Mask Detection

Real-time video stream object detection

Zekun Wang 2020.10.24

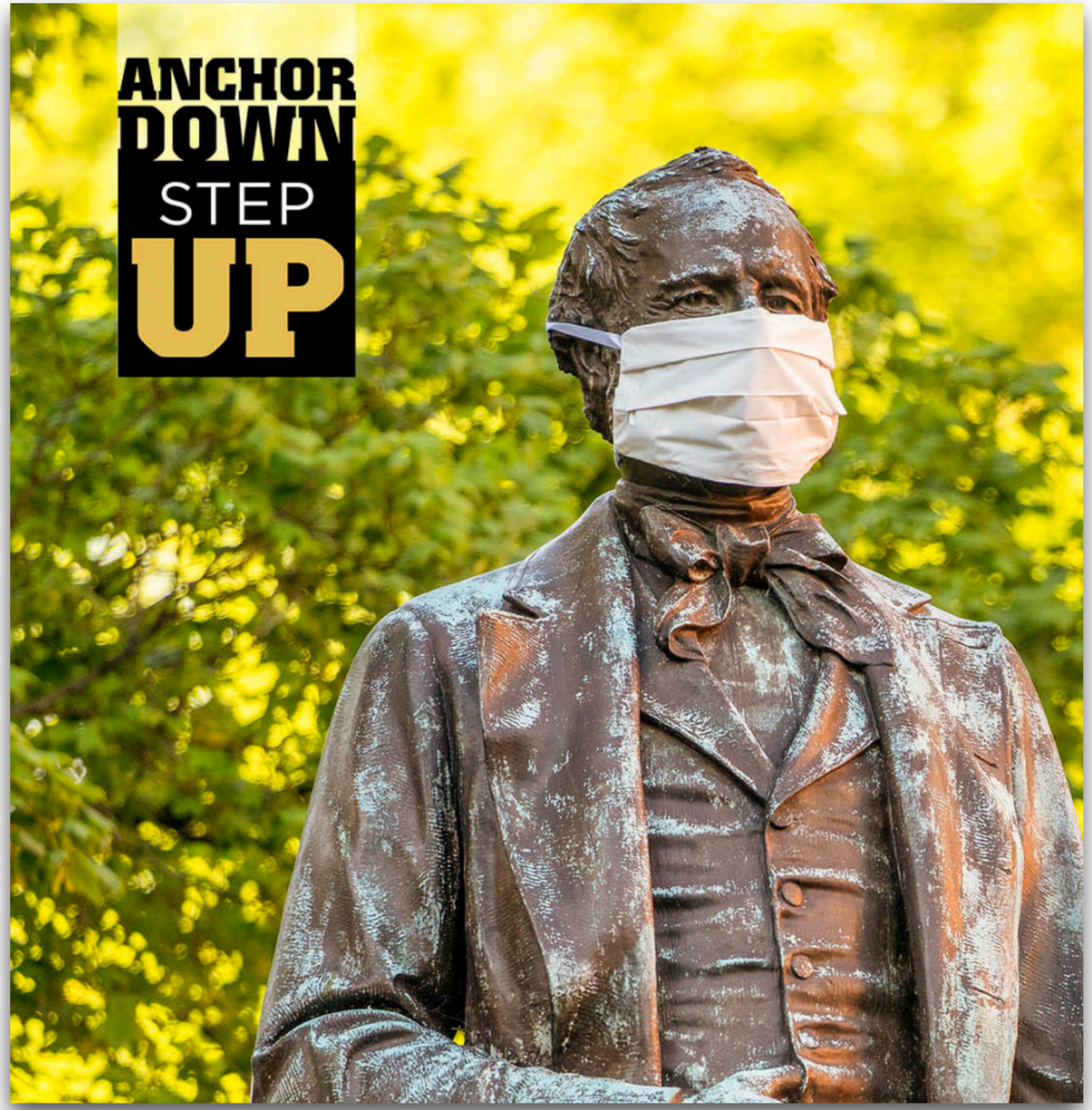
84,535

New cases on October 24

Problem

Live with COVID-19

- The daily number of new cases of COVID-19 hit a new high.
- Vanderbilt University has an on-campus plan for next semester.
- People want to return to normal life.
- It is common to forget to wear a mask.



Challenges

“Don’t monitor my life!”

- Avoid disturbing people who wear masks.
- People don’t want their privacy to be violated.
- Not everyone has powerful equipment and GPUs.

Method

Not only a toy model

- **Avoid disturbing people who wear masks.**

Only remind people when it detects that they are not wearing masks.

- **People don’t want their privacy to be violated.**

The model only runs locally without uploading any data.

- **Not everyone has powerful equipment and GPUs.**

Use the smallest possible model to minimize computing power requirements.

Data

Need bounding box information

- MAFA (MAsked FAces)

    Faces with masks (4065 images)

- WIDER Face

    Faces without masks (3894 images)

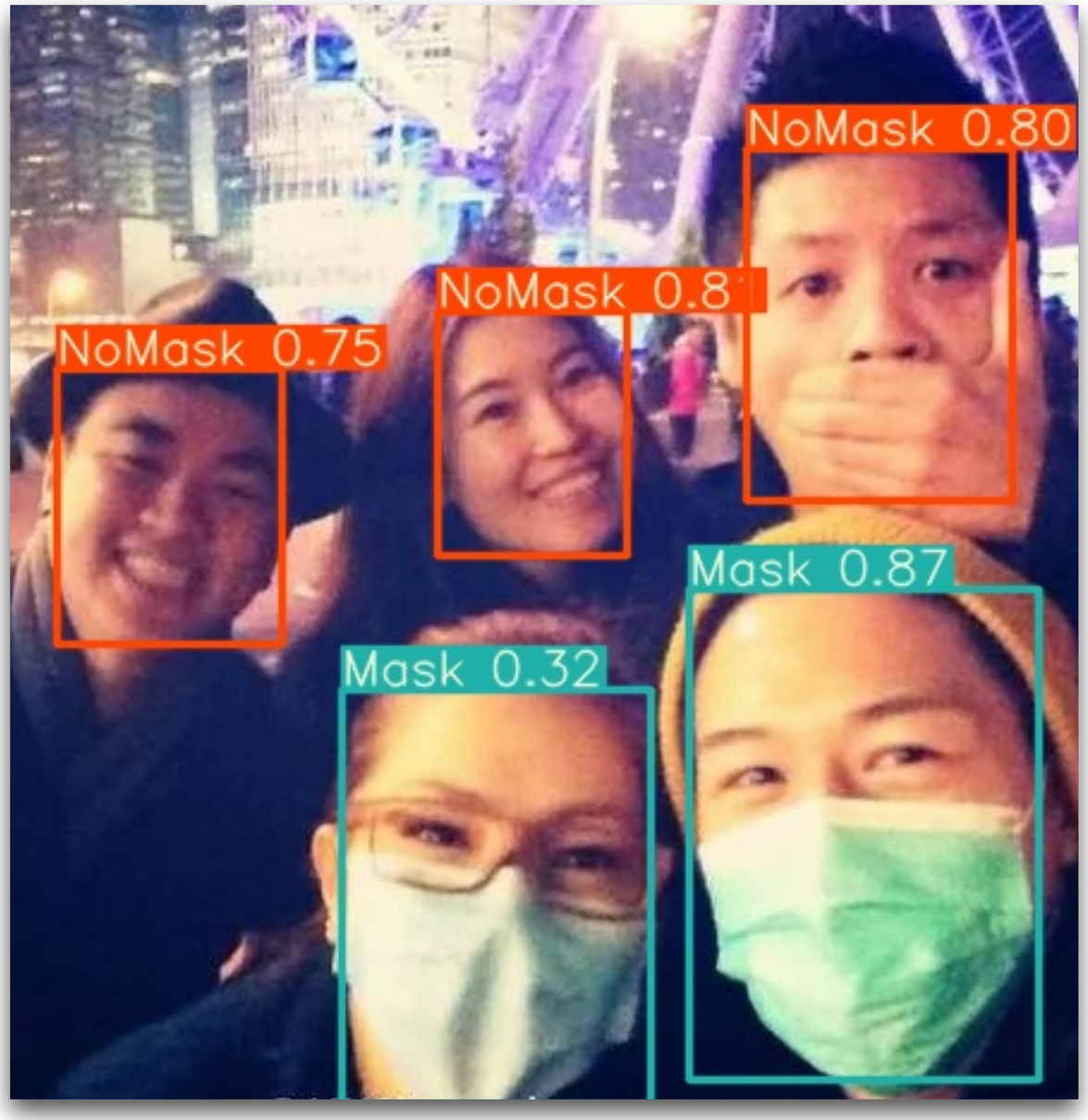
- Additional images

    Faces covered by hands

Expect Outcome

Real-time local browser-embedded model

- Small mask detection model with acceptable performance
- User friendly and low equipment requirements
- Support as many types of equipment as possible



Time line

Achieve as much as possible

Week 1	Week 2	Week 3	Week 4	Week 5
data preparation	model building	model optimization	video stream detection	ONNX format conversion
Week 6	**Week 7**	**Week 8**	**Week 9**	**Week 10**
Webpage development	model embedding	webpage deployment	edge test debugging	Integrating results