

A black and white photograph of two women in a gym, riding stationary bikes. The woman in the foreground is wearing a dark sports bra and shorts, and is looking towards the camera with a smile. The woman in the background is also wearing a dark sports bra and shorts, and is looking towards the camera. The gym has a dark, industrial feel with visible pipes and lights in the background.

MASTERING THE ART OF SPINNING

DSI39 | SHEILA KOO

A black and white photograph of a woman with dark hair tied back, wearing a light-colored athletic tank top and leggings. She is smiling and looking towards the camera while riding a stationary bike in a gym. The background shows other gym equipment and bright lights.

1

WHAT IS SPIN?

A black and white photograph of a man in profile, wearing a tank top and cycling shorts, drinking from a water bottle while riding a stationary bike. The background is dark with a repeating pattern of the words 'ING NAMING' in a light, outlined font. A bright cyan rectangle is overlaid on the right side of the image, containing the text 'aka RHYTHMIC CYCLING' in bold black letters.

**aka RHYTHMIC
CYCLING**



POWER+FLOW



Weights

A woman with dark hair tied back, wearing a light blue tank top and leggings, is riding a black Peloton stationary bike. The bike is positioned in a bright, modern living room with white walls, a large window, and a sofa. The bike has a large screen displaying a workout. Three callout boxes with dashed lines point to specific features: 'Weights' points to the weight stack on the left, 'Resistance knob' points to the red knob on the right, and 'Clip-on pedals' points to the pedals on the left.

Resistance knob

Clip-on pedals



REGULAR



PULSE



PUSH



SEXY
CORNERS

A black and white photograph of a woman with dark hair tied back, wearing a light-colored athletic tank top and leggings. She is smiling and looking towards the camera while riding a stationary bike in a gym. The background is slightly blurred, showing other gym equipment and lights.

2

BACKGROUND

A black and white photograph of a woman with dark hair tied back, wearing a dark sports top and shorts, riding a stationary bike in a gym. She is smiling and looking to her left. The gym has various other exercise machines in the background.

20% GLOBAL FITNESS MARKET

did spin classes in 2019 (LesMills, 2019)



2ND

MOST POPULAR

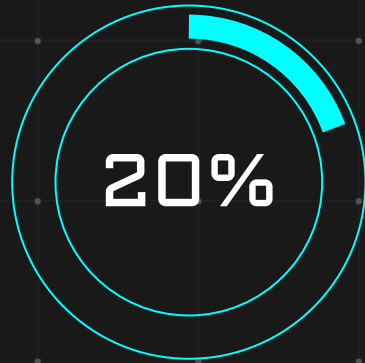
group exercise in Singapore (Virgin Active, 2022)



**45,000
members**

Revolution Singapore (Chiew, 2022)

TREND



Global fitness
market did spin
(LesMills, 2019)



Most popular
group exercise
in Singapore
(Virgin Active, 2022)

4 studios in
2 years
(Chiew, 2022)

BENEFITS



PHYSICAL
HEALTH



MENTAL
HEALTH



LOOK FIT

CHALLENGES



r/xxfitness · Posted by u/ttiiffyyy 3 years ago



How do I improve my coordination for rhythm-based indoor cycling class?

For background information, I can dance on beat just fine, but apparently not on a stationary bike...

when the moves get complicated (fast paced off and on saddles, upper body involved) my legs tend to go out of beat and I feel like I can only catch up with one half of my body and not the other.



cactusgirl69420 · 2 yr. ago

Ive been spinning for YEARS now and I still struggle to stay in rhythm. I was definitely born with two left feet. But exercise is exercise! As long as you're not hurting yourself I'd say just enjoy the music and enjoy moving your body!

My legs felt like lead and I struggled to keep on the beat in the first class. Psycle is all about cycling to the rhythm and I just couldn't seem to find it.

RISK OF RHABDOMYOLYSIS

rhabdomyolysis noun

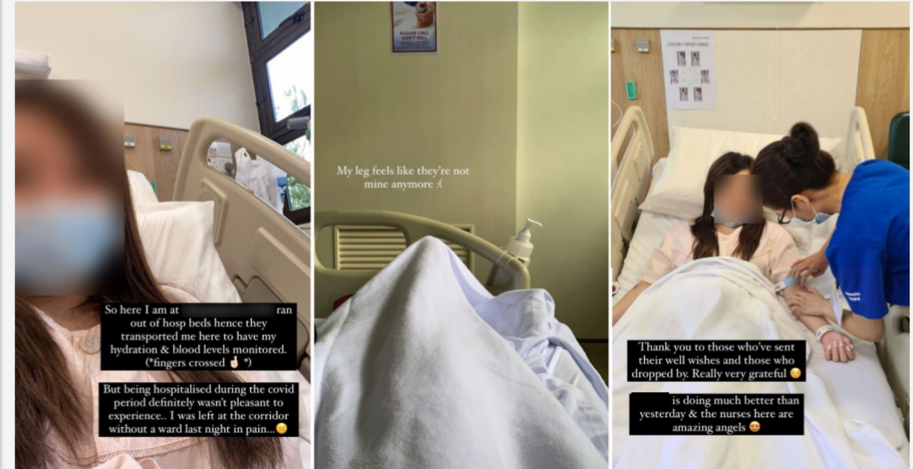
rhab·do·my·ol·y·sis

A breakdown of muscle from extreme physical exertion. Can cause kidney failure and death.

2 S'pore women hospitalised with potentially fatal muscle breakdown after a spin class

Rhabdomyolysis, a condition where muscles are injured or overworked and start to break down, may ultimately lead to kidney failure and even death.

Nigel Chua | February 28, 2021, 12:03 PM



A black and white photograph of two women on a spin bike in a gym. The woman in the foreground is smiling and looking towards the camera, while the woman in the background is looking forward. They are both wearing athletic wear. The background shows gym equipment and lights.

PROBLEM STATEMENT

Though spin has become an increasingly popular workout, some are resistant to try it as they find the complexity intimidating. Those who tried might find it tough to catch the beat while getting the choreography right. Some who were unable to withstand the intensity of spin suffered from rhabdomyolysis, which can be fatal.

Solution: Gamify spin using machine learning model

A black and white photograph of a woman with dark hair tied back, wearing a light-colored athletic top and leggings, riding a stationary bike in a gym. She is looking towards the camera with a slight smile. The background shows gym equipment and lights.

3

WORKFLOW

WORKFLOW

01

DATA
COLLECTION

02

DATA
CLEANING

03

EDA

04

MODELLING

05

DEPLOYMENT

WORKFLOW

1. Collect data by filming
2. Convert movements into coordinates using Mediapipe
3. Cleaning
4. EDA
5. Modelling
6. App development

CLEANING

Mediapipe and Librosa

No. of classes – what are they? Perhaps show photos or video demo?

No. of coordinates/dataset size

Coordinates – what are they and where are we focusing on

EDA

No. of classes

No. of coordinates/dataset size

Coordinates – what are they and where are we focusing on

Observations of movements

Observations of soundtrack

Observations of the relationship between the movements and soundtrack

How to determine if a rider is on beat?

FEATURE ENGINEERING

Feature importance
Use Keras? and find features

MODELLING

Baseline model (out of others we've picked) – what is it (layman terms) and why?

Scores

Hypertuning, feature selection

Final model score

DEMO

CONCLUSION

* Link back to problem statement!!!

LIMITATIONS

asd

RECOMMENDATIONS

See if I can come up with anything actionable with a framework

REFERENCES

(Virgin Active's recent Singapore Fitness Trends Study 2022)

<https://www.asiaone.com/lifestyle/fitness-study-shows-8-out-10-singaporeans-exercise-once-week-our-thoughts>

(SingHealth) <https://www.singhealth.com.sg/news/tomorrows-medicine/rise-in-cases-of-muscle-breakdown-from-spin-cycling-study>