
6.5 x realtime speed

1
00:00:08,570 --> 00:00:06,650
my name is Peter illsley I'm the rover

2
00:00:10,190 --> 00:00:08,580
integration lead for MSL during the

3
00:00:12,440 --> 00:00:10,200
assembly test and launch operations

4
00:00:14,180 --> 00:00:12,450
phase or at low the tests we're doing

5
00:00:16,070 --> 00:00:14,190
now are actually helping us learn how to

6
00:00:18,019 --> 00:00:16,080
drive the arm from both the operator

7
00:00:20,269 --> 00:00:18,029
side as well as the the flight software

8
00:00:22,400 --> 00:00:20,279
side helping us develop that rover

9
00:00:24,080 --> 00:00:22,410
hand-eye coordination let's say we

10
00:00:25,670 --> 00:00:24,090
wanted to go drill a rock the way we do

11
00:00:27,290 --> 00:00:25,680
that as humans is actually we use our

12
00:00:29,599 --> 00:00:27,300
depth perception then we look at that

13
00:00:31,130 --> 00:00:29,609

rock in space and we say oh we think

14
00:00:32,600 --> 00:00:31,140
it's about so far away

15
00:00:34,040 --> 00:00:32,610
well that judgment has come through our

16
00:00:36,020 --> 00:00:34,050
human experience as we've learned

17
00:00:38,330 --> 00:00:36,030
exactly how you know how far away our

18
00:00:40,369 --> 00:00:38,340
arms are from things the rover needs to

19
00:00:42,080 --> 00:00:40,379
do the same thing right now it's not

20
00:00:44,000 --> 00:00:42,090
very good at predicting that it

21
00:00:45,920 --> 00:00:44,010
certainly is one of the most complicated

22
00:00:47,330 --> 00:00:45,930
things we do with the rover simply

23
00:00:49,010 --> 00:00:47,340
because of the number of degrees of

24
00:00:51,080 --> 00:00:49,020
freedom of the arm the number of motions

25
00:00:52,400 --> 00:00:51,090
the arm can make the arm can actually

26
00:00:53,540 --> 00:00:52,410
collide with the rover the arm can

27
00:00:55,130 --> 00:00:53,550
actually hurt the rover if we're not

28
00:00:56,810 --> 00:00:55,140
careful just like you can poke yourself

29
00:00:58,790 --> 00:00:56,820
in the eye we can do the same with the

30
00:01:00,740 --> 00:00:58,800
rover so we have to teach it not to do

31
00:01:02,930 --> 00:01:00,750
that by defining a space it keeps out on

32
00:01:04,460 --> 00:01:02,940
the next test sequence we're going to

33
00:01:06,560 --> 00:01:04,470
actually lift the rover onto a tilt

34
00:01:07,850 --> 00:01:06,570
table and tilt it up to 20 degrees and

35
00:01:09,890 --> 00:01:07,860
that's where we'll actually simulate

36
00:01:11,630 --> 00:01:09,900
seeing on a crater wall or a large slope

37
00:01:13,700 --> 00:01:11,640
for a large obstacle so that we will

38
00:01:15,679 --> 00:01:13,710

understand how that change in gravity

39
00:01:17,990 --> 00:01:15,689
vector will actually affect that same

40
00:01:19,760 --> 00:01:18,000
side of armor I actually think this is

41
00:01:21,230 --> 00:01:19,770
one of the most rewarding times in the

42
00:01:23,420 --> 00:01:21,240
build process this is really where you

43
00:01:25,310 --> 00:01:23,430
get to see all of those neat firsts of

44
00:01:27,050 --> 00:01:25,320
the rover you know the first drive the

45
00:01:28,999 --> 00:01:27,060
first motions of the arm with the flight

46
00:01:30,380 --> 00:01:29,009
system software and with the the rest of

47
00:01:32,569 --> 00:01:30,390
the flight system hooked up to it and

48
00:01:33,679 --> 00:01:32,579
and seeing that successfully work is

49
00:01:35,450 --> 00:01:33,689
incredibly rewarding