CS492 Milestone 3 **Final Presentation**

YOYO

:You Only Yoga Once

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COMPANY NEWS | News Wire May 6, 2020

Peloton sales jump 66% on COVID-19 boost for home workouts

Mark Gurman, Bloomberg News

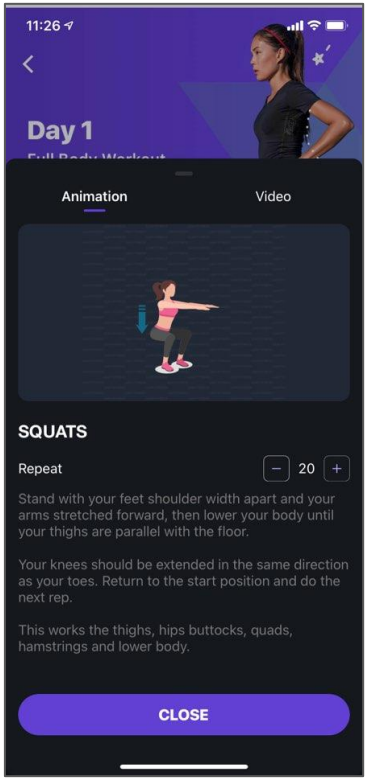
Peloton stationary bicycles at the company's showroom on Madison Avenue in New York, U.S. Photographer: Jeenah Moon/Bloomberg , Bloomberg

Peloton Interactive Inc. said quarterly revenue soared 66 per cent and paid digital subscribers jumped 64 per cent after the COVID-19 pandemic spurred thousands of people to work out at home. The company also raised forecasts, sending the shares up more than four per centin extended trading.

Motivation

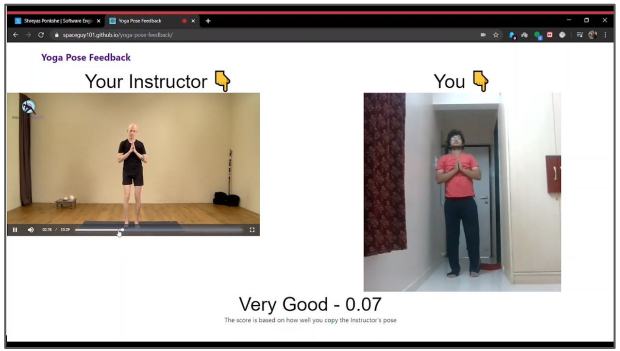
- Due to several factors (e.g. COVID19), these days people are willing to **exercise at home**. However:
  a. Real human coaches are expensive and inconvenient
  b. Beginners find it difficult to start
  c. Existing home training systems might be hard to follow (lack good explanations)

- Among home exercises, **Yoga** is one of the most convenient and beneficial
  a. No need for equipment nor much space
  b. Mental and physical health benefits
  c. Existing application for yoga might be hard to follow.



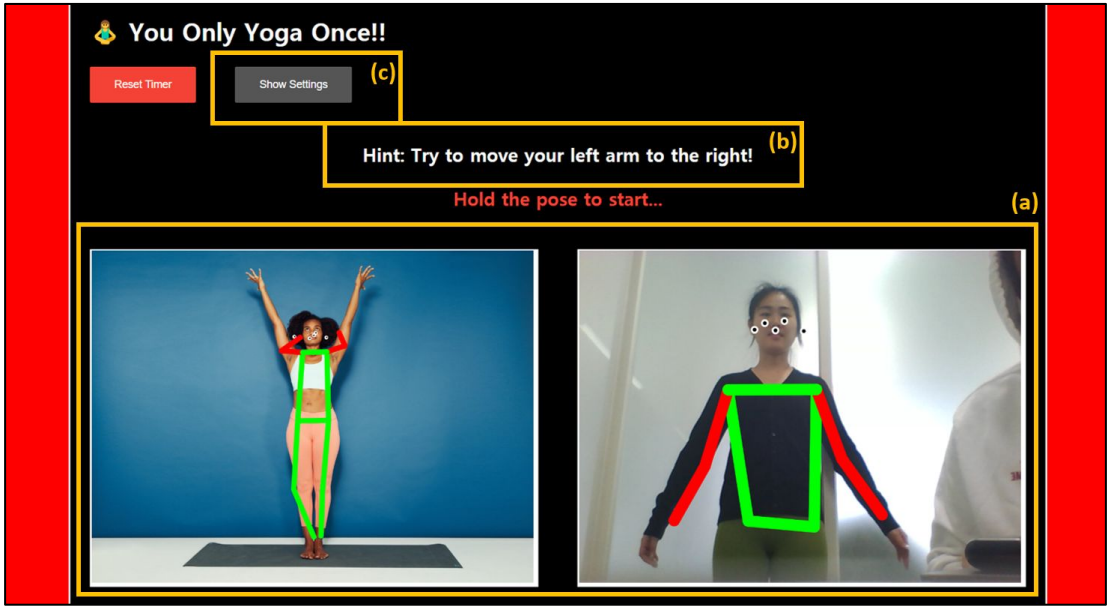
How is it better than the existing systems?

- Because of lack of explanations or feedbacks.
  a. The existing systems **do not provide feedback** to the users, or
  b. If given, the feedback is **difficult to understand or interpret**.



- Solution: Giving semi-real time **visual feedback (skeleton)** and **textual feedback (hints)** to the user, then the user can correct the pose.

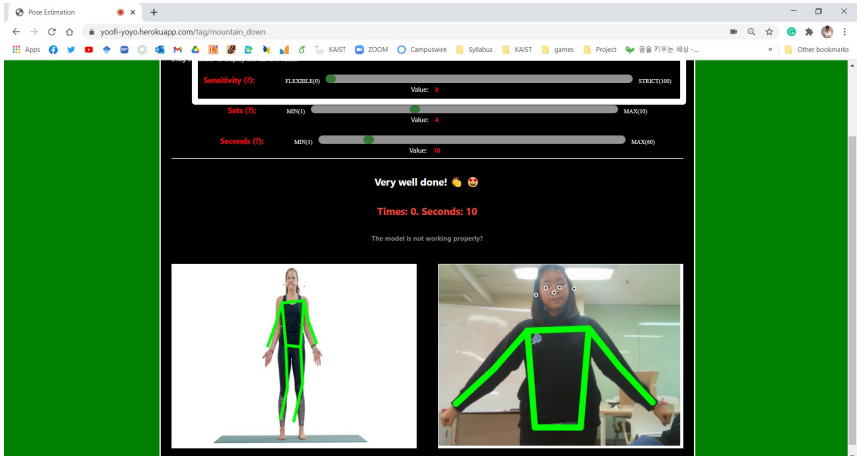
Main tasks of our system



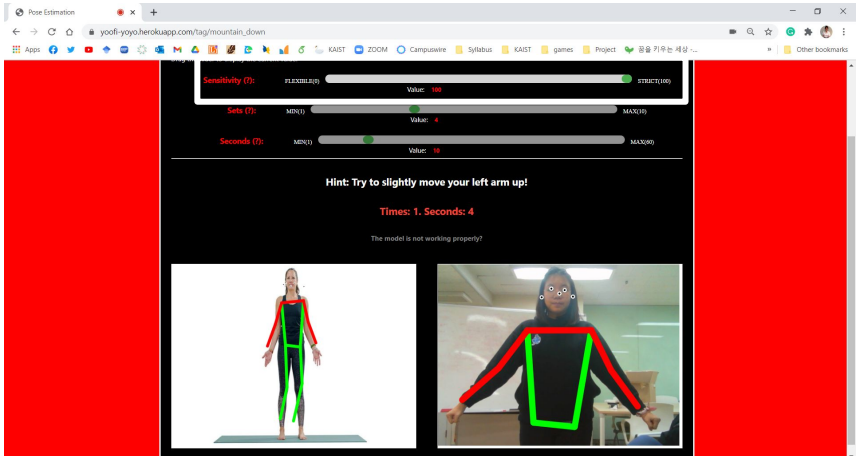
- Three main functions:
  a. **Matching the user's pose** with the instructor's image
  b. **Giving the hints** to the user to correct the pose
  c. **Customizing the setting**
- Others:
  a. **Timer**

(c) Customize function

sensitivity = 0



sensitivity = 100

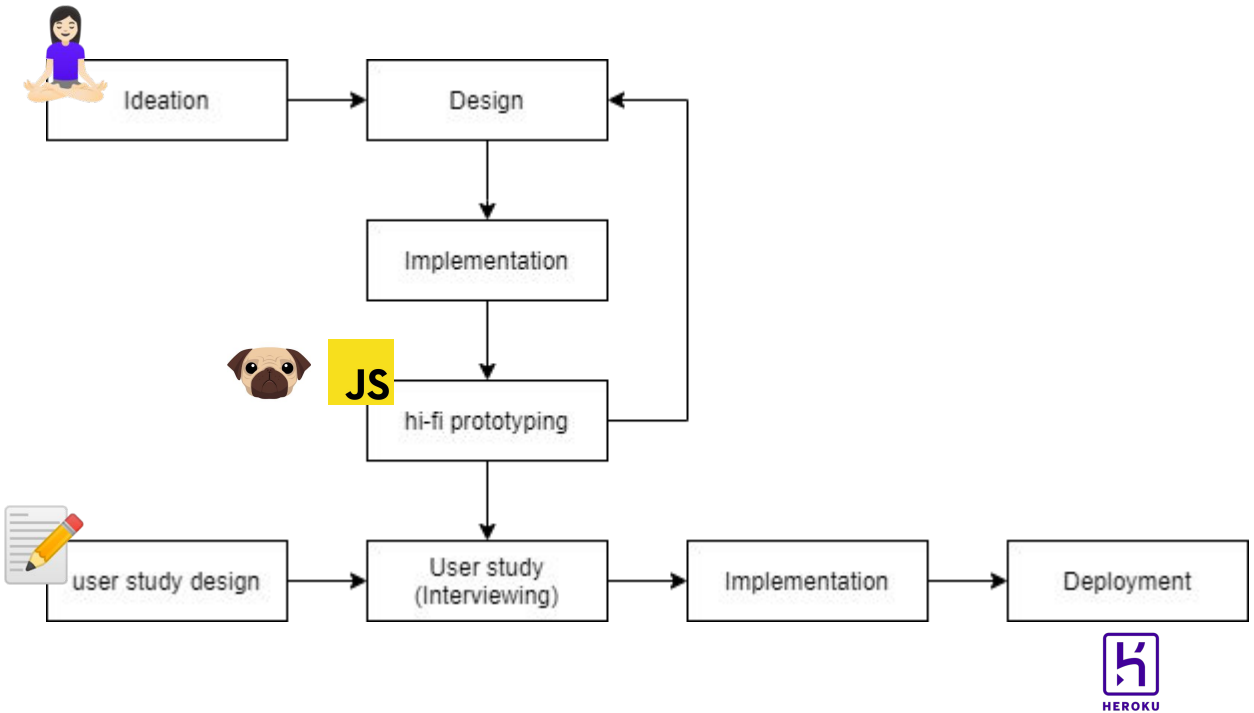


By adjusting the sensitivity the user might know how the matching algorithm works.

Interface Tour

https://yoofi-yoyo.herokuapp.com/

How our deployment went



Evaluation

- Samples
  - 4 females, 1 male

- Methodology:
  - Semi-structured interview

(1) ***Pre-questionnaire*** (10min):
  - Past experiences, pros and cons, needs, and expectations about home-training exercise.

(2) ***Website tour*** (15min)

(3) ***Post-questionnaire*** (30min):
  - Comment and feedbacks on the website (usability, model understanding, visualization, and privacy concern)

Session	Type	Questions
Pre-questionnaire (15min)	Before COVID	Did you work out ? / How often in a week?
	pros and cons	Is there any good/ and bad points?
	After COVID	Have you tried home-training? / How often?
	pros and cons	Is there any good/ and bad points?
	Needs	What do you need for HT
	Expectation	What do you expect about the home training in the future?
(15min)	**System Tour**	
Pose-questionnaire (30min)	Overall	How was it?
	Explainability	Can you understand how it works? (sensitivity)
	Novelty	Is it novel or did you experience similar one?
	Usability	Is it easy to use?
	Usability	Is it kind to use? (user friendly)
	Usability	Is there any uncomfortable points?
	Visualization	How is the UI (graphic) of it?
	Privacy	Is their any concern related on privacy?
	Etc.	Is their any additional things?

Evaluation

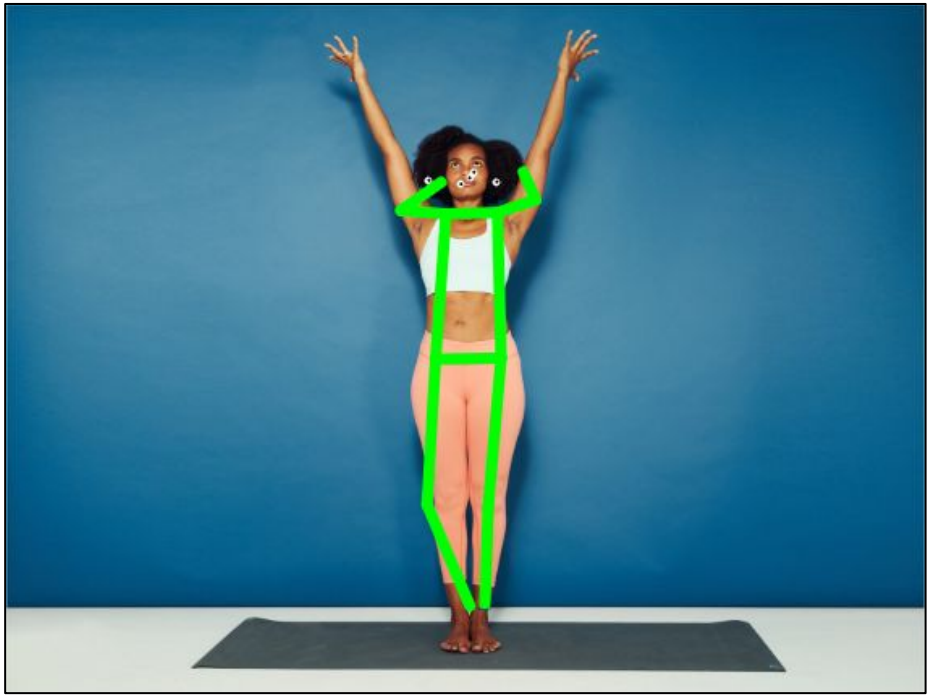
Quantitative results

- P3,P4 : *“The idea of this system is interesting and suit with yoga.”*
- P1 : *“If there is a voice feedback, It would be more similar human instructor.”*
- P2: *“I was worried about seeing things in the house (such as laundry) and getting my body photographed.”*
- P3: *“It is hard to follow the hints so that I just try to change my pose until the background or skeleton shows green.”*
- P5: *“When the sensitivity is high, I cannot correct the pose.”*

Insightful lessons

- Needs of Voice feedback
- Tendency to follow the hints despite of the low accuracy
- Understanding of sensitivity feature
- Burden of accessing the camera
- UI (Graphic) impacting the trust

Limitations



- (To make the application interface) We resized the image which makes it difficult for the API to find a proper skeleton.

- We use an API for the ML model, hence the accuracy cannot be improved nor the user is able to fix the model's result/skeleton/keypoint.

Implications

- **A game-like nature can motivate users** to follow the model despite a poor accuracy.
- The way the AI communicates with the user is **key part of the interaction**.
- **Users do not necessarily desire full control over the ML model.**
- Users need to know the privacy terms and usage.

Improvements

- **Text-to-speech** → To provide hints via audio instead of text.
- **User's feedback** → Allow the user to correct the model by modifying the skeleton and keypoints.
- **Responsive** → Not to fix the screen size.
- **Customize** → Add user's history page, and allow user to upload the pose image.
- **Improve ML model accuracy.**

THANK YOU

ANY QUESTION?