
PAO

1
00:00:04,390 --> 00:00:02,629
hi welcome to the international space

2
00:00:06,389 --> 00:00:04,400
station flight control room i'm brandi

3
00:00:08,310 --> 00:00:06,399
dean i'm a public affairs officer here

4
00:00:10,390 --> 00:00:08,320
at nasa at johnson space center and i've

5
00:00:12,070 --> 00:00:10,400
got with me today jason dyer who's one

6
00:00:14,390 --> 00:00:12,080
of our flight robotics flight

7
00:00:15,270 --> 00:00:14,400
controllers jason thanks so much for

8
00:00:16,870 --> 00:00:15,280
joining us you want to tell them a

9
00:00:17,750 --> 00:00:16,880
little bit about yourself sure good

10
00:00:19,109 --> 00:00:17,760
morning

11
00:00:21,029 --> 00:00:19,119
my name is jason dyer i've been a

12
00:00:23,670 --> 00:00:21,039
robotic flight controller down here at

13
00:00:26,310 --> 00:00:23,680

nasa for just over 10 years originally

14
00:00:28,550 --> 00:00:26,320
from canada in ontario

15
00:00:29,669 --> 00:00:28,560
and i've been loving this job ever since

16
00:00:30,790 --> 00:00:29,679
i started

17
00:00:32,630 --> 00:00:30,800
what are some of the things that you do

18
00:00:33,590 --> 00:00:32,640
as a robotics flight controller we do a

19
00:00:35,910 --> 00:00:33,600
lot of

20
00:00:37,910 --> 00:00:35,920
planning for the robotics here on the

21
00:00:41,110 --> 00:00:37,920
space station we train the crew on how

22
00:00:42,069 --> 00:00:41,120
to use the both the canada arm

23
00:00:43,590 --> 00:00:42,079
and

24
00:00:45,750 --> 00:00:43,600
the activities on the ground support

25
00:00:47,190 --> 00:00:45,760
that we do on ground training and then

26
00:00:48,549 --> 00:00:47,200
obviously we continue our own

27
00:00:52,150 --> 00:00:48,559
certification

28
00:00:53,990 --> 00:00:52,160
and for up here in the flight control

29
00:00:55,189 --> 00:00:54,000
room as well and just in case i bet

30
00:00:56,950 --> 00:00:55,199
they've looked it up but why don't you

31
00:00:58,549 --> 00:00:56,960
tell them what the canada arm is so the

32
00:01:00,790 --> 00:00:58,559
canada arm it's actually the second

33
00:01:02,150 --> 00:01:00,800
cannon arm the first round of canadarms

34
00:01:03,670 --> 00:01:02,160
flew on the space shuttles and they were

35
00:01:06,789 --> 00:01:03,680
retired with space shuttles a few years

36
00:01:08,789 --> 00:01:06,799
ago but our second generation arm now

37
00:01:10,950 --> 00:01:08,799
is fully maintained on the space station

38
00:01:12,469 --> 00:01:10,960

and allows us to

39
00:01:13,190 --> 00:01:12,479
walk all over the space station using

40
00:01:16,070 --> 00:01:13,200
the

41
00:01:17,510 --> 00:01:16,080
mobile transporting system and along

42
00:01:19,670 --> 00:01:17,520
with that and

43
00:01:22,789 --> 00:01:19,680
spdm or dexter

44
00:01:23,830 --> 00:01:22,799
we do robotics activities to repair um

45
00:01:25,670 --> 00:01:23,840
on orbit

46
00:01:27,510 --> 00:01:25,680
repairable units

47
00:01:30,469 --> 00:01:27,520
all right so i think you'll have some

48
00:01:33,510 --> 00:01:30,479
questions for us now

49
00:01:35,670 --> 00:01:33,520
uh yes uh what inspired you to choose

50
00:01:38,149 --> 00:01:35,680
your profession and work at nasa

51
00:01:39,590 --> 00:01:38,159
ah that's a really good question i've

52
00:01:41,510 --> 00:01:39,600
been looking at the stars since i was

53
00:01:42,710 --> 00:01:41,520
like six years old as i'm sure a lot of

54
00:01:44,469 --> 00:01:42,720
people do

55
00:01:47,109 --> 00:01:44,479
i had a telescope i think for my seventh

56
00:01:48,870 --> 00:01:47,119
birthday and i was about to do anything

57
00:01:50,469 --> 00:01:48,880
i could possibly do to get down here

58
00:01:52,710 --> 00:01:50,479
into a space program or would have been

59
00:01:54,550 --> 00:01:52,720
this one uh the spacecraft program i

60
00:01:57,190 --> 00:01:54,560
joined in in canada that sent me down

61
00:01:58,550 --> 00:01:57,200
here to this international partnership

62
00:02:00,469 --> 00:01:58,560
and whether i support it on the ground

63
00:02:02,550 --> 00:02:00,479

or ultimately become an astronaut who's

64
00:02:05,749 --> 00:02:02,560
capable of flying up there i was just

65
00:02:12,790 --> 00:02:09,029
next question

66
00:02:13,830 --> 00:02:12,800
can you describe a typical day at work

67
00:02:16,309 --> 00:02:13,840
nothing

68
00:02:18,309 --> 00:02:16,319
big happening i guess just an everyday

69
00:02:20,390 --> 00:02:18,319
on the job kind of thing you know i

70
00:02:22,790 --> 00:02:20,400
really wish it was the same nine to five

71
00:02:24,309 --> 00:02:22,800
thing every single day one of the

72
00:02:27,190 --> 00:02:24,319
interesting really interesting things

73
00:02:30,229 --> 00:02:27,200
about this job is that it's so dynamic

74
00:02:31,990 --> 00:02:30,239
i don't think i could cut and paste

75
00:02:34,630 --> 00:02:32,000
one day or even one week's worth of

76
00:02:36,470 --> 00:02:34,640
activities to make them to say every

77
00:02:37,750 --> 00:02:36,480
single every single day or every single

78
00:02:39,750 --> 00:02:37,760
week

79
00:02:41,589 --> 00:02:39,760
my days can be

80
00:02:43,030 --> 00:02:41,599
dynamic in the fact that i could be here

81
00:02:44,949 --> 00:02:43,040
in the flight control room that you see

82
00:02:45,910 --> 00:02:44,959
behind me i could spend an entire day

83
00:02:48,070 --> 00:02:45,920
here

84
00:02:50,949 --> 00:02:48,080
i could be out at the neutral buoyancy

85
00:02:53,350 --> 00:02:50,959
lab helping train astronauts in both

86
00:02:55,190 --> 00:02:53,360
for spacewalk or using the arm and the

87
00:02:57,110 --> 00:02:55,200
neutral buoyancy lab is a giant swimming

88
00:02:58,869 --> 00:02:57,120

pool basically so that's pretty cool

89
00:03:01,990 --> 00:02:58,879
yeah it is it's really cool to see it's

90
00:03:04,630 --> 00:03:02,000
it's it's absolutely huge um

91
00:03:06,790 --> 00:03:04,640
my day could be over in the simulator

92
00:03:09,110 --> 00:03:06,800
the space station simulator which we all

93
00:03:11,509 --> 00:03:09,120
work together as a big huge team

94
00:03:13,910 --> 00:03:11,519
supporting on-orbit

95
00:03:15,670 --> 00:03:13,920
operation type simulations

96
00:03:25,750 --> 00:03:15,680
or i could be sitting at my desk writing

97
00:03:30,949 --> 00:03:27,509
what are some life-changing things you

98
00:03:35,190 --> 00:03:33,270
that that's a great philosophical

99
00:03:37,990 --> 00:03:35,200
question but honestly it's you've really

100
00:03:40,149 --> 00:03:38,000
got to enjoy your job um you you're

101
00:03:41,270 --> 00:03:40,159
going to have some bad days and i don't

102
00:03:43,110 --> 00:03:41,280
care what job you have you're going to

103
00:03:46,390 --> 00:03:43,120
have some bad days and as long as you

104
00:03:48,949 --> 00:03:46,400
love your job and you love what you do

105
00:03:50,630 --> 00:03:48,959
those back days go by fairly quickly and

106
00:03:55,990 --> 00:03:50,640
you can just enjoy the stuff that you

107
00:03:59,830 --> 00:03:57,750
um you talked about the neutral buoyancy

108
00:04:02,869 --> 00:03:59,840
lab what are the differences between

109
00:04:05,350 --> 00:04:02,879
being in the neutral blind syllab like

110
00:04:06,789 --> 00:04:05,360
actually being in space a lot of water

111
00:04:08,949 --> 00:04:06,799
no honestly

112
00:04:10,229 --> 00:04:08,959
um it's it's the best thing that

113
00:04:11,589 --> 00:04:10,239

obviously we can't

114
00:04:15,270 --> 00:04:11,599
truly create

115
00:04:17,990 --> 00:04:15,280
zero g here on on the ground

116
00:04:20,469 --> 00:04:18,000
so the next best thing we can do is in

117
00:04:22,069 --> 00:04:20,479
the neutral buoyancy lab we can balance

118
00:04:24,070 --> 00:04:22,079
ourselves between

119
00:04:26,870 --> 00:04:24,080
wanting to float to the surface

120
00:04:28,710 --> 00:04:26,880
with some weights and that balance

121
00:04:30,870 --> 00:04:28,720
basically simulates the best we can do

122
00:04:34,070 --> 00:04:30,880
for zero gravity and that allows

123
00:04:35,830 --> 00:04:34,080
the crew members to train

124
00:04:37,270 --> 00:04:35,840
so they can get the feeling of how

125
00:04:39,030 --> 00:04:37,280
they're going to have to constrain

126
00:04:40,230 --> 00:04:39,040
themselves when they're doing activities

127
00:04:41,830 --> 00:04:40,240
or how they can

128
00:04:43,030 --> 00:04:41,840
move along the truss while they're

129
00:04:45,110 --> 00:04:43,040
outside

130
00:04:47,189 --> 00:04:45,120
uh so it's it's the best we can do it's

131
00:04:48,710 --> 00:04:47,199
a little bit different um

132
00:04:50,230 --> 00:04:48,720
really the best people to ask for that

133
00:04:52,550 --> 00:04:50,240
would be the crew members once they come

134
00:04:54,070 --> 00:04:52,560
back from the uh from the station and

135
00:04:59,430 --> 00:04:54,080
see what they could say is as the

136
00:05:05,189 --> 00:05:02,870
um what did you do during the 11 shuttle

137
00:05:06,230 --> 00:05:05,199
missions and stage activities and which

138
00:05:08,310 --> 00:05:06,240

do you consider to be the most

139
00:05:10,950 --> 00:05:08,320
successful

140
00:05:12,550 --> 00:05:10,960
so those 11 shuttle missions

141
00:05:14,629 --> 00:05:12,560
spanned

142
00:05:16,790 --> 00:05:14,639
uh eight eight ten years

143
00:05:18,629 --> 00:05:16,800
um and the stage missions as well i have

144
00:05:20,070 --> 00:05:18,639
a lot of fond memories of some of the

145
00:05:22,070 --> 00:05:20,080
shifts that i've done

146
00:05:24,710 --> 00:05:22,080
uh mainly supporting

147
00:05:27,749 --> 00:05:24,720
installations of modules um some of the

148
00:05:30,150 --> 00:05:27,759
solar rays uh i was on console for those

149
00:05:32,150 --> 00:05:30,160
sort of things i think the two most

150
00:05:33,510 --> 00:05:32,160
memorable three most memorable events

151
00:05:34,390 --> 00:05:33,520
that i have is one

152
00:05:38,950 --> 00:05:34,400
um

153
00:05:40,230 --> 00:05:38,960
back early uh we were unfurling a uh new

154
00:05:42,629 --> 00:05:40,240
solar array that was going to give power

155
00:05:43,830 --> 00:05:42,639
to the station and it got stuck

156
00:05:46,390 --> 00:05:43,840
um

157
00:05:47,749 --> 00:05:46,400
and we had to re-coordinate through the

158
00:05:49,510 --> 00:05:47,759
the entire team

159
00:05:52,550 --> 00:05:49,520
um how we were going to fix this thing

160
00:05:54,390 --> 00:05:52,560
and that was 17 days of

161
00:05:55,590 --> 00:05:54,400
non-stop operations that was pretty

162
00:05:57,110 --> 00:05:55,600
exciting

163
00:05:58,550 --> 00:05:57,120

the second one was probably when i was

164
00:06:00,230 --> 00:05:58,560
in charge of

165
00:06:01,350 --> 00:06:00,240
delivering the new

166
00:06:03,670 --> 00:06:01,360
cupola

167
00:06:05,430 --> 00:06:03,680
work environment it's basically a giant

168
00:06:07,430 --> 00:06:05,440
observatory here on the space station

169
00:06:08,950 --> 00:06:07,440
the crew loves it

170
00:06:10,150 --> 00:06:08,960
and most of us love it here on the

171
00:06:12,309 --> 00:06:10,160
ground because it provides some

172
00:06:15,029 --> 00:06:12,319
excellent photos of the earth as they go

173
00:06:17,189 --> 00:06:15,039
by and it was my robotics team that

174
00:06:18,870 --> 00:06:17,199
installed that work currently is that

175
00:06:20,790 --> 00:06:18,880
was very exciting for me and i guess the

176
00:06:22,710 --> 00:06:20,800
last one would probably be

177
00:06:25,110 --> 00:06:22,720
part of the

178
00:06:27,110 --> 00:06:25,120
emergency team that fixed the pump

179
00:06:28,790 --> 00:06:27,120
module two years ago

180
00:06:30,309 --> 00:06:28,800
it's a very dynamic time when we've got

181
00:06:32,790 --> 00:06:30,319
issues like that that's what we trained

182
00:06:39,909 --> 00:06:32,800
for and i was very proud of my team and

183
00:06:44,469 --> 00:06:42,150
what is the scariest situation you've

184
00:06:46,710 --> 00:06:44,479
ever been faced with

185
00:06:48,629 --> 00:06:46,720
so that last one was probably pretty

186
00:06:49,909 --> 00:06:48,639
pretty one of the the worst situations

187
00:06:51,430 --> 00:06:49,919
we had

188
00:06:54,150 --> 00:06:51,440

it's it's hard to

189
00:06:55,909 --> 00:06:54,160
it's hard to uh explain to people that

190
00:06:57,350 --> 00:06:55,919
that aren't in this environment what's

191
00:06:58,790 --> 00:06:57,360
what's the situation we're in we're

192
00:07:02,550 --> 00:06:58,800
basically working

193
00:07:03,990 --> 00:07:02,560
um you know 15 16 hour shifts non-stop

194
00:07:05,909 --> 00:07:04,000
trying to get all these products done

195
00:07:07,670 --> 00:07:05,919
that we usually normally have weeks or

196
00:07:09,589 --> 00:07:07,680
months to complete

197
00:07:11,270 --> 00:07:09,599
under the understanding that we're we

198
00:07:13,589 --> 00:07:11,280
can't make an error

199
00:07:15,510 --> 00:07:13,599
all of this while

200
00:07:17,029 --> 00:07:15,520
you know there's one failure away from

201
00:07:18,150 --> 00:07:17,039
having to shut down the space station

202
00:07:21,990 --> 00:07:18,160
and come home

203
00:07:24,790 --> 00:07:22,000
and i think it's not so much scary as as

204
00:07:25,909 --> 00:07:24,800
in challenging and it's that challenge

205
00:07:35,589 --> 00:07:25,919
that really drives a lot of the flight

206
00:07:40,390 --> 00:07:38,309
what is your opinion and or personal

207
00:07:42,870 --> 00:07:40,400
view on if you on the future of space

208
00:07:46,390 --> 00:07:42,880
exploration

209
00:07:48,550 --> 00:07:46,400
i i'm always happy to hear that we're

210
00:07:51,270 --> 00:07:48,560
you know most countries or most agencies

211
00:07:53,270 --> 00:07:51,280
are pressing forward um obviously there

212
00:07:55,029 --> 00:07:53,280
are difficulties right now in setting

213
00:07:57,110 --> 00:07:55,039

priorities and stuff like that and each

214
00:07:59,830 --> 00:07:57,120
country has their

215
00:08:01,430 --> 00:07:59,840
ideas of what's the highest priority

216
00:08:03,350 --> 00:08:01,440
it is nice to be here in an

217
00:08:05,909 --> 00:08:03,360
international setting where

218
00:08:08,230 --> 00:08:05,919
you know as we have i believe 16

219
00:08:10,150 --> 00:08:08,240
countries involved here

220
00:08:12,070 --> 00:08:10,160
each one of them is still providing some

221
00:08:14,070 --> 00:08:12,080
sort of resources to keep this program

222
00:08:15,749 --> 00:08:14,080
going and as long as we keep that

223
00:08:17,350 --> 00:08:15,759
philosophy of i'll just keep going

224
00:08:20,150 --> 00:08:17,360
forward keep going forward i think we'll

225
00:08:29,270 --> 00:08:20,160
still have a successful program at least

226
00:08:33,909 --> 00:08:31,110
what applications might your work have

227
00:08:35,829 --> 00:08:33,919
in the public sector

228
00:08:37,589 --> 00:08:35,839
that's a really good question um you

229
00:08:39,990 --> 00:08:37,599
can't really go to school for for flight

230
00:08:42,870 --> 00:08:40,000
control operations it's a it's a

231
00:08:44,310 --> 00:08:42,880
gathering of skill sets that you learn

232
00:08:47,509 --> 00:08:44,320
both at school

233
00:08:49,750 --> 00:08:47,519
and uh and prior in industry itself i

234
00:08:51,829 --> 00:08:49,760
think if i were to leave flight control

235
00:08:54,070 --> 00:08:51,839
here um some of the best skills i would

236
00:08:56,630 --> 00:08:54,080
probably transfer out would be

237
00:08:58,150 --> 00:08:56,640
management and integration would be

238
00:08:59,750 --> 00:08:58,160

a lot of the activities i do on a

239
00:09:01,509 --> 00:08:59,760
regular basis

240
00:09:03,430 --> 00:09:01,519
operational concepts would be another

241
00:09:13,829 --> 00:09:03,440
good one that would go to two other

242
00:09:18,630 --> 00:09:15,590
what is the most complex robot that

243
00:09:20,710 --> 00:09:18,640
you've made or designed

244
00:09:24,310 --> 00:09:20,720
um i'll be honest i haven't actually

245
00:09:26,150 --> 00:09:24,320
built a robot my my background is in

246
00:09:27,190 --> 00:09:26,160
aerospace engineering and material

247
00:09:28,230 --> 00:09:27,200
science

248
00:09:30,470 --> 00:09:28,240
and

249
00:09:32,230 --> 00:09:30,480
but i have done pro program management

250
00:09:34,790 --> 00:09:32,240
and integration in the past which gave

251
00:09:36,870 --> 00:09:34,800
me the basic skill sets i needed to come

252
00:09:38,630 --> 00:09:36,880
into this job in the first place

253
00:09:40,389 --> 00:09:38,640
most complex robot i have seen is what

254
00:09:42,070 --> 00:09:40,399
we're currently working on here in the

255
00:09:45,269 --> 00:09:42,080
space station um

256
00:09:46,470 --> 00:09:45,279
you know thousands of lines of code

257
00:09:48,230 --> 00:09:46,480
and

258
00:09:49,829 --> 00:09:48,240
it's it's just incredible to see the

259
00:09:59,829 --> 00:09:49,839
amount of software and hardware that's

260
00:10:04,470 --> 00:10:01,430
can you describe what it feels like to

261
00:10:05,590 --> 00:10:04,480
be in a buoyancy pool

262
00:10:07,509 --> 00:10:05,600
um

263
00:10:10,389 --> 00:10:07,519

not far off i actually

264
00:10:12,470 --> 00:10:10,399
certified scuba diver and a lot of the

265
00:10:13,829 --> 00:10:12,480
activities we do even

266
00:10:16,230 --> 00:10:13,839
privately or

267
00:10:17,750 --> 00:10:16,240
you know away on vacation transfer

268
00:10:19,590 --> 00:10:17,760
similar to what we see in the neutral

269
00:10:21,829 --> 00:10:19,600
buoyancy lab

270
00:10:25,430 --> 00:10:21,839
it is it's almost like floating

271
00:10:27,829 --> 00:10:25,440
um it's and it takes a little bit of a

272
00:10:29,590 --> 00:10:27,839
getting used to of not being able to

273
00:10:32,389 --> 00:10:29,600
trust that when you let go of something

274
00:10:33,910 --> 00:10:32,399
your feet just go to the ground

275
00:10:35,430 --> 00:10:33,920
your body

276
00:10:36,790 --> 00:10:35,440
doesn't understand which way is up and

277
00:10:39,590 --> 00:10:36,800
which way is down and if you close your

278
00:10:41,910 --> 00:10:39,600
eyes you really can't tell

279
00:10:43,350 --> 00:10:41,920
so it's quite exhilarating i quite enjoy

280
00:10:45,990 --> 00:10:43,360
it which is why i got certified as a

281
00:10:48,310 --> 00:10:46,000
scuba diver and i would imagine that

282
00:10:55,670 --> 00:10:48,320
being in the in the buoyancy lab it's

283
00:10:59,269 --> 00:10:57,269
how do you think nasa will go about

284
00:11:01,190 --> 00:10:59,279
conserving fuel for the trip to mars by

285
00:11:03,750 --> 00:11:01,200
2030 and what fuel will be most

286
00:11:06,790 --> 00:11:03,760
efficient for this trip and why

287
00:11:08,389 --> 00:11:06,800
that's a really excellent question um

288
00:11:09,990 --> 00:11:08,399

and uh

289
00:11:12,550 --> 00:11:10,000
you know it's really hard to answer it

290
00:11:14,310 --> 00:11:12,560
will all depend on what's going on at

291
00:11:15,430 --> 00:11:14,320
the time and what priorities and when we

292
00:11:18,550 --> 00:11:15,440
do it

293
00:11:20,389 --> 00:11:18,560
if we look at say the space shuttle

294
00:11:21,990 --> 00:11:20,399
you know the solid rocket boosters were

295
00:11:24,150 --> 00:11:22,000
using one type of fuel then we went to

296
00:11:26,069 --> 00:11:24,160
the hydrogen oxygen mix for a different

297
00:11:27,670 --> 00:11:26,079
type of fuel and then when we were on

298
00:11:29,350 --> 00:11:27,680
orbit we had a third type of fuel with

299
00:11:31,670 --> 00:11:29,360
the the thrusters

300
00:11:33,750 --> 00:11:31,680
i would imagine the mars mission would

301
00:11:36,310 --> 00:11:33,760
be similar depending on which

302
00:11:37,990 --> 00:11:36,320
stage of the activity that we're in

303
00:11:40,870 --> 00:11:38,000
it would also depend on when we do it

304
00:11:43,110 --> 00:11:40,880
whether we develop new technologies or

305
00:11:47,350 --> 00:11:43,120
new ideas on how to produce

306
00:11:49,030 --> 00:11:47,360
thrust or whatever we need to do so

307
00:11:50,470 --> 00:11:49,040
to give you an exact

308
00:11:52,470 --> 00:11:50,480
fuel of what we would use be very

309
00:11:53,910 --> 00:11:52,480
difficult right now

310
00:11:55,590 --> 00:11:53,920
but i think it's an excellent question

311
00:11:56,870 --> 00:11:55,600
i'm sure many engineers are down here

312
00:12:00,069 --> 00:11:56,880
are thinking about the same thing right

313
00:12:03,110 --> 00:12:00,079

now too we actually have a group here at

314
00:12:04,629 --> 00:12:03,120
johnson space center who is working on

315
00:12:06,550 --> 00:12:04,639
what they call in-situ resource

316
00:12:08,310 --> 00:12:06,560
utilization which is basically a big

317
00:12:09,430 --> 00:12:08,320
fancy way of saying living off the land

318
00:12:10,710 --> 00:12:09,440
and hopefully

319
00:12:13,750 --> 00:12:10,720
they're looking into ways that we might

320
00:12:15,990 --> 00:12:13,760
be able to to get the fuel that we need

321
00:12:17,670 --> 00:12:16,000
where we go so if we can find

322
00:12:18,949 --> 00:12:17,680
a way to produce the fuel that we need

323
00:12:21,030 --> 00:12:18,959
to get back

324
00:12:23,990 --> 00:12:21,040
on mars then we don't have to take as

325
00:12:26,870 --> 00:12:24,000
much with us when we go

326
00:12:31,269 --> 00:12:28,710
before you're saying how your eyes kind

327
00:12:33,350 --> 00:12:31,279
of like disagree with your inner ear and

328
00:12:35,110 --> 00:12:33,360
you'll you see something that you're you

329
00:12:36,230 --> 00:12:35,120
don't really it doesn't really feel the

330
00:12:38,310 --> 00:12:36,240
same way

331
00:12:39,910 --> 00:12:38,320
so like if you're upside down you'll see

332
00:12:41,670 --> 00:12:39,920
as if you were like you think you're

333
00:12:43,030 --> 00:12:41,680
falling by your inner ear do you kind of

334
00:12:44,310 --> 00:12:43,040
just feel like you're

335
00:12:45,430 --> 00:12:44,320
just floating around you don't really

336
00:12:46,710 --> 00:12:45,440
feel like you're going down or anything

337
00:12:48,710 --> 00:12:46,720
like that you just feel

338
00:12:50,790 --> 00:12:48,720

constant i guess you could say

339
00:12:53,190 --> 00:12:50,800
so you i think your question is

340
00:12:54,629 --> 00:12:53,200
borderlining on on what it's like to get

341
00:12:56,470 --> 00:12:54,639
vertigo

342
00:12:58,150 --> 00:12:56,480
which happens both when you're on a very

343
00:12:59,910 --> 00:12:58,160
tall building looking down and actually

344
00:13:02,470 --> 00:12:59,920
you're exactly right it happens when

345
00:13:04,389 --> 00:13:02,480
you're in zero gravity or even scuba

346
00:13:06,949 --> 00:13:04,399
diving at the same time it's basically

347
00:13:08,629 --> 00:13:06,959
your eyes thinking or not being able to

348
00:13:09,910 --> 00:13:08,639
determine between where you are and

349
00:13:12,550 --> 00:13:09,920
where you should be

350
00:13:14,949 --> 00:13:12,560
and your body your inner ear not sensing

351
00:13:17,990 --> 00:13:14,959
and not lining up with that intuition

352
00:13:19,910 --> 00:13:18,000
and unfortunately getting vertigo some

353
00:13:21,670 --> 00:13:19,920
people handle it handle it better than

354
00:13:24,150 --> 00:13:21,680
others but

355
00:13:31,030 --> 00:13:24,160
yeah you can feel kind of queasy if your

356
00:13:34,150 --> 00:13:32,470
hello again

357
00:13:36,949 --> 00:13:34,160
um i understand you work with a lot of

358
00:13:40,150 --> 00:13:36,959
technology so i was wondering what you

359
00:13:40,870 --> 00:13:40,160
think of the recent massive solar flares

360
00:13:42,790 --> 00:13:40,880
uh

361
00:13:44,790 --> 00:13:42,800
what kind of concerns they might it

362
00:13:46,870 --> 00:13:44,800
might have to you

363
00:13:49,590 --> 00:13:46,880

well the the sun's been all around for

364
00:13:52,550 --> 00:13:49,600
quite a long time and i'm sure this is

365
00:13:53,990 --> 00:13:52,560
part of its solar cycles

366
00:13:57,829 --> 00:13:54,000
it's always spitting out stuff it's

367
00:13:59,590 --> 00:13:57,839
always it's always having solar flares

368
00:14:01,750 --> 00:13:59,600
i don't work personally with those solar

369
00:14:04,949 --> 00:14:01,760
flares but the keen interest that i do

370
00:14:07,829 --> 00:14:04,959
have in you know orbital

371
00:14:10,629 --> 00:14:07,839
mechanics and stuff like that

372
00:14:12,949 --> 00:14:10,639
i'm not overly concerned about them

373
00:14:19,990 --> 00:14:12,959
and but i am monitoring just that of

374
00:14:24,150 --> 00:14:21,750
uh what do you do during extensive

375
00:14:26,230 --> 00:14:24,160
stimulator training

376
00:14:29,350 --> 00:14:26,240
that's a really good question so

377
00:14:31,990 --> 00:14:29,360
part of our our training down here is to

378
00:14:34,949 --> 00:14:32,000
prepare ourselves for

379
00:14:37,110 --> 00:14:34,959
contingency or bad days

380
00:14:39,509 --> 00:14:37,120
here in operations whether something

381
00:14:41,590 --> 00:14:39,519
fails or something isn't going right the

382
00:14:44,150 --> 00:14:41,600
way we expect it to then we use our

383
00:14:45,189 --> 00:14:44,160
simulator training to basically simulate

384
00:14:47,430 --> 00:14:45,199
our days

385
00:14:50,069 --> 00:14:47,440
and then we have trainers in the back

386
00:14:52,949 --> 00:14:50,079
room that will cause things to fail

387
00:14:55,750 --> 00:14:52,959
or cause activities to go wrong and they

388
00:14:57,829 --> 00:14:55,760

are building our skills to

389
00:14:59,990 --> 00:14:57,839
learn how to react to those in the

390
00:15:04,310 --> 00:15:00,000
shortest amount of time possible

391
00:15:13,509 --> 00:15:04,320
and some days can get pretty pretty um

392
00:15:16,550 --> 00:15:15,030
all right i'm going to be majoring in

393
00:15:18,069 --> 00:15:16,560
electrical engineering next year at penn

394
00:15:19,350 --> 00:15:18,079
state and i was wondering what kind of

395
00:15:21,670 --> 00:15:19,360
jobs are available to electrical

396
00:15:23,829 --> 00:15:21,680
engineers at nasa

397
00:15:26,470 --> 00:15:23,839
well there's a wide range of jobs here

398
00:15:28,230 --> 00:15:26,480
at um at nasa

399
00:15:30,470 --> 00:15:28,240
along with many of the agencies around

400
00:15:32,629 --> 00:15:30,480
the globe

401
00:15:34,230 --> 00:15:32,639
skill sets like a specific engineering

402
00:15:35,990 --> 00:15:34,240
type just to give you an idea here in

403
00:15:37,350 --> 00:15:36,000
robotics

404
00:15:40,310 --> 00:15:37,360
we have

405
00:15:42,949 --> 00:15:40,320
mechanical aerospace electrical

406
00:15:46,069 --> 00:15:42,959
biomedical we have mathematicians we

407
00:15:46,949 --> 00:15:46,079
have one geologist

408
00:15:50,629 --> 00:15:46,959
so

409
00:15:52,470 --> 00:15:50,639
you bring with you whether it's

410
00:15:54,230 --> 00:15:52,480
electrical or mechanical but more the

411
00:15:55,910 --> 00:15:54,240
skill sets that you've learned or are

412
00:15:58,870 --> 00:15:55,920
willing to learn when you come here to

413
00:16:01,110 --> 00:15:58,880

apply for the job

414
00:16:02,389 --> 00:16:01,120
all right thanks i have another question

415
00:16:04,150 --> 00:16:02,399
what differences have you noticed

416
00:16:06,790 --> 00:16:04,160
between canadian and american space

417
00:16:11,990 --> 00:16:08,790
size and scope

418
00:16:13,430 --> 00:16:12,000
um really i mean uh nasa's budget for

419
00:16:15,829 --> 00:16:13,440
the space program budget is probably

420
00:16:18,310 --> 00:16:15,839
about 50 times the size of the canadian

421
00:16:19,990 --> 00:16:18,320
one but i mean the country's larger as

422
00:16:22,550 --> 00:16:20,000
well i mean you're talking a population

423
00:16:25,189 --> 00:16:22,560
of 300 million versus 30 million it also

424
00:16:26,550 --> 00:16:25,199
comes down to priorities um you know i

425
00:16:28,550 --> 00:16:26,560
find that

426
00:16:30,949 --> 00:16:28,560
canada spends a lot of its resources

427
00:16:32,710 --> 00:16:30,959
trying to partner with other

428
00:16:34,629 --> 00:16:32,720
space agencies such as nasa or the

429
00:16:37,910 --> 00:16:34,639
european space agency

430
00:16:40,470 --> 00:16:37,920
to try to build towards bigger projects

431
00:16:42,870 --> 00:16:40,480
whereas nasa has the capability of doing

432
00:16:45,590 --> 00:16:42,880
a lot of projects by itself

433
00:16:48,069 --> 00:16:45,600
both of them are pushing

434
00:16:49,829 --> 00:16:48,079
forward in space development

435
00:16:51,990 --> 00:16:49,839
and it's really just coming down to the

436
00:16:54,069 --> 00:16:52,000
scale of that push and and you know the

437
00:16:56,389 --> 00:16:54,079
prior priorities of what's important to

438
00:16:58,710 --> 00:16:56,399

each agency

439
00:17:00,550 --> 00:16:58,720
the first uh space station commander for

440
00:17:02,389 --> 00:17:00,560
the canadian space agency just actually

441
00:17:05,829 --> 00:17:02,399
wrapped up his time at the space station

442
00:17:12,470 --> 00:17:05,839
and landed back in kazakhstan on monday

443
00:17:17,029 --> 00:17:14,630
um i'm just really curious to know this

444
00:17:19,590 --> 00:17:17,039
but did you ever witness any accidents

445
00:17:22,949 --> 00:17:19,600
during your time at nasa

446
00:17:26,630 --> 00:17:25,029
alright another question

447
00:17:29,110 --> 00:17:26,640
what planet would you like nasa to

448
00:17:32,950 --> 00:17:29,120
explore after mars

449
00:17:38,390 --> 00:17:36,549
that's a tough one um i i probably go

450
00:17:42,470 --> 00:17:38,400
further out i'm gonna say i'd like them

451
00:17:47,669 --> 00:17:44,630
all right one more question

452
00:17:49,029 --> 00:17:47,679
what is your favorite astronaut food

453
00:17:51,590 --> 00:17:49,039
sorry favorite

454
00:17:53,430 --> 00:17:51,600
astronaut movies

455
00:17:55,110 --> 00:17:53,440
no astronaut food

456
00:17:57,190 --> 00:17:55,120
oh astronaut food

457
00:17:58,950 --> 00:17:57,200
um it's really interesting to see what

458
00:18:01,510 --> 00:17:58,960
they take up on orbit

459
00:18:03,909 --> 00:18:01,520
for food

460
00:18:05,190 --> 00:18:03,919
most of it's dehydrated

461
00:18:07,750 --> 00:18:05,200
or canned

462
00:18:09,270 --> 00:18:07,760
and i think of all the

463
00:18:13,110 --> 00:18:09,280

astronaut food i've tasted here on the

464
00:18:14,630 --> 00:18:13,120
ground surprisingly i was i was best

465
00:18:18,230 --> 00:18:14,640
most enjoyed the

466
00:18:18,240 --> 00:18:26,070
thank you

467
00:18:29,430 --> 00:18:27,669
all right do we have any other questions

468
00:18:30,789 --> 00:18:29,440
from east stroudsburg

469
00:18:32,070 --> 00:18:30,799
um

470
00:18:33,029 --> 00:18:32,080
someone coming up from the back over

471
00:18:34,549 --> 00:18:33,039
here

472
00:18:36,470 --> 00:18:34,559
okay excellent looks like we finished

473
00:18:39,270 --> 00:18:36,480
all of our 16 questions looks like these

474
00:18:42,549 --> 00:18:39,280
are kind of off the cuff so um our next

475
00:18:45,830 --> 00:18:42,559
question is coming from someone

476
00:18:51,590 --> 00:18:47,510
okay she's coming up

477
00:18:54,830 --> 00:18:53,909
oh yes

478
00:18:57,430 --> 00:18:54,840
okay

479
00:18:58,390 --> 00:18:57,440
my comrades in the back would like to

480
00:19:01,909 --> 00:18:58,400
know

481
00:19:06,310 --> 00:19:03,909
really good question um

482
00:19:08,710 --> 00:19:06,320
i'm not sure whether belief or

483
00:19:11,590 --> 00:19:08,720
statistical possibility is is the same

484
00:19:13,430 --> 00:19:11,600
thing but i would hope that in all that

485
00:19:14,789 --> 00:19:13,440
space out there that there's at least

486
00:19:18,070 --> 00:19:14,799
someone else

487
00:19:20,870 --> 00:19:18,080
um just to compare i think of what goes

488
00:19:24,070 --> 00:19:21,669

okay

489
00:19:26,150 --> 00:19:24,080
and also how does scuba diving compare

490
00:19:27,909 --> 00:19:26,160
to being in space

491
00:19:31,029 --> 00:19:27,919
well having never been in space right

492
00:19:32,549 --> 00:19:31,039
now i would hope it was somewhat similar

493
00:19:34,630 --> 00:19:32,559
but

494
00:19:36,310 --> 00:19:34,640
i love scuba diving and i hope one day

495
00:19:38,630 --> 00:19:36,320
it does prepare me to go into space so i

496
00:19:40,549 --> 00:19:38,640
hope it is very similar

497
00:19:42,870 --> 00:19:40,559
we have a group that does uh what we

498
00:19:45,909 --> 00:19:42,880
call analog missions which is kind of

499
00:19:49,430 --> 00:19:45,919
simulated missions um on the ocean floor

500
00:19:51,270 --> 00:19:49,440
to to practice for going on

501
00:19:53,510 --> 00:19:51,280
planetary exploration missions in the

502
00:19:55,270 --> 00:19:53,520
future it's called the nemo

503
00:19:56,950 --> 00:19:55,280
the nemo missions and we've had i think

504
00:19:58,950 --> 00:19:56,960
16 of them so

505
00:20:01,990 --> 00:19:58,960
i think a lot of the astronauts say that

506
00:20:08,070 --> 00:20:02,000
that's really helpful for training

507
00:20:12,630 --> 00:20:10,070
all right thank you guys so much for all

508
00:20:14,950 --> 00:20:12,640
those questions and uh thank you mr dyer

509
00:20:16,310 --> 00:20:14,960
for coming and actually doing these

510
00:20:18,630 --> 00:20:16,320
question and answer and this little

511
00:20:20,070 --> 00:20:18,640
interview we really appreciate your time

512
00:20:22,390 --> 00:20:20,080
are there any final words you'd like to

513
00:20:24,390 --> 00:20:22,400

say at east strasbourg

514
00:20:26,789 --> 00:20:24,400
i know i've really enjoyed uh talking to

515
00:20:29,190 --> 00:20:26,799
you people you guys and um

516
00:20:30,470 --> 00:20:29,200
and a lot of excellent questions i'm

517
00:20:32,390 --> 00:20:30,480
glad you guys are thinking really hard

518
00:20:34,310 --> 00:20:32,400
about this stuff i hope i've been able

519
00:20:35,909 --> 00:20:34,320
to at least

520
00:20:38,630 --> 00:20:35,919
get you interested in the space program

521
00:20:39,990 --> 00:20:38,640
as much at least as much as i am and

522
00:20:41,909 --> 00:20:40,000
hopefully one of you guys down there

523
00:20:43,270 --> 00:20:41,919
will will end up down here

524
00:20:45,510 --> 00:20:43,280
working at

525
00:20:48,470 --> 00:20:45,520
nasa with as much interest and interest