YHACKS 2019

PITSTOP

Stephen Kim | Ryley Reid | Peter Huang | Shadman Khan

Physician Burnout

High Prevalence

44% of physicians
self-report burnout

Physician Suicide

28-40 per 100,000
On average, one per day

Medical Errors

3rd leading cause of death
(250,000-440,000 per year)

The Need

A way to accurately identify and address physician fatigue.

OUR FRAMEWORK

INPUT

When clocking in, play a 1 min cognition game while being recorded.

RESPOND

If **Clear**, begin shift.
If **Fit**, use precautions.
If **Fatigue**, see a HCP for next steps.

CHECK-IN

Check-in at 8 hours & every two hours subsequently, unless instructed otherwise.

BEHIND THE SCENES

COMPUTER VISION DETECTS FACIAL CUES FOR FATIGUE

Detects hung eyelids & mouth drooping deviations from personal baseline

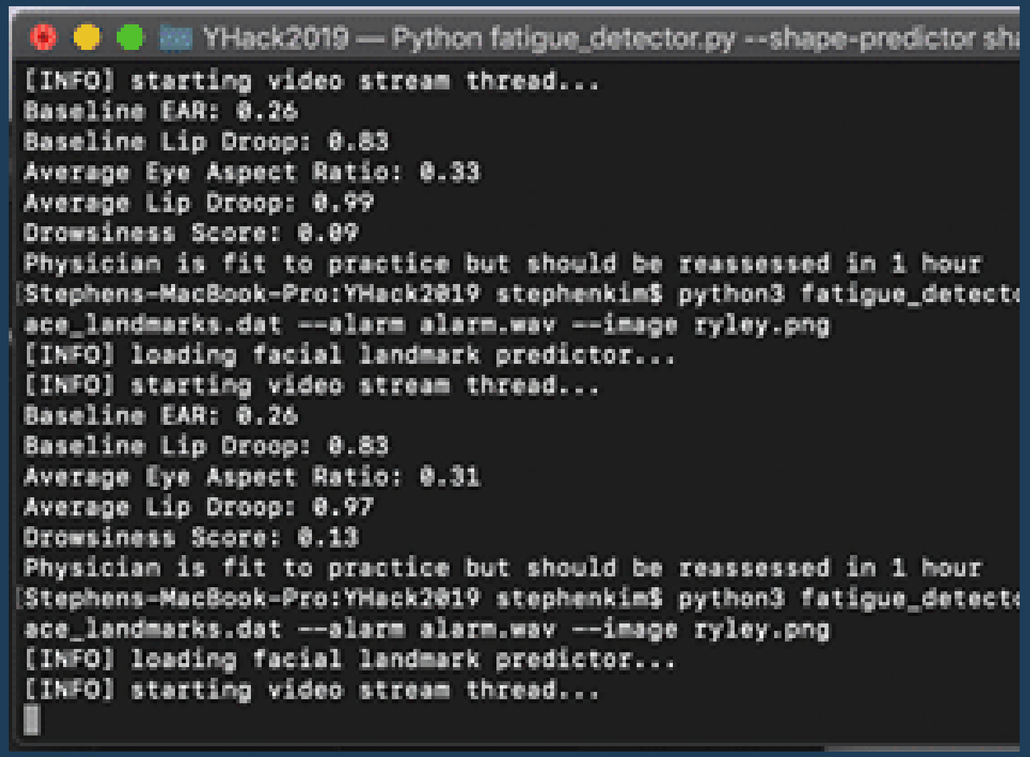
DROWSINESS DETECTION

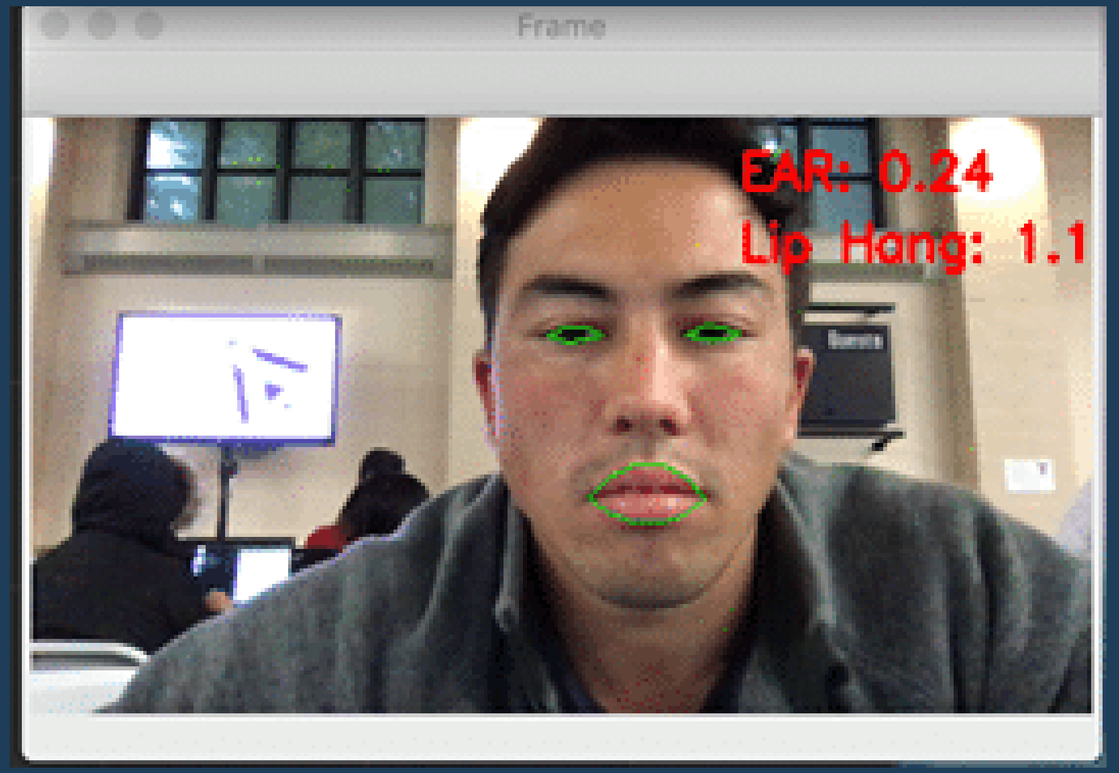
Monitoring blinking frequency/length during cognitive test

TEST TO QUANTIFY COGNITIVE PERFORMANCE

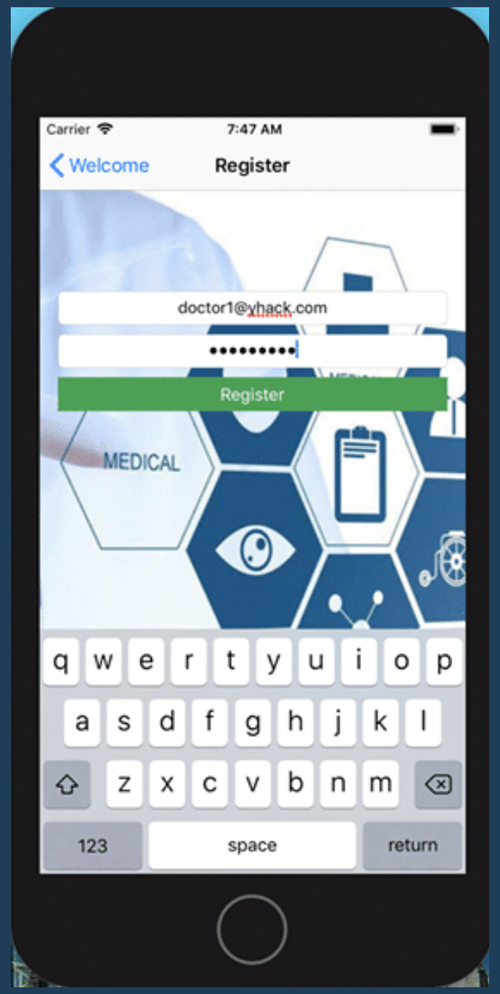
Results compared to personal, pre-collected scores

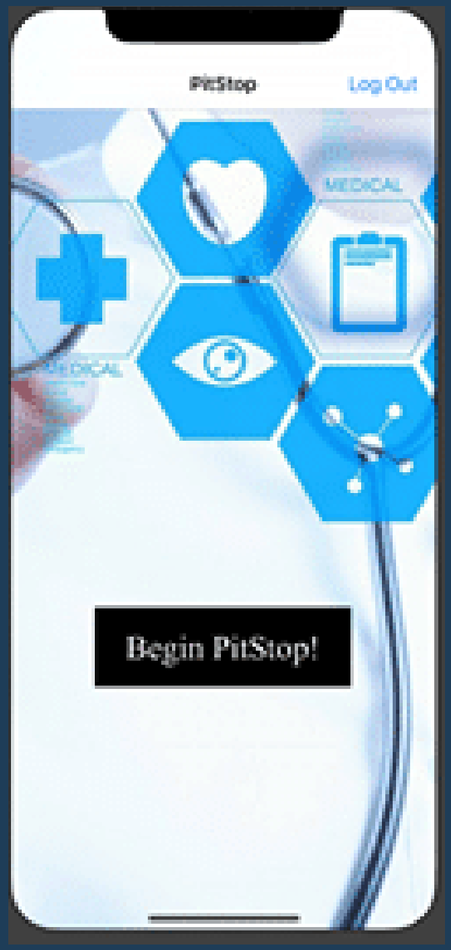
VISUAL REPRESENTATION





USER INTERFACE





THANK YOU

SUPPLEMENTARY MATERIALS

BUSINESS PLAN

1 Public Awareness

Awareness of the risks associated with physician burnout will pressure medical boards to address the issue.

2 Hospital Licensing

The software will be licensed to hospitals on an annual basis for a fee that funds program improvements.

3 Legislative Change Lobbying

Widespread implementation of this software will require mandates issued by the government.

ANTICIPATED TIMELINE

TRIALS AND OPTIMIZATION

6 months

Test with doctors, adjust accordingly.

LIMITED RELEASE

1 year

Full incorporation in a small region.

WIDESPREAD RELEASE

2 years

Nationwide promotion and implementation.

SWOT ANALYSIS

STRENGTHS

- Analysis of multiple variables to come to final conclusion
- Intuitive, visually appealing UI
- Minimal time commitment on the part of physicians

WEAKNESSES

- May require further optimization to control for other facial indicators of fatigue

OPPORTUNITIES

- Largely untouched issue
- High prevalence indicates need for intervention in some form
- Improved facial recognition APIs give access to resources not previously available

THREATS

- Scope of the issue could introduce high competition if successful
- Burnout/physician suicide are taboo topics; breaking this barrier will be difficult