MALIGNANT

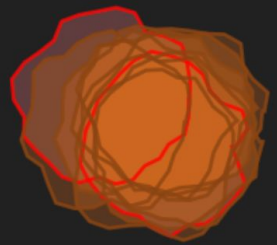
BCC | SCC



MELANOMA

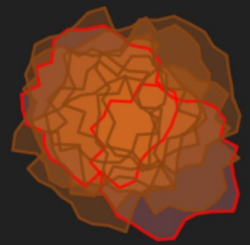
BENIGN

NEVUS

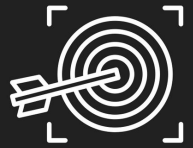


KERATOSIS

OTHERS



OUR MODEL ACHIEVED PROMISING RESULTS



70% ACCURACY

- Database of 30k images
- Model guessed 7 out of 10

DESIGNED TO BE SAFE

- False alarm is better than not picking up cancer cases
- Model was optimised to be overly safe (aka Recall)

ITERATED UPON

- We built over:

25 different models

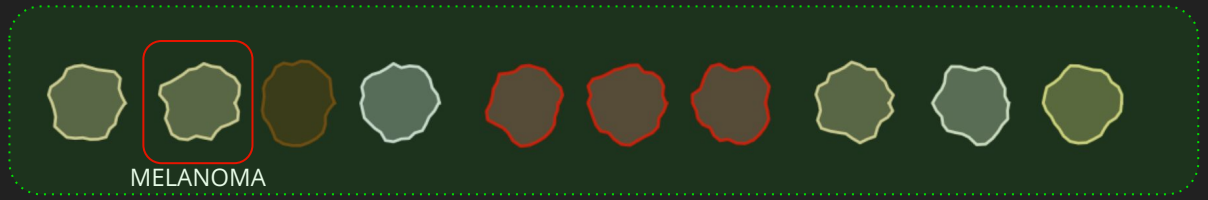
200+ hours training

Specialist: 95%

BUT SOMETIMES STRUGGLED ON EDGE CASES

BIG MISS

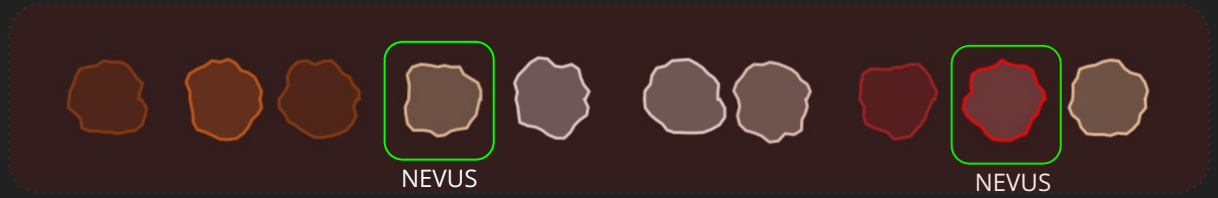
PREDICTED HEALTHY



10%
MISSED CANCER

MISS

PREDICTED CANCER



20%
FALSE ALARM

PARTIAL HIT

PREDICTED WRONG CANCER

20% OF
CANCER DETECTION
WRONG CANCER TYPE

LIVE DEMO

SKINCHECKR
LIVE DEMO

NEXT STOP. WE HAVE BIG AMBITIONS.

VIDEO SCANNING.

- Allow users to do video scan over body and it would detect and screen dynamically

CHANGE ANALYSIS.

- Tag and track specific skin issues and measure diameter and colour changes over time.

AI AGENT.

- Integrate with AI / GPT agents and help connect to support services.

MULTI CLASS.

- Classify 12+ types of differing skin lesions

WE LEARNED A NUMBER OF LESSONS ON THE JOURNEY

STOP TO GO FAST

- Plan out a clear architecture from the get go
- Have big plans but build small first and scale up
- Stop and discuss.

SKIN IS COMPLEX

- Data complex despite appearing simple
- Many images need correction and masking and need huge amounts of time.

READ DOCS.

- Double check how things work before letting them run overnight or all day
- Computers can be hard.

ARIGATO

thankyou

merci

danke

obrigado

doh jeh

cam on

dzieki

bedankt

xiexie

arigato

stop.