

# Ventilator Pressure Prediction

*Lucile Rabeau*

# A few numbers.



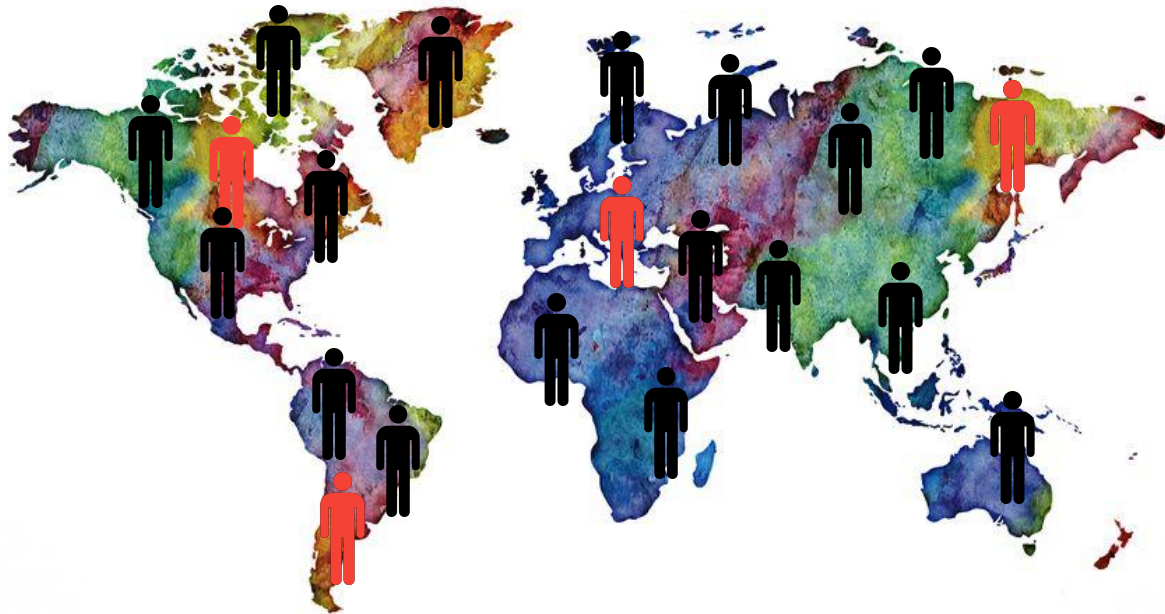
## *Chronic respiratory diseases*



# A few numbers.

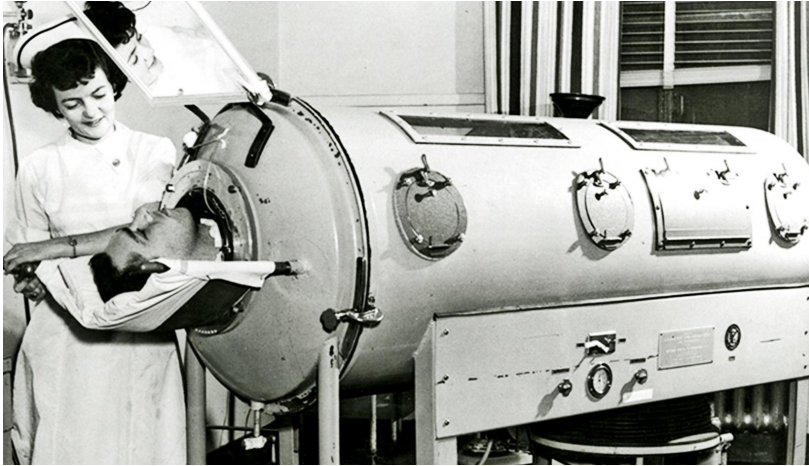


## *Chronic respiratory diseases*



- Asthma
- Allergies
- Cancer
- Mucoviscidose
- BPCO
- ...

# Ventilators.



*Polio, 1931*

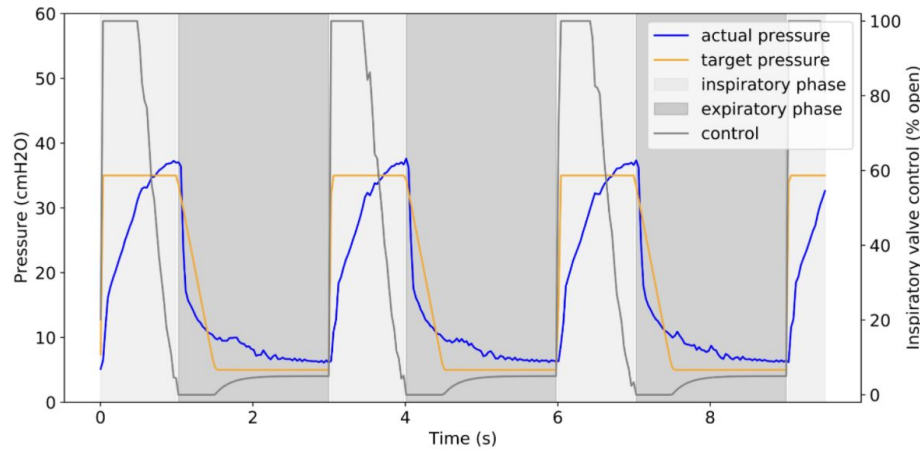


*COVID-19, 2020*

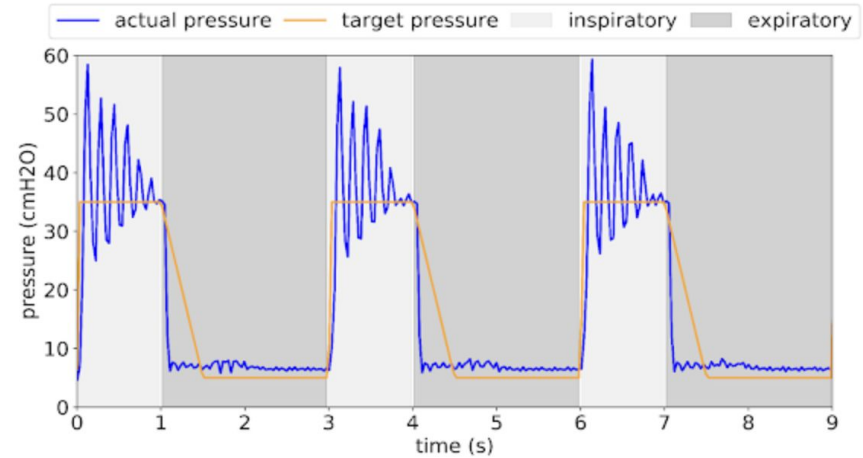
# Current methods.



Clinician-prescribed breathing waveform



Current method



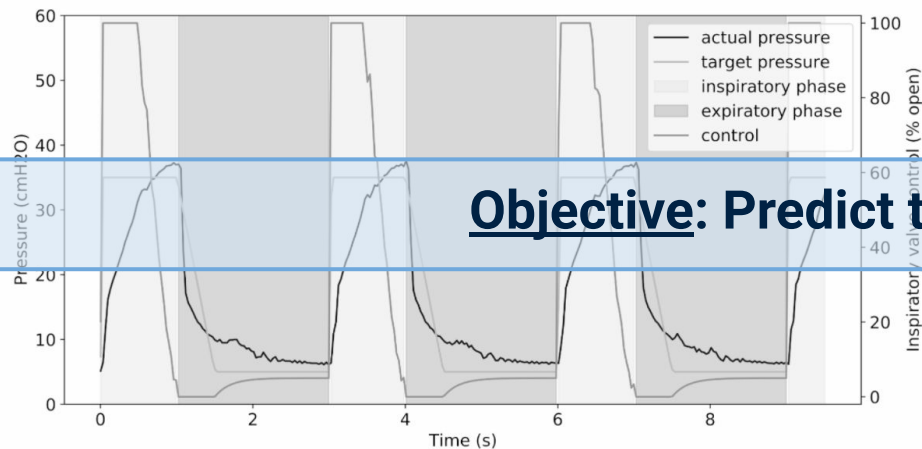
Suo et al., 2021

- Time consuming for doctors and medical staff
- Not adaptable to specific patients

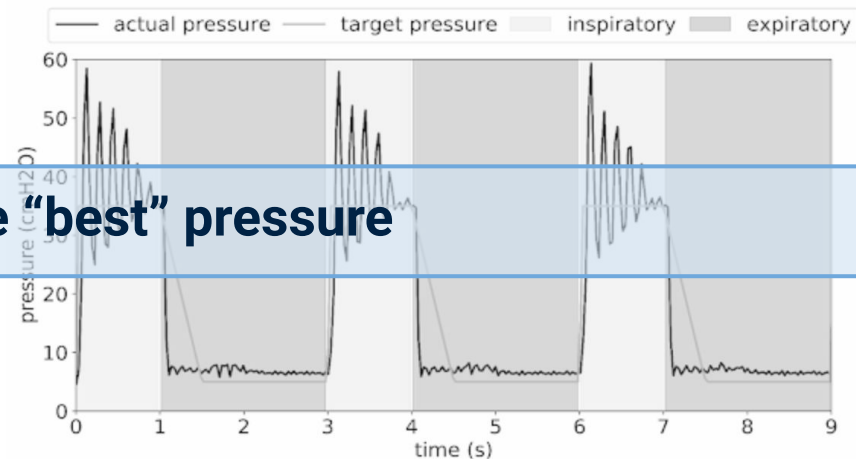
# Current methods.



*Clinician-prescribed breathing waveform*



*Current method*



**Objective: Predict the “best” pressure**

Suo et al., 2021

- Time consuming for doctors and medical staff
- Not adaptable to specific patients

# How to.



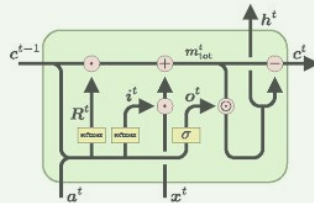
*Lung simulation*



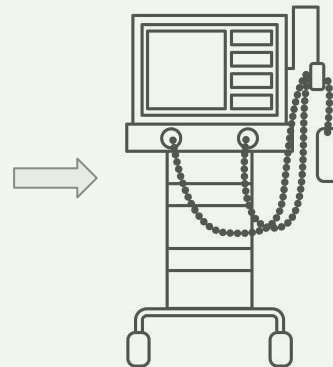
*Preprocessing*



*Deep Learning*



*Prediction*



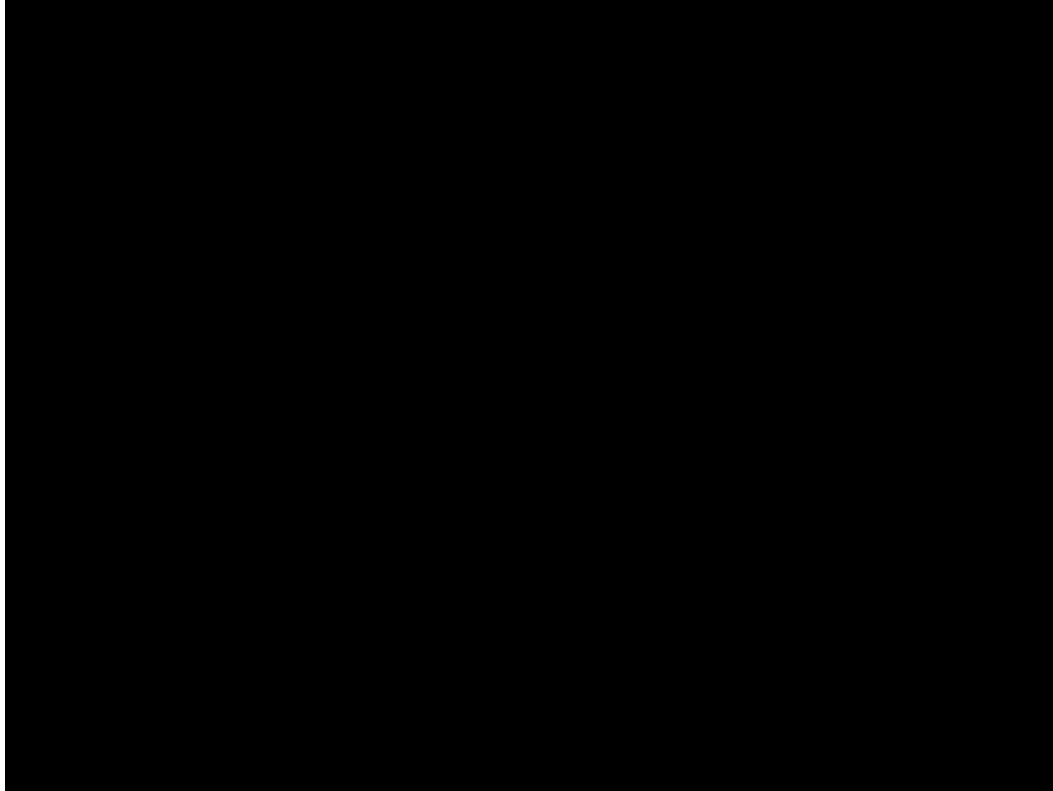
*Breathing*



# Application.



*Just Breathe*

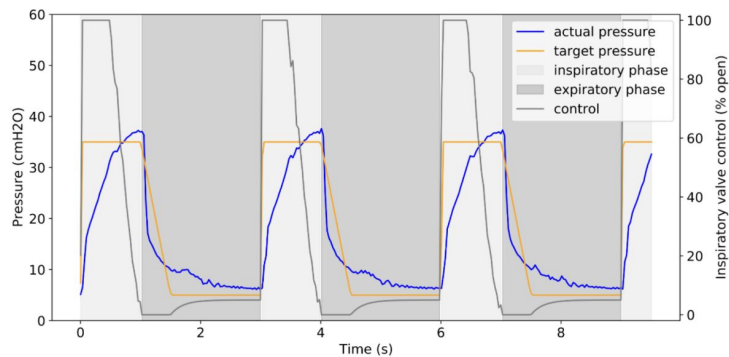




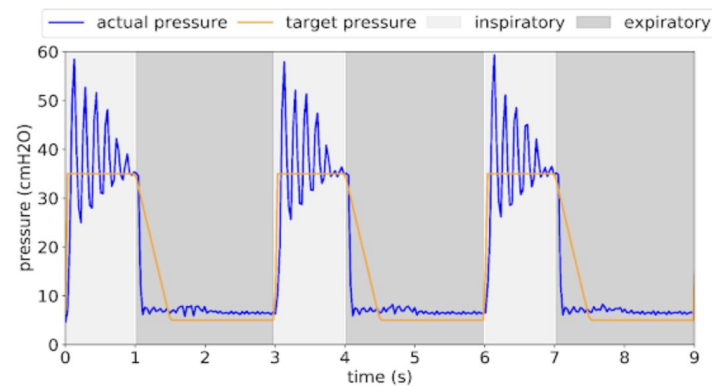
# Conclusions & perspectives.



Clinician-prescribed breathing waveform



Current method

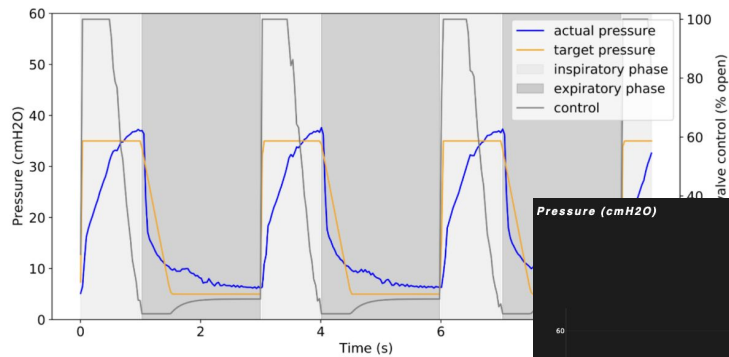


Suo et al., 2021

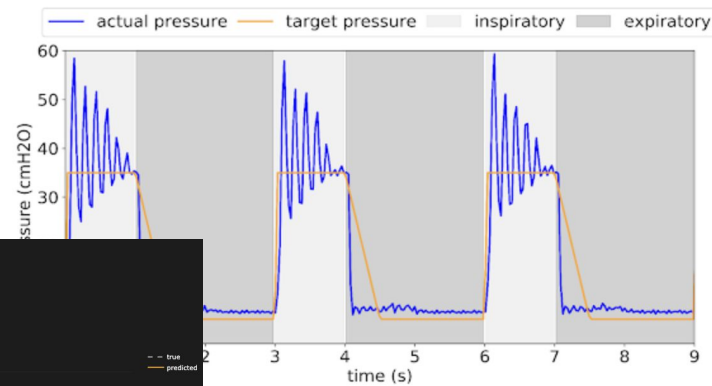
# Conclusions & perspectives.



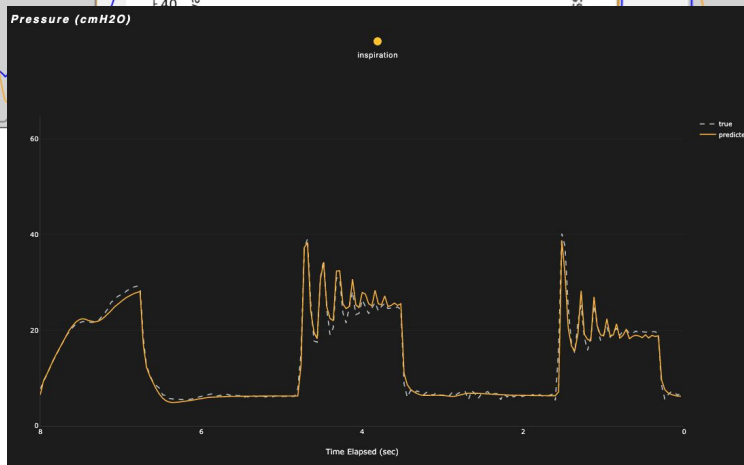
Clinician-prescribed breathing waveform



Current method



Suo et al., 2021



# Conclusions & perspectives.



*Interstellar, 2014*

Thank you.

# Source data.



Artificial test lung connected to a modified ventilator (Google AI Princeton lab)

