



1  
00:00:00,600 --> 00:00:03,236  
Human vs. Machine

2  
00:00:04,403 --> 00:00:06,672  
JPL engineers recently built  
a new kind of drone

3  
00:00:06,705 --> 00:00:09,142  
--one piloted by  
artificial intelligence.

4  
00:00:10,176 --> 00:00:12,779  
The drone uses cameras  
to track its position

5  
00:00:14,013 --> 00:00:15,348  
[Engineer's voice] A wide field  
camera on the front here--

6  
00:00:15,381 --> 00:00:16,749  
and then also on the bottom here

7  
00:00:16,782 --> 00:00:18,251  
there's a second wide  
field view camera.

8  
00:00:19,385 --> 00:00:21,421  
[on-screen] then matches it  
with a pre-loaded map.

9  
00:00:25,691 --> 00:00:27,627  
To test it, engineers set up  
an obstacle course

10  
00:00:27,660 --> 00:00:29,629  
in a JPL warehouse.

11  
00:00:30,730 --> 00:00:33,399  
[animation traces the path

of the obstacle course]

12

00:00:35,901 --> 00:00:37,336

And just for fun,

13

00:00:37,369 --> 00:00:39,972

invited world-class drone pilot  
Ken Loo to race against it.

14

00:00:40,406 --> 00:00:42,275

A.I. driven

15

00:00:46,912 --> 00:00:48,881

Human driven

16

00:00:53,519 --> 00:00:56,489

[split screen with  
race-timing counters]

17

00:01:05,598 --> 00:01:07,166

The winner?

18

00:01:07,199 --> 00:01:09,435

The A.I.-piloted drone averaged  
13.9 seconds per lap.

19

00:01:09,468 --> 00:01:12,438

Loo's drone averaged  
11.1 seconds.

20

00:01:13,906 --> 00:01:16,008

Although slower, the  
A.I.-piloted drone

21

00:01:16,041 --> 00:01:18,277

completed the course  
with accuracy

22

00:01:19,445 --> 00:01:21,981

--capping off two years  
of research into drone autonomy

23

00:01:22,014 --> 00:01:23,583  
funded by Google

24

00:01:24,683 --> 00:01:26,486  
Don't be surprised  
if you hear more

25

00:01:26,519 --> 00:01:29,055  
about autonomous drones  
in the future.

26

00:01:29,822 --> 00:01:31,491  
Researchers hope that one day

27

00:01:31,524 --> 00:01:34,193  
drones could be piloting  
themselves around warehouses

28

00:01:35,327 --> 00:01:38,197  
or even navigating disaster  
areas to find survivors.

29

00:01:38,664 --> 00:01:40,366  
[drone sounds]

30

00:01:45,371 --> 00:01:47,006  
NASA Jet Propulsion Laboratory