Correction

Why is 'Resampling' crucial in a particle filter?

☐ To distribute particles uniformly

☐ To focus particles around the right position

☐ To distribute particles in Gaussian distribution

☐ To distribute particles in linear distribution

Correction

The value of the weights is related to:

☐ Size of the sample

☐ Fit to measurement

☐ Amplitude of movement

Correction

How would adding more noise in the 'Motion Update' reflect the hardware features ?

- ☐ it correspond to less precise motor power control

- ☐ it correspond to less precise ground color sensor

- ☐ it correspond to less precise wheel motion encoder

- ☐ it correspond to more precise ground color sensor

Correction

How does the memory requirement of a particle filter compare to a histogram-based approach (=last exercise session with the Thymio) as the environment size increases?

○ Particle filter memory increases slightly, while histogram-based increases exponentially.

○ Both increase linearly with environment size.

○ Particle filter memory decreases, while histogram-based increases.

○ Particle filter memory increases linearly, while histogram-based remains constant.

Correction

Say we are resampling over and over again, without any motion update. What will happen in the limit?

A) The filter will spread out the evenly across the grid

B) The filter will maintain an equal distribution of particles across different states

C) The filter will converge to a single position

D) The filter will keep oscillating between different particles

E) I don't know