[Artificial intelligence in the driving seat](#)

The participants, from the Defence, Science and Technology Laboratory (Dstl), had three days to transform a 'dumb' car into one which could navigate a course using [artificial intelligence (AI)](#) .

The challenge aimed to demonstrate the benefits of reinforcement learning and the differences between the virtual and physical environments.

[## AI in the Driving Seat] (https://www.youtube.com/watch?v=Ab_q2ZmxxNc)

Dstl organiser David said

> When you are faced with a problem you have not faced before you're forced to think laterally and think outside the box. That's why we love to give our teams and particularly our early career staff these different and exciting challenges. It gives us the opportunity to engage with new technologies which are going to be really important to us in the future.
>
> In DeepRacer someone is controlling the speed but the car is doing all of the rest of the navigation and that is all powered by the AI developed over the last few days. The idea is that you go as quickly as possible around the track. There are countless different approaches you can take.

The AWS DeepRacer Re-invent 2018 track, sized 26 feet long by 17 feet wide, included twists and turns designed to put the newly trained cars through their paces.

In just three days the 1/18 scale small cars, 'trained' by participants using reinforcement learning, had managed to complete the track in just under eight seconds – within a second of the world record speed.

The top virtual time was 7.865 seconds while the top track time was 8.069 seconds.

The event was hosted by Dstl in conjunction with Amazon Web Services (AWS) at Porton Science Park.

During the event participants had to deal with physical factors that they would not encounter in an online simulation such as lighting and roughness of the track.

AWS account manager Shea Hindman said:

DeepRacer is a fun and exciting way for people to get started with reinforcement learning. They are actually working with a fully autonomous vehicle. One of the real arts of creating a winning DeepRacer model is that difference between virtual and reality.

The winning time from Dstl is only a second off world record time — that really underscores the level of expertise and talent that Dstl has.

Dstl participant Nick said:

It's been quite interesting seeing how online results compare to real world results and learning how we can train better models. It leads on to what you see in autonomous vehicles and AI driving. My own simulation did really well online and then on the track didn't end too well. It's been a fun and enjoyable experience.