



**CELEBRATING
GENE RODDENBERRY:
STAR TREK'S BRIDGE
AND NASA**

1
00:00:00,433 --> 00:00:04,270
In the 1960s, when
NASA was preparing to meet

2
00:00:04,270 --> 00:00:07,240
a tough goal of landing on the moon.

3
00:00:08,475 --> 00:00:13,046
Star Trek, the TV series, began
inspiring viewers

4
00:00:13,613 --> 00:00:16,916
to even go further.

5
00:00:16,916 --> 00:00:21,287
For decades, Star Trek's
fictional depiction of exploration.

6
00:00:21,788 --> 00:00:26,059
It's inspired the NASA
workforce in our quest

7
00:00:26,059 --> 00:00:29,863
to venture out into the cosmos,
but also inspired the country.

8
00:00:30,764 --> 00:00:35,969
Gene Roddenberry, the creator of Star
Trek, was certainly ahead of his time.

9
00:00:36,803 --> 00:00:42,175
Star Trek featured an unprecedented
diversity in its cast members.

10
00:00:42,876 --> 00:00:46,579
It represented a bridge working together.

11
00:00:48,248 --> 00:00:51,484
NASA also embraces

12

00:00:51,484 --> 00:00:55,722

people to work together
from all backgrounds

13

00:00:56,056 --> 00:00:58,892

and in celebration of Gene's
one hundredth birthday.

14

00:00:59,759 --> 00:01:04,297

I'm happy to introduce you
to Gene's son, Rod Roddenberry.

15

00:01:05,165 --> 00:01:07,400

Who will be moderating a panel

16

00:01:07,934 --> 00:01:12,772

with George Takei
and some of NASA's best and brightest

17

00:01:13,673 --> 00:01:15,875

to discuss diversity at NASA

18

00:01:16,676 --> 00:01:21,347

and that visionary Star Trek bridge.

19

00:01:22,782 --> 00:01:26,119

In light of the exciting discussion
you're about to have,

20

00:01:26,886 --> 00:01:30,090

here are some very fitting words

21

00:01:30,090 --> 00:01:32,892

from the man himself, Gene Roddenberry.

22

00:01:34,394 --> 00:01:36,563

The whole show was an attempt to say

23

00:01:36,563 --> 00:01:40,533

that humanity will reach
maturity and wisdom on the day

24

00:01:40,767 --> 00:01:45,105

that it begins, not just to tolerate,
but to take a special delight

25

00:01:45,405 --> 00:01:48,908

in differences in ideas
and differences in life forms.

26

00:01:49,742 --> 00:01:53,980

If we cannot learn to actually enjoy
those small differences,

27

00:01:53,980 --> 00:01:57,217

take a positive delight
in those small differences between our own

28

00:01:57,217 --> 00:02:01,321

kind here on this planet, then
we do not deserve to go out into space

29

00:02:01,754 --> 00:02:04,190

and meet the diversity
that's almost certainly out there.

30

00:02:06,626 --> 00:02:10,730

So in honor of his birthday,
we're sending the words

31

00:02:10,730 --> 00:02:13,700

that you just heard directly
into deep space.

32

00:02:14,234 --> 00:02:17,504

And it's going through
our Deep Space Network.

33

00:02:17,504 --> 00:02:20,540

NASA's network used to communicate

34

00:02:21,107 --> 00:02:25,411

with the far away

spacecraft that explore the heavens.

35

00:02:26,980 --> 00:02:32,619

NASA's Deep Space

Network is a truly global network.

36

00:02:32,652 --> 00:02:37,757

It has locations all over the globe.

37

00:02:38,892 --> 00:02:43,630

The Deep Space Network is just one example

of how diversity

38

00:02:43,630 --> 00:02:49,469

and cooperation can help us unlock

the mysteries of this universe.

39

00:02:50,737 --> 00:02:53,940

And now Rod Roddenberry.

40

00:02:55,241 --> 00:02:58,411

Well, first, I'd really like to

thank Administrator Bill Nelson.

41

00:02:58,978 --> 00:03:02,782

Thank you so much for putting this

together and that amazing announcement.

42

00:03:05,285 --> 00:03:06,352

So hi, everyone.

43

00:03:06,352 --> 00:03:08,454

Welcome and thank you

so much for joining us.

44

00:03:08,755 --> 00:03:13,159

We're here to celebrate my father,
Gene Roddenberry's 100th birthday.

45

00:03:14,027 --> 00:03:17,830

Not only that, but his incredible
contributions and influences on society

46

00:03:17,830 --> 00:03:19,332

through Star Trek.

47

00:03:19,332 --> 00:03:23,937

Today, I have the pleasure of being joined
by an incredible panel of trailblazers

48

00:03:23,937 --> 00:03:27,607

who, like my father,
they're pushing boundaries,

49

00:03:27,607 --> 00:03:31,544

they're challenging stereotypes
and inspiring a new generation

50

00:03:31,778 --> 00:03:34,814

with their spirit of
adventure, courage and hope.

51

00:03:35,882 --> 00:03:38,651

Now, as many of you know, my father

52

00:03:39,786 --> 00:03:44,390

came up with Star
Trek in the early, mid to early 60s,

53

00:03:44,390 --> 00:03:49,395

and he had had a very unique life
being a World War

54

00:03:49,395 --> 00:03:51,831
Two bomber pilot, a police officer.

55
00:03:52,932 --> 00:03:58,304
He had two major crashes in his career
that he survived.

56
00:03:59,239 --> 00:04:02,208
He experienced a lot of life

57
00:04:02,709 --> 00:04:07,113
and saw the beauty of humanity
and its darkness.

58
00:04:07,580 --> 00:04:09,816
And I think that really
gave him the perspective

59
00:04:10,283 --> 00:04:13,186
to look at humanity in the future

60
00:04:13,553 --> 00:04:15,989
and come up with this idea of Star Trek.

61
00:04:16,522 --> 00:04:19,392
And it was really built on

62
00:04:19,392 --> 00:04:23,696
sort of a backbone philosophy
or a principle of idic, I-D-I-C,

63
00:04:24,130 --> 00:04:28,167
which stands for infinite diversity
in infinite combinations.

64
00:04:28,835 --> 00:04:34,540
And in Star Trek,
it wasn't about a group of people

65

00:04:34,540 --> 00:04:37,543
going out to seek weird looking aliens.

66
00:04:38,211 --> 00:04:42,248
They were going out
to find creatures in our universe

67
00:04:42,248 --> 00:04:45,184
that looked at the universe
in a different and unique sort of way,

68
00:04:45,184 --> 00:04:48,755
because we had reached a point
in our intellectual evolution

69
00:04:48,755 --> 00:04:49,589
where we understood that

70
00:04:51,424 --> 00:04:54,727
we had to experience things
that were different, to grow and evolve,

71
00:04:55,161 --> 00:04:57,397
to live the same
and only hear the same, ,and

72
00:04:57,397 --> 00:05:00,533
not try to hear things
that challenged our intellect,

73
00:05:00,533 --> 00:05:04,370
that challenged the way we saw things,
we would never advance as a species.

74
00:05:04,737 --> 00:05:08,541
So Star Trek was much more
than just a sci-fi show.

75
00:05:08,841 --> 00:05:12,845
And I think some of the people

that we have with us here today

76

00:05:13,579 --> 00:05:18,851

were also on some level
influenced by Star Trek and in some way

77

00:05:19,185 --> 00:05:23,089

perhaps even influenced Star Trek,
as you'll see from some of our guests.

78

00:05:23,423 --> 00:05:26,092

So I'd like to introduce our panelists.

79

00:05:26,092 --> 00:05:30,163

Here, I'd like to start with someone
I think you guys know fairly well,

80

00:05:30,563 --> 00:05:32,165

but George Takei.

81

00:05:32,165 --> 00:05:36,936

He is an American actor and activist,
and he's definitely best known

82

00:05:37,236 --> 00:05:40,506

for his famous role
as Hikaru Sulu in Star Trek.

83

00:05:42,809 --> 00:05:47,113

Next, we have Tracy
Drain, the lead flight systems

84

00:05:47,113 --> 00:05:51,718

engineer for the Europa Clipper mission
at the Jet Propulsion Laboratory.

85

00:05:52,385 --> 00:05:57,423

And we also have Swati Mohan,
the Mars 2020 guidance, navigation

86

00:05:57,423 --> 00:06:01,060

and controls operation lead at NASA's Jet Propulsion Laboratory as well.

87

00:06:02,195 --> 00:06:04,197

Now we have Hortense Diggs,

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00:06:04,864 --> 00:06:09,435

director of the Office of Communication and Public Engagement at NASA's John F.

89

00:06:09,435 --> 00:06:10,970

Kennedy Space Center.

90

00:06:10,970 --> 00:06:12,772

How are you doing, Hortense?

91

00:06:12,772 --> 00:06:14,974

And last but not least, we have Jonny Kim.

92

00:06:15,141 --> 00:06:20,246

Selected by NASA to join the 2017 astronaut candidate class, a U.S.

93

00:06:20,246 --> 00:06:23,483

Navy SEAL and holds a doctorate from Harvard Medical School.

94

00:06:24,317 --> 00:06:25,918

Thank you guys all for being here.

95

00:06:25,918 --> 00:06:29,689

I really appreciate you taking the time.

96

00:06:29,722 --> 00:06:32,325

Well, I think we're going to have a bit of a discussion,

97

00:06:32,325 --> 00:06:34,494

but I do have a few
questions for you guys.

98

00:06:34,494 --> 00:06:36,662

If that's OK, if
I can throw them your way.

99

00:06:38,364 --> 00:06:42,702

And if you don't mind, I
am going to put George on the spot first.

100

00:06:43,703 --> 00:06:45,805

I've known him the longest
out of this group,

101

00:06:45,805 --> 00:06:48,541

so I feel a little bit more comfortable
getting these questions going with him.

102

00:06:49,842 --> 00:06:54,280

I wonder throughout your years
whether they're conventions or events, but

103

00:06:54,547 --> 00:06:57,483

all the Star Trek things that you might
have attended, the people you've met.

104

00:06:58,718 --> 00:07:03,689

Do you have, can you recall
any stories of optimism?

105

00:07:04,457 --> 00:07:08,628

I'm often asked by fans,
you know, has Star

106

00:07:08,628 --> 00:07:12,231

Trek actually changed the world
for the better in its own small way?

107

00:07:12,398 --> 00:07:15,902

Admittedly, it is a TV show,
but it has inspired people.

108

00:07:16,669 --> 00:07:20,373

I'm wondering, George,
if you have any stories or recollections

109

00:07:20,373 --> 00:07:25,478

of of something optimistic that you may
have heard or run into in your travels.

110

00:07:25,478 --> 00:07:29,315

In the show, you know, at the height

111

00:07:29,315 --> 00:07:32,251

of the various social issues,

112

00:07:32,552 --> 00:07:35,822

we had the civil rights movement going on,

113

00:07:36,155 --> 00:07:39,392

African Americans
demonstrating for equality,

114

00:07:40,059 --> 00:07:43,062

that were being attacked by

115

00:07:43,963 --> 00:07:47,600

law enforcement officers and

116

00:07:48,734 --> 00:07:51,471

having attack dogs and

117

00:07:51,771 --> 00:07:54,740

fire hoses used on them.

118

00:07:56,442 --> 00:07:59,111

Gene was inspired to

119

00:07:59,111 --> 00:08:04,383
show how we can get over that
by using another metaphor.

120

00:08:04,750 --> 00:08:09,522
We had two alien breeds
fighting each other.

121

00:08:09,989 --> 00:08:12,558
One was black on the right side

122

00:08:12,792 --> 00:08:16,496
and white on the left side,
and the other one

123

00:08:16,496 --> 00:08:20,566
was black on the left side
and white on the right side.

124

00:08:20,800 --> 00:08:23,169
And they couldn't
get along with each other for that.

125

00:08:23,569 --> 00:08:26,606
And we had Frank Gorshin, the comedian,

126

00:08:26,906 --> 00:08:31,544
who brought those characters to life,
and it really made

127

00:08:32,612 --> 00:08:34,480
that look ridiculous.

128

00:08:34,480 --> 00:08:37,817
And ultimately with the perspective,

129

00:08:37,817 --> 00:08:43,022
hopefully not of another 100 years,

we can deal with it.

130

00:08:43,289 --> 00:08:45,691

We are still dealing with it today

131

00:08:46,092 --> 00:08:49,562

as in the form of Black Lives Matter.

132

00:08:49,762 --> 00:08:52,899

I was involved in the civil
rights movement.

133

00:08:53,165 --> 00:08:55,101

I marched with Dr. King.

134

00:08:55,101 --> 00:08:57,436

I did a a civil rights musical.

135

00:08:57,436 --> 00:09:00,806

And I sang. And Dr. King

136

00:09:02,775 --> 00:09:04,944

heard the music from

137

00:09:04,944 --> 00:09:09,482

what we call the musical
we call was Fly Blackbird.

138

00:09:09,849 --> 00:09:13,753

And so that was optimistic

139

00:09:13,753 --> 00:09:16,289

look toward the future,

140

00:09:18,024 --> 00:09:20,126

hopefully not that far in the future.

141

00:09:20,126 --> 00:09:24,463

But we will be able to recognize
what Gene was telling us

142

00:09:24,764 --> 00:09:26,832
by working together in concert.

143

00:09:28,301 --> 00:09:30,770
It's an optimistic sense.

144

00:09:30,870 --> 00:09:36,042
And here we are together
today, the rest of this panel,

145

00:09:36,709 --> 00:09:42,281
as part of the NASA team,
we're boldly going where we hadn't been.

146

00:09:42,481 --> 00:09:48,287
Well, I've been for about two minutes
where you guys are going or have been.

147

00:09:48,721 --> 00:09:54,460
But technologically, scientifically

148

00:09:54,594 --> 00:09:58,097
and in terms of engineering,
we are getting there.

149

00:09:58,531 --> 00:10:01,701
We're looking together in concert

150

00:10:02,368 --> 00:10:05,338
today for this brief hour,

151

00:10:05,972 --> 00:10:11,043
looking to the future as a brand new place
where new possibilities

152

00:10:11,310 --> 00:10:14,447

can perhaps happen.

153

00:10:15,748 --> 00:10:16,616

Well, thank you, George.

154

00:10:17,917 --> 00:10:19,385

That's beautiful. That's awesome.

155

00:10:19,385 --> 00:10:24,190

I appreciate the kind words
and the kind words from my father as well.

156

00:10:25,458 --> 00:10:29,095

If you wouldn't mind, Hortense,
Swati, Tracy, Jonny, I.

157

00:10:29,095 --> 00:10:31,163

I do have a question for you guys.

158

00:10:31,998 --> 00:10:35,201

Each of you do have the unique fortune
to work at NASA,

159

00:10:35,201 --> 00:10:38,337

and you played a role
in exploring our galaxy for real.

160

00:10:38,337 --> 00:10:41,741

And not to take anything away from you,
George, you've explored

161

00:10:42,441 --> 00:10:45,111

the galaxy in our hearts.

162

00:10:45,111 --> 00:10:48,781

But what is it about your work at NASA

163

00:10:49,749 --> 00:10:52,985

and what's out there,

the unknown that really inspires you?

164

00:10:52,985 --> 00:10:55,221

And I wonder if I can ask each one of you.

165

00:10:55,221 --> 00:10:58,991

And because you're squares on my screen,
I'm going to I'm going to start with,

166

00:10:59,291 --> 00:11:03,195

I think Tracy in my right
hand corner, if you're ready.

167

00:11:04,730 --> 00:11:07,266

I am ready. There
are so many things about the work

168

00:11:07,266 --> 00:11:11,170

that I get to do with my team at the Jet
Propulsion Laboratory that inspires me,

169

00:11:11,504 --> 00:11:15,241

and a lot of it is about what
we get to go and explore and find.

170

00:11:15,274 --> 00:11:19,278

I think it's amazing all of the wonders
that there are out in space

171

00:11:19,278 --> 00:11:21,113

that we could never have imagined.

172

00:11:21,113 --> 00:11:25,451

One of the spacecraft that I worked on
recently, Juno, has flown over the north

173

00:11:25,618 --> 00:11:26,886

and south poles of Jupiter.

174

00:11:26,886 --> 00:11:29,989

We've never done that before and literally didn't know what it looked like.

175

00:11:29,989 --> 00:11:33,225

And if the audience has never seen those images, please go take a look,

176

00:11:33,492 --> 00:11:37,029

because there are crazy like storms up there, especially

177

00:11:37,029 --> 00:11:40,066

on the North Pole that has eight kind of equally spaced storms.

178

00:11:40,066 --> 00:11:43,102

And the super beautiful pattern that you can see in infrared.

179

00:11:43,102 --> 00:11:47,573

And being on the forefront of helping the scientists as an engineer, helping

180

00:11:47,573 --> 00:11:49,041

the scientists get their data

181

00:11:49,041 --> 00:11:52,311

and see what our solar system is like is amazing to me.

182

00:11:52,311 --> 00:11:55,815

We're literally expanding humankind's knowledge of this backyard

183

00:11:56,082 --> 00:11:57,016

that we live in.

184

00:11:57,016 --> 00:11:59,218

And with the Kepler mission

that I also got a chance to work

185

00:11:59,218 --> 00:12:00,853

on, it has really revolutionized

186

00:12:00,853 --> 00:12:05,024

our understanding of how many planets
are out there in our galaxy.

187

00:12:05,257 --> 00:12:08,194

I grew up watching Star Trek,
and the idea of humans being able

188

00:12:08,194 --> 00:12:12,465

to explore different places really drove
a lot of my desire to work in space.

189

00:12:12,732 --> 00:12:15,468

And knowing now that not just
maybe there are planets out there,

190

00:12:15,468 --> 00:12:17,436

but yeah, the galaxy is like dripping

191

00:12:17,436 --> 00:12:19,672

with planets all over the place
and ones that are

192

00:12:19,805 --> 00:12:23,375

in the habitable zones of their star.
So I find that to be super inspiring.

193

00:12:24,577 --> 00:12:25,711

That's beautiful. That's awesome.

194

00:12:25,711 --> 00:12:28,114

Like more planets, more planets.

195

00:12:28,948 --> 00:12:31,250

Hortense, do you mind
if I throw the question at you?

196

00:12:31,250 --> 00:12:35,888

What is it about your work at NASA
and the unknown that inspires you?

197

00:12:37,456 --> 00:12:40,392

Well, Rod, what really inspires me

198

00:12:40,392 --> 00:12:44,296

is, is people like a lot of us,
people inspire me.

199

00:12:44,764 --> 00:12:48,100

And in the Apollo era,

200

00:12:48,267 --> 00:12:51,570

which is the same time that Star Trek

201

00:12:51,570 --> 00:12:56,542

aired, we saw a huge increase
in the number of students

202

00:12:56,542 --> 00:12:58,677

pursuing careers in STEM.

203

00:12:59,712 --> 00:13:04,784

And as was just stated,
I am sure that this people on this panel,

204

00:13:04,784 --> 00:13:08,821

as well as others in the NASA
workforce, was inspired

205

00:13:08,954 --> 00:13:11,590

by the fictional characters of Star Trek.

206

00:13:12,191 --> 00:13:15,194

And I would like to think
that what inspired them

207
00:13:15,461 --> 00:13:18,397
was that the diversity
of the Enterprise crew

208
00:13:18,998 --> 00:13:22,234
and them working together
toward a common goal,

209
00:13:22,568 --> 00:13:26,806
which we all still remember
and some of us can repeat

210
00:13:27,072 --> 00:13:32,444
as exploring strange new worlds,
seeking out new life

211
00:13:32,545 --> 00:13:38,184
and new civilization and boldly
go where no one has gone before.

212
00:13:38,818 --> 00:13:43,522
So as I stated before,
what inspires me is people

213
00:13:43,556 --> 00:13:48,060
working together collectively
and committed to NASA's vision,

214
00:13:48,594 --> 00:13:53,299
which is to reach for new heights
and to reveal the unknown,

215
00:13:53,499 --> 00:13:58,337
so that what we do
and learn will benefit all humankind.

216
00:13:58,938 --> 00:14:02,441

You know, 60 years ago,
children and adults

217

00:14:02,441 --> 00:14:06,846
were inspired by fictional characters
and fictional technology.

218

00:14:07,246 --> 00:14:11,684
But today, people look to NASA
and are inspired

219

00:14:11,684 --> 00:14:16,722
by real technology,
real science, real innovation and passion.

220

00:14:17,022 --> 00:14:21,460
And as a NASA employee,
that is truly what inspires me.

221

00:14:23,629 --> 00:14:24,697
That sounds like the

222

00:14:24,697 --> 00:14:28,868
embodiment of idic right then in there,
what you said, and that's incredible.

223

00:14:29,702 --> 00:14:31,237
Thank you. Thank you.

224

00:14:31,237 --> 00:14:34,406
Swati, if I can share
that question with you.

225

00:14:35,975 --> 00:14:38,477
Absolutely. What is it that inspires you?

226

00:14:39,979 --> 00:14:45,251
So what inspires me is very similar
to JPL's motto: to dare mighty things.

227

00:14:45,251 --> 00:14:49,755

You know, I grew up watching Star Trek,
and the part that I loved best about

228

00:14:49,755 --> 00:14:55,027

it was that for each episode,
it had a way of turning what you thought

229

00:14:55,060 --> 00:14:59,531

you knew about the universe on its head
and making you realize

230

00:14:59,531 --> 00:15:05,004

that there was so much more out there
than what you could comprehend right now.

231

00:15:05,404 --> 00:15:11,076

And the vastness of the universe
and what we know about it is so different

232

00:15:11,076 --> 00:15:15,214

that the part that excites me
most about the missions that we work on

233

00:15:15,214 --> 00:15:20,419

is seeking out that knowledge
in whatever shape or form

234

00:15:20,819 --> 00:15:24,223

that it may come in, seeking out
the knowledge and understanding

235

00:15:24,223 --> 00:15:28,994

of the universe for that purpose
of knowing in the first place.

236

00:15:28,994 --> 00:15:34,600

You know, it transcends company
profits, it transcends country borders.

237

00:15:34,767 --> 00:15:40,372

It's really for the betterment
of all of society and all of humankind.

238

00:15:40,739 --> 00:15:45,544

The latest mission that I got to work on
was Mars 2020 Perseverance rover.

239

00:15:45,844 --> 00:15:52,117

And the main science objective was to seek
out the signs of past life on Mars.

240

00:15:52,117 --> 00:15:57,022

Being able to work on a mission
whose express purpose is to seek out

241

00:15:57,022 --> 00:16:01,994

the signs of life,
very similar to the motto of Star Trek,

242

00:16:02,027 --> 00:16:06,632

goes to these fundamental questions
that affect all of humanity, of

243

00:16:06,799 --> 00:16:08,767

are we alone in the universe?

244

00:16:08,767 --> 00:16:12,805

And as we start answering that,
the answers to that

245

00:16:13,639 --> 00:16:18,711

can have such a profound impact
for society as a whole

246

00:16:18,711 --> 00:16:24,850

and has the opportunity to realize,
you know, Gene Roddenberry's

247

00:16:24,917 --> 00:16:30,022
vision of getting people to understand
that we're not alone.

248
00:16:30,155 --> 00:16:31,857
We're so much more similar.

249
00:16:31,857 --> 00:16:34,960
And to appreciate the differences
and come together

250
00:16:35,361 --> 00:16:39,732
not just as a particular race or species,
but as the whole planet

251
00:16:39,765 --> 00:16:45,771
to accomplish what we want to accomplish
and to explore our universe.

252
00:16:47,172 --> 00:16:48,273
And once again, Jonny.

253
00:16:48,273 --> 00:16:54,313
Last but not least, I'm curious,
what is it about what you've been doing

254
00:16:54,313 --> 00:16:58,751
that inspires you, your contributions
and your experiences with NASA

255
00:16:59,151 --> 00:17:01,253
that have been inspirational to you?

256
00:17:02,521 --> 00:17:06,158
It's great to hear
the various perspectives on

257
00:17:07,126 --> 00:17:11,597
what we're inspired by here
at NASA and in general,

258

00:17:11,630 --> 00:17:14,366

I'm inspired by human efforts

259

00:17:15,667 --> 00:17:20,039

that accomplish hard things,
especially for the betterment of others.

260

00:17:20,739 --> 00:17:24,076

And that's a really general statement
that can be accomplished

261

00:17:24,076 --> 00:17:27,780

in a lot of settings,
not just in space exploration.

262

00:17:27,780 --> 00:17:31,817

But in particular, in space exploration,
we seek hard things.

263

00:17:32,684 --> 00:17:34,920

Human space exploration is hard.

264

00:17:35,721 --> 00:17:37,723

Learning about climate change is hard.

265

00:17:37,723 --> 00:17:41,960

Doing experiments
in microgravity are hard things to do.

266

00:17:43,095 --> 00:17:44,997

Humans have not are not

267

00:17:44,997 --> 00:17:49,168

physiologically able to survive in space.

268

00:17:49,735 --> 00:17:53,639

So doing these things require grand

269

00:17:54,073 --> 00:17:57,943

human efforts in planning and execution
and engineering.

270

00:17:58,277 --> 00:18:03,449

And so that's why I love and I'm inspired
by NASA, that we work as a team.

271

00:18:04,116 --> 00:18:06,552

Just recently, we had some challenges,

272

00:18:06,552 --> 00:18:09,088

some unique challenges
with the space station.

273

00:18:09,688 --> 00:18:13,092

And we as an international team,

274

00:18:13,392 --> 00:18:16,095

collaborated and worked together
to solve that problem.

275

00:18:16,395 --> 00:18:19,131

And so that's what we do here
at NASA on a daily basis.

276

00:18:19,631 --> 00:18:23,435

And it's for the betterment of our Earth,

277

00:18:23,869 --> 00:18:27,439

as well as for humanity, all while

278

00:18:28,207 --> 00:18:32,778

inspiring the next generation of kids,
of explorers and leaders and scientists.

279

00:18:33,479 --> 00:18:36,148

So that's what I'm
really inspired by here at NASA

280

00:18:36,181 --> 00:18:38,851

and why it's just
a phenomenal place to be.

281

00:18:39,585 --> 00:18:43,555

The whole goal of NASA
is to promote that exploration.

282

00:18:43,555 --> 00:18:46,992

And like I said, for knowledge sake, when
you look at the solar system as a whole,

283

00:18:47,226 --> 00:18:51,163

you look at the planet as a whole,
it does transcend all the boundaries.

284

00:18:51,497 --> 00:18:53,932

It provides a platform

285

00:18:54,500 --> 00:18:58,871

to explore the universe
and bring that to the masses

286

00:18:58,871 --> 00:19:02,941

to show that what we can accomplish
if we work together.

287

00:19:03,242 --> 00:19:07,980

When we landed on Mars
just earlier this year, we landed amidst

288

00:19:08,547 --> 00:19:11,850

huge societal changes,
with Black Lives Matter,

289

00:19:12,417 --> 00:19:14,987

in the middle of a pandemic
that was raging in our country,

290

00:19:14,987 --> 00:19:19,558

when people were so uncertain
about what they were going to do,

291

00:19:19,558 --> 00:19:23,829

whether they were going to survive,
if they could even go outside their doors

292

00:19:23,829 --> 00:19:27,599

for one reason or another,
and to see the world come together

293

00:19:27,933 --> 00:19:32,471

in an accomplishment
that really had ties across the world

294

00:19:32,471 --> 00:19:37,910

with scientists on multi
different nationalities, from vendors

295

00:19:37,910 --> 00:19:43,582

across the country, from diaspora
on all aspects of the planet, from Hawaii

296

00:19:43,582 --> 00:19:47,419

to Argentina to India to Philippines
in one room, coming

297

00:19:47,419 --> 00:19:52,891

together to have this accomplishment
of going to another plant for express

298

00:19:53,125 --> 00:19:58,130

purpose of exploring,
not to colonize, not to seek profit,

299

00:19:58,397 --> 00:20:02,034

but to learn, and that learning
benefits all of society.

300

00:20:02,034 --> 00:20:06,939

It gives you an anchor to plant your flag
that people can rally around.

301

00:20:07,239 --> 00:20:10,909

And just having that opportunity
and a platform to plant that anchor

302

00:20:10,909 --> 00:20:15,247

gives one more leg for society
to have the opportunity to rise

303

00:20:15,247 --> 00:20:19,651

above those differences
and have something to come together around

304

00:20:19,651 --> 00:20:23,422

that can help them reach
for the positive aspects

305

00:20:23,422 --> 00:20:27,326

and to see past those differences,
then to focus on the negatives

306

00:20:27,326 --> 00:20:28,660

or the things that divide us.

307

00:20:28,660 --> 00:20:33,799

And I appeal to young people
with your knowledge of science

308

00:20:33,799 --> 00:20:39,504

and engineering and mathematics
to bring that kind of intelligence

309

00:20:39,738 --> 00:20:44,643

to dealing with the
issues of our times here. And

310

00:20:45,944 --> 00:20:49,014

I just, you know – it's wonderful
that we're going out there

311

00:20:49,648 --> 00:20:55,020

and we did inspire with Star Trek
and Gene Roddenberry's vision,

312

00:20:55,320 --> 00:21:01,093

the importance of infinite diversity
in infinite combinations coming together.

313

00:21:01,526 --> 00:21:07,866

But also, we need your kind of minds
working on the problems,

314

00:21:08,367 --> 00:21:13,305

the social justice problems,
that we have in our society today.

315

00:21:13,639 --> 00:21:15,641

I think your point might be,
and then I'm going to stop talking,

316

00:21:15,641 --> 00:21:17,743

I know Horetense is going to chime in too.
No, don't stop! Don't stop!

317

00:21:17,743 --> 00:21:24,583

That even if you agree with the notion
that the kind of challenges

318

00:21:24,583 --> 00:21:26,485

and endeavors that we're doing
in terms of space

319

00:21:26,485 --> 00:21:29,755

exploration are a unifying force,
and that's great.

320

00:21:29,955 --> 00:21:33,125

I think your point is don't assume
that that's going

321

00:21:33,125 --> 00:21:36,428

to do all the work
just behind the scenes because.

322

00:21:36,428 --> 00:21:39,231

Like actually put some mindful
thought into it.

323

00:21:39,231 --> 00:21:42,334

Be thinking about
how we address those problems head on,

324

00:21:42,668 --> 00:21:46,171

as well as doing the exploration
that we're in the midst of.

325

00:21:47,873 --> 00:21:49,775

Correct. I like what

326

00:21:49,775 --> 00:21:52,711

Tracy said, and it kind of hits
on one of the topics

327

00:21:53,512 --> 00:21:57,649

that's near and dear in my heart
is that the diversity

328

00:21:57,649 --> 00:22:01,853

in the teams that we have,
you know, diversity in the science

329

00:22:01,853 --> 00:22:05,023

technology, engineering and math pipeline

330

00:22:05,324 --> 00:22:08,460

is nowhere near as equal as it could be.

331

00:22:08,460 --> 00:22:11,163

That opportunities

332

00:22:11,163 --> 00:22:13,598

in the pipeline to encourage

333

00:22:13,598 --> 00:22:16,702

young students, especially those
from minority backgrounds,

334

00:22:16,702 --> 00:22:21,473

to actually pursue science and technology,
to stay in that pipeline, throughout it.

335

00:22:21,473 --> 00:22:25,444

To even get to a point where we at
NASA can hire them,

336

00:22:26,078 --> 00:22:29,114

could definitely use some effort

337

00:22:29,448 --> 00:22:33,018

and love to just to feed that pipeline.

338

00:22:33,018 --> 00:22:36,521

And until we can get equality in our

339

00:22:36,521 --> 00:22:41,893

teams, we'll never really fully
utilize the people,

340

00:22:41,960 --> 00:22:46,031

the whole society, that we could,
because we won't have

341

00:22:46,031 --> 00:22:49,134

the diversity of mindset,
we won't have the diversity of thought

342

00:22:49,434 --> 00:22:53,305

that will really allow us
to think outside the box to solve

343

00:22:53,605 --> 00:22:57,075

these hard technological problems.

344

00:22:57,075 --> 00:23:00,345

We have innate bias to hire
people just like us.

345

00:23:00,345 --> 00:23:05,217

And it takes effort and conscious effort
to step outside that

346

00:23:05,217 --> 00:23:08,954

and to be able to say,
no, it's useful, it's

347

00:23:08,954 --> 00:23:11,723

valuable to have diversity.

348

00:23:12,090 --> 00:23:15,794

So let's go make an effort
to make sure our teams and our people

349

00:23:15,794 --> 00:23:20,165

reflect society as a whole
so that we can really capitalize

350

00:23:20,165 --> 00:23:25,070

on all the different backgrounds of how
people have been brought up and thought

351

00:23:25,070 --> 00:23:28,807

and experience that will help us to solve
the real challenges

352

00:23:29,174 --> 00:23:32,144
and the real hard challenges
that we can potentially unlock

353
00:23:32,144 --> 00:23:36,515
if we can get to that equality
in the diversity of our teams.

354
00:23:37,449 --> 00:23:39,584
I was going to say, just follow

355
00:23:39,584 --> 00:23:42,587
what you said and say if we can
we can definitely get there,

356
00:23:42,854 --> 00:23:47,726
but we have to be intentional
about getting there.

357
00:23:47,759 --> 00:23:53,198
And it is a circle of things that happen.

358
00:23:53,398 --> 00:23:57,002
We talk about inspiring underserved,

359
00:23:57,002 --> 00:24:00,071
underrepresented minority young people.

360
00:24:00,238 --> 00:24:04,943
But as I stated before,
most of what inspires people is people.

361
00:24:05,110 --> 00:24:11,049
So until we bring some diversity
to the teams now, and we have no excuse

362
00:24:11,049 --> 00:24:15,921
for not being able to do that, it's
not that we don't have people from diverse

363

00:24:15,921 --> 00:24:19,891

backgrounds who have gone out and majored
in these STEM fields and could be

364

00:24:19,891 --> 00:24:23,528

an excellent asset to NASA and what we do.

365

00:24:24,062 --> 00:24:27,466

But for whatever reason,
we are not being creative enough

366

00:24:27,766 --> 00:24:31,236

to go get them and bring them to us
so that then we can

367

00:24:31,236 --> 00:24:36,041

then inspire future generations
to follow in our steps.

368

00:24:36,308 --> 00:24:38,376

So it's not an impossible.

369

00:24:38,543 --> 00:24:41,112

It's something that
we have to be intentional

370

00:24:41,546 --> 00:24:44,983

and work hard and don't
give up on doing it and do it.

371

00:24:45,283 --> 00:24:47,686

We do it just like we want,
just like Jonny said,

372

00:24:47,819 --> 00:24:51,389

we want to explore
for the betterment of humankind here.

373

00:24:51,523 --> 00:24:55,494

We have to make that same decision
that we want to have diversity

374

00:24:55,660 --> 00:24:58,029
for the betterment of humankind here.

375

00:24:59,397 --> 00:25:01,600
Hortense, I completely agree

376

00:25:02,000 --> 00:25:04,803
about the aspects
you talked about being intentional.

377

00:25:05,303 --> 00:25:08,874
And while it's not perfect,
I think here NASA

378

00:25:09,474 --> 00:25:12,544
we have done a phenomenal job
of being intentional

379

00:25:12,811 --> 00:25:17,315
in marching towards that representation
that reflects our society.

380

00:25:17,849 --> 00:25:21,353
The astronaut corps itself
is a diversified group.

381

00:25:21,686 --> 00:25:25,924
And our Artemis mission,
which, as you may know,

382

00:25:26,258 --> 00:25:28,960
is our return to the to the Moon

383

00:25:28,960 --> 00:25:32,697
to stay, is going to have the first woman

384

00:25:32,931 --> 00:25:36,635
and the first person of color
on boots on the ground, on the Moon.

385
00:25:36,635 --> 00:25:41,039
And I mean, that's why,

386
00:25:41,039 --> 00:25:44,042
you know, when I was growing

387
00:25:44,042 --> 00:25:49,514
up, I had a picture of the Apollo 11
crew over my bed.

388
00:25:50,382 --> 00:25:54,152
But as I told you earlier, I had never
once thought to be an astronaut.

389
00:25:54,853 --> 00:25:57,022
All I wanted to do was be a Navy SEAL.

390
00:25:57,022 --> 00:26:00,158
But I didn't think that people,
and even doing that

391
00:26:00,158 --> 00:26:03,728
endeavor, I hadn't met
many Asian SEALs before.

392
00:26:03,762 --> 00:26:05,697
I never met an Asian SEAL before that.

393
00:26:05,697 --> 00:26:12,203
And that's just, when we don't see someone
that we can relate with

394
00:26:12,304 --> 00:26:16,741
in the places we want to be
or the things that we're striving to do,

395

00:26:16,975 --> 00:26:19,578

we just don't think about doing it. It's just the way it is.

396

00:26:19,945 --> 00:26:22,614

And so I never thought I could be an astronaut.

397

00:26:22,614 --> 00:26:25,784

I didn't think people who came from my background, or

398

00:26:26,251 --> 00:26:28,587

people who looked like me, could do something like that.

399

00:26:28,987 --> 00:26:32,057

But then I was introduced I was exposed to that idea.

400

00:26:32,057 --> 00:26:35,694

And I think that's what we do here at NASA, is we strive towards

401

00:26:35,694 --> 00:26:39,497

that representation and to do bold things and to do them together.

402

00:26:41,433 --> 00:26:43,902

You know, Jonny, that's

403

00:26:43,902 --> 00:26:48,640

you know, when I was a kid, my understanding of NASA, JPL

404

00:26:48,640 --> 00:26:51,943

and the other, you know, aeronautics and space-related agencies, industries,

405

00:26:53,278 --> 00:26:55,046
were really about technology

406
00:26:55,046 --> 00:26:59,150
and mechanics, just rockets
and getting people up into space.

407
00:26:59,684 --> 00:27:02,387
And I think what everyone here has done so

408
00:27:02,387 --> 00:27:06,358
well is reeducate me

409
00:27:07,225 --> 00:27:12,831
on NASA, and again, JPL
and all the related industries

410
00:27:13,298 --> 00:27:18,570
are much more than just that, the way
that you guys have have spoken about them

411
00:27:19,037 --> 00:27:22,307
and the work that you've done
and who you've done it with.

412
00:27:23,108 --> 00:27:26,444
And the fact that it's not just a U.S.

413
00:27:26,444 --> 00:27:31,883
or an American quest anymore,
it is a global sort of effort

414
00:27:32,317 --> 00:27:36,187
and that we're working with agencies
all around the world to do these things.

415
00:27:37,389 --> 00:27:41,026
That is I mean, at least from
my point of view, that is the epitome.

416

00:27:41,026 --> 00:27:43,928

That is that is United
Federation of Planets.

417

00:27:43,928 --> 00:27:47,098

That is Starfleet.
NASA is the beginning of that.

418

00:27:47,132 --> 00:27:50,068

And I'm sorry to bring it back
to a fictional story.

419

00:27:50,568 --> 00:27:52,003

The world is not about Star Trek.

420

00:27:52,003 --> 00:27:57,108

However, from my point of view, my interest in celebrating my father's centennial.

421

00:27:58,243 --> 00:28:00,545

I do love the United
Federation of Planets.

422

00:28:00,578 --> 00:28:04,516

I do love the future where we no longer
have borders between us,

423

00:28:05,250 --> 00:28:06,418

literal borders between us.

424

00:28:06,418 --> 00:28:09,287

But we've embraced
the differences among us.

425

00:28:09,320 --> 00:28:13,124

And for you guys to to share

426

00:28:13,124 --> 00:28:16,494

that the projects you've worked on,
the projects you've been involved with,

427

00:28:17,495 --> 00:28:21,833

involve people of all walks of life
everywhere around the world,

428

00:28:22,367 --> 00:28:26,204

and that we need more of
that is what I hear everyone saying.

429

00:28:26,204 --> 00:28:29,040

And I think we all agree with that.

430

00:28:29,207 --> 00:28:31,476

I couldn't be more proud

431

00:28:32,177 --> 00:28:37,015

of not necessarily to be an American,
but to be part of a group

432

00:28:37,682 --> 00:28:42,253

that has NASA, that has people like this
who really believe

433

00:28:42,253 --> 00:28:46,291

in our future of unity
and thrusting into space together.

434

00:28:47,058 --> 00:28:48,626

That is what I'm proud of.

435

00:28:48,626 --> 00:28:52,097

And I thank you guys so much for

436

00:28:53,298 --> 00:28:56,735

sharing your your history, your background
and what you've been working on

437

00:28:56,735 --> 00:29:01,673

and how you've perceived and experienced

NASA, JPL and the other agencies.

438

00:29:02,340 --> 00:29:07,545

I do have one one last question, and it's really just to maybe get some background.

439

00:29:07,545 --> 00:29:09,647

I mean, you guys have shared

440

00:29:09,647 --> 00:29:12,250

the things that you're working on now, but I kind of want to know

441

00:29:13,017 --> 00:29:17,155

how did you get into what you're doing now

442

00:29:17,622 --> 00:29:20,558

and what inspired you to get there?

443

00:29:20,558 --> 00:29:23,261

And I guess if I'm leading this, I'm going to start with

444

00:29:23,862 --> 00:29:27,699

with Jonny first, because Jonny I've picked the last so far every time.

445

00:29:27,732 --> 00:29:31,369

So Jonny, please.

446

00:29:31,503 --> 00:29:34,639

Yeah, I guess I'll give a shorter answer on this, but

447

00:29:37,475 --> 00:29:38,743

it's a good question.

448

00:29:38,743 --> 00:29:41,045

How I got here to where I am today.

449

00:29:41,045 --> 00:29:44,883

I as a boy, I had a lot of challenges

450

00:29:44,883 --> 00:29:48,219

growing up and I wanted to become
the best version of myself.

451

00:29:48,887 --> 00:29:52,524

And the path that I was on
as an adolescent was not leading me there.

452

00:29:53,525 --> 00:29:55,727

And I didn't feel like I had an identity.

453

00:29:56,194 --> 00:29:58,797

I felt in between worlds,

454

00:29:58,797 --> 00:30:03,334

perhaps many people, many panelists on
this can feel I can understand that.

455

00:30:03,334 --> 00:30:05,203

My parents were immigrants.

456

00:30:05,203 --> 00:30:08,540

And culturally, I felt in between worlds.

457

00:30:08,540 --> 00:30:12,243

And something about the warrior culture
of becoming a Navy SEAL

458

00:30:12,243 --> 00:30:14,312

really called out to me. And,

459

00:30:15,513 --> 00:30:18,683

I try to tell you,
it discovered a little bit of who I was.

460

00:30:19,184 --> 00:30:23,755

I discovered the goods and the bads
of humanity, of human struggle.

461

00:30:24,122 --> 00:30:26,825

And I was inspired
to become a physician from there.

462

00:30:27,492 --> 00:30:30,995

And in doing that, I found NASA,

463

00:30:30,995 --> 00:30:35,700

I discovered NASA as a platform
to do what I love to do, which is seek

464

00:30:35,700 --> 00:30:40,538

hard things, challenging things
to push beyond limits.

465

00:30:40,805 --> 00:30:43,508

But at the same time,
make the world a better place.

466

00:30:44,075 --> 00:30:46,444

And, George, you said you're an optimist.
I'm an optimist, too.

467

00:30:46,544 --> 00:30:49,547

And I balance that. I try and balance
that with a sense of realism.

468

00:30:50,915 --> 00:30:52,817

And for me, it's important to

469

00:30:52,817 --> 00:30:56,421

inspire the next generation
because they are our future.

470

00:30:56,855 --> 00:30:59,824

And that's what it means to me
to be here at NASA.

471
00:30:59,824 --> 00:31:01,893

It's that I have an opportunity
to do what I love,

472
00:31:02,026 --> 00:31:04,262
to do the hard things, to explore.

473
00:31:04,662 --> 00:31:07,232
But more importantly,
I get that opportunity

474
00:31:07,866 --> 00:31:11,536
with my fellow astronauts,
with all my teammates at NASA,

475
00:31:11,870 --> 00:31:15,607
to plant the seeds
for those young children watching at home

476
00:31:15,907 --> 00:31:20,044
who get to see us do the impossible, to
work together to achieve the impossible.

477
00:31:20,211 --> 00:31:25,316
And that's what I really enjoy
about being an astronaut here at NASA.

478
00:31:27,585 --> 00:31:29,621
That's amazing, thank you.

479
00:31:30,054 --> 00:31:32,991
I guess if I can hand it
over to you, Swati.

480
00:31:32,991 --> 00:31:37,095
Yeah, how did I get to where I am today?

481

00:31:38,096 --> 00:31:41,099

It's interesting, Jonny, when you say
you felt like you're in between worlds.

482

00:31:41,099 --> 00:31:43,468

I definitely felt like that growing up

483

00:31:44,435 --> 00:31:45,970

as a child of immigrant parents.

484

00:31:45,970 --> 00:31:46,838

I came to the U.S.

485

00:31:46,838 --> 00:31:52,243

when I was one, and for the longest time,
it definitely felt bifurcated.

486

00:31:52,277 --> 00:31:56,481

I was one culture when I was at home
and one culture when I was in school.

487

00:31:56,714 --> 00:32:01,085

And to get beyond that
and get beyond what I thought

488

00:32:01,519 --> 00:32:04,856

an appropriate career
path would be for me, I thought I was

489

00:32:04,856 --> 00:32:07,859

going to be a physician
all throughout growing up, it

490

00:32:07,859 --> 00:32:12,530

took a lot of soul searching
and being honest with myself

491

00:32:12,563 --> 00:32:16,901

as to what I was really passionate about

492

00:32:17,201 --> 00:32:20,939

and what I was really good at.

493

00:32:20,939 --> 00:32:25,877

Like, not to be, not to take in

494

00:32:25,877 --> 00:32:30,381

what I thought I needed to do
or how I thought I needed to be based on

495

00:32:31,215 --> 00:32:35,954

my upbringing or my culture,
but what I really wanted for myself inside

496

00:32:35,954 --> 00:32:40,758

and the space exploration called to me

497

00:32:40,758 --> 00:32:44,462

because it was that final frontier of

498

00:32:44,762 --> 00:32:50,201

this is the place where we really can go
and build the better world

499

00:32:50,201 --> 00:32:53,504

to find the aspects

500

00:32:53,504 --> 00:32:56,808

and bring out the best of all of us.

501

00:32:56,808 --> 00:33:01,679

And being able to contribute
to that goal, to contribute

502

00:33:01,679 --> 00:33:07,018

to seeking the knowledge of this
final frontier was very exciting to me.

503

00:33:07,385 --> 00:33:11,155

You know, I had the privilege
of being the voice of EDL

504

00:33:11,155 --> 00:33:16,127

for the Perseverance landing
and the feedback that I got after it of

505

00:33:16,694 --> 00:33:20,965

all these young students,
so complimentary, seeing me and

506

00:33:21,599 --> 00:33:25,336

the expressions of,
wow, now we think we can do it

507

00:33:25,336 --> 00:33:28,940

because we actually saw someone else
who was doing that.

508

00:33:29,374 --> 00:33:34,846

We're just inspiring
and serve to remind us that

509

00:33:35,413 --> 00:33:38,583

we're not alone,
and even if we think we're just one

510

00:33:38,583 --> 00:33:42,720

small piece of a big puzzle,
there is some pay it forward

511

00:33:42,720 --> 00:33:48,493

responsibility where even if we're not,
you know, in charge of anything,

512

00:33:48,593 --> 00:33:51,796

the opportunities we have
from working in the field

513

00:33:51,796 --> 00:33:55,066

and just paying it forward
to bring the future generation,

514

00:33:55,066 --> 00:34:00,238

we never know what that impact
can have down the line of a phone call

515

00:34:00,238 --> 00:34:03,674

with a student to give a piece of advice
or just shaking a hand,

516

00:34:03,975 --> 00:34:07,045

you know, in a conference, to spend

517

00:34:07,045 --> 00:34:10,081

time with the little kid who wants it.

518

00:34:11,549 --> 00:34:13,017

That exploration and

519

00:34:13,017 --> 00:34:18,056

motivation for others
is also what drives me to give forward

520

00:34:18,056 --> 00:34:21,325

and to use space as a platform
for inspiring others.

521

00:34:22,894 --> 00:34:25,596

Well, thank you, Swati.

522

00:34:26,030 --> 00:34:29,967

Hortense, if I can direct the question
of what inspired you

523

00:34:29,967 --> 00:34:35,073

to get into the field
you're in and where you are today. Wow.

524

00:34:38,176 --> 00:34:42,380

I had no desire to work for NASA,

525

00:34:42,380 --> 00:34:47,118

I didn't even know about a NASA,
to be honest, in

526

00:34:47,752 --> 00:34:52,256

what I wanted to do up until probably

527

00:34:52,256 --> 00:34:56,761

my junior year in high school,
I wanted to be a pediatrician.

528

00:34:58,196 --> 00:35:04,168

But I grew up in a time where in my family
and those around me,

529

00:35:04,168 --> 00:35:08,372

everyone was a teacher
or a general practitioner.

530

00:35:09,340 --> 00:35:16,481

And so you tend to want to do what
you see others, because that's what you

531

00:35:16,681 --> 00:35:19,851

you know, but I knew I didn't
want to be a teacher

532

00:35:20,551 --> 00:35:24,755

and knew I wanted to be a pediatrician
because I've always loved

533

00:35:25,056 --> 00:35:29,894

working with kids and with students,
but didn't want to be a teacher.

534

00:35:30,561 --> 00:35:34,232

But I talked myself out of

535

00:35:34,532 --> 00:35:37,735

going to school,
majoring in biology to be a teacher, why?

536

00:35:38,035 --> 00:35:42,140

Because I didn't see anyone
that looked like me that was doing that.

537

00:35:42,907 --> 00:35:45,977

But I had great math grades,

538

00:35:46,444 --> 00:35:51,916

so I received a scholarship to Prairie
View A&M University in engineering.

539

00:35:52,383 --> 00:35:55,319

And to be honest guys,
I didn't even know what engineering was.

540

00:35:55,319 --> 00:35:56,320

I was like what is it
the man on the back of the train?

541

00:35:58,456 --> 00:36:01,592

What, I'm way too cool for that!

542

00:36:01,626 --> 00:36:06,631

And my mother, in her wisdom,
I don't care what it is.

543

00:36:06,631 --> 00:36:09,634

They've given you a scholarship, you're
going, and that's what you're going to do.

544

00:36:10,368 --> 00:36:12,103

So, you know, of course,

545

00:36:12,103 --> 00:36:16,607

while they're OK, this is not
this is not the way I like this.

546

00:36:17,041 --> 00:36:21,245

And so after graduating,
I started my career

547

00:36:21,913 --> 00:36:26,817

with the Navy, Naval Ordnance Station
and then got married

548

00:36:26,817 --> 00:36:30,321

and needed to relocate,
came to Patrick Air Force Base.

549

00:36:30,755 --> 00:36:34,258

And there was NASA
And I was like, oh, boy,

550

00:36:34,625 --> 00:36:37,328

they have one of those
back in Texas where I'm from.

551

00:36:37,862 --> 00:36:40,531

I need to get over there,
so I can get back to Texas.

552

00:36:40,831 --> 00:36:46,804

So that's really how I got to NASA
was a desire to to move back to Texas.

553

00:36:47,104 --> 00:36:50,675

But after taking guys nine years

554

00:36:50,975 --> 00:36:56,614

to get on with NASA,
I no longer had a desire to go to Texas,

555

00:36:56,981 --> 00:37:02,787
but I loved NASA
because it allowed me to do my passion.

556
00:37:03,354 --> 00:37:05,690
My passion was going
to work with students.

557
00:37:05,990 --> 00:37:08,793
And NASA had this office called education.

558
00:37:09,093 --> 00:37:11,596
I'm like, OK, what do they do?

559
00:37:11,596 --> 00:37:15,666
And I went over there
and I loved their mission, their mission

560
00:37:15,900 --> 00:37:18,536
going out telling students what NASA do

561
00:37:18,736 --> 00:37:21,872
all in the hopes
of inspiring them to go into STEM.

562
00:37:22,106 --> 00:37:28,512
It was just such a full circle thing
for me, a job that I would do for free.

563
00:37:29,080 --> 00:37:32,450
So I just loved it, loved
it, loved loved it.

564
00:37:32,450 --> 00:37:34,518
So I absorbed myself in that.

565
00:37:34,752 --> 00:37:38,289
And as a result of that,
just got opportunities

566

00:37:38,289 --> 00:37:41,892

for other things

and took advantage of those opportunities.

567

00:37:42,159 --> 00:37:43,761

So to go back to what

568

00:37:44,729 --> 00:37:47,198

Jonny said about loving these people.

569

00:37:47,198 --> 00:37:49,267

That is what I love.

570

00:37:49,267 --> 00:37:54,038

I believe that we have to talk

to these young students

571

00:37:54,305 --> 00:37:57,341

because we love our astronauts

and they see them.

572

00:37:57,775 --> 00:38:02,413

But NASA is so much bigger

than our astronauts.

573

00:38:02,713 --> 00:38:06,951

So I want to make sure they know

about the other things that are out there

574

00:38:07,118 --> 00:38:10,988

so that they can find a passion

for what NASA is doing

575

00:38:11,188 --> 00:38:14,458

and be inspired to one day join NASA

576

00:38:14,825 --> 00:38:17,495

in our exploration.

577

00:38:18,329 --> 00:38:20,398

That's amazing. Yes. Yes.

578

00:38:21,499 --> 00:38:26,237

That's amazing. Tracy, if I could throw the last question at you there.

579

00:38:28,239 --> 00:38:30,174

Yeah. So how did I end up at NASA?

580

00:38:30,174 --> 00:38:31,275

I got to say, usually

581

00:38:31,275 --> 00:38:35,780

I don't talk about this piece of it, but Jonny and Swati are reminding me

582

00:38:35,780 --> 00:38:39,317

that I also was a person who was kind of between two worlds.

583

00:38:39,583 --> 00:38:41,552

I grew up in a predominantly black neighborhood

584

00:38:41,552 --> 00:38:43,688

and a working class family in Kentucky.

585

00:38:43,688 --> 00:38:47,191

But from second grade and on, I went to schools

586

00:38:47,191 --> 00:38:49,527

that were in predominantly white neighborhoods,

587

00:38:49,527 --> 00:38:53,564

and I was usually the one or maybe one or two black kids in class.

588

00:38:53,631 --> 00:38:55,266

That's why I sound like this by the way.

589

00:38:55,266 --> 00:38:57,034

the rest of my family
does not talk this way.

590

00:38:57,034 --> 00:39:00,771

And it's interesting to me
that actually the idea

591

00:39:00,771 --> 00:39:05,309

of not seeing someone like myself
and therefore not thinking that

592

00:39:05,309 --> 00:39:06,444

I couldn't do that thing,

593

00:39:06,444 --> 00:39:09,947

that was never a thing for me,
because I so identified with the kids

594

00:39:09,947 --> 00:39:13,517

and the teachers that I was around
all day, that I just assumed I'm

595

00:39:13,517 --> 00:39:15,319

just like you guys,
like everybody else is.

596

00:39:15,319 --> 00:39:17,822

Now, there's a double edged sword to that,
because I was also a bit

597

00:39:17,822 --> 00:39:20,624

cut off from my own people's
culture and history

598

00:39:20,624 --> 00:39:22,727
and only started learning about that
in my 30s or so.

599
00:39:22,727 --> 00:39:25,463
So I'm really not saying, please do that,
all the kids, and it'll be fine.

600
00:39:25,463 --> 00:39:26,697
Like that's not the answer.

601
00:39:26,697 --> 00:39:28,532
But the thing for me

602
00:39:28,532 --> 00:39:31,702
to bring in and something that I think
either Swati or Hortense said,

603
00:39:31,702 --> 00:39:36,207
my mom was a very big influence on my path
because she loves Star Trek.

604
00:39:36,440 --> 00:39:37,475
She and her sisters,

605
00:39:37,475 --> 00:39:39,577
the four of them would run home
from school to watch

606
00:39:39,910 --> 00:39:41,846
because the oldest sister
looked like Uhura.

607
00:39:41,846 --> 00:39:43,848
And they're like, well,
there's a black woman on TV in Star Trek.

608
00:39:43,848 --> 00:39:44,815
Let's go watch it.

609

00:39:44,815 --> 00:39:47,518

And she got firmly sucked
into science fiction

610

00:39:47,518 --> 00:39:49,286

and raised me and my brother on that.

611

00:39:49,286 --> 00:39:52,623

And so around high school, when I was
trying to decide what I wanted to do,

612

00:39:52,890 --> 00:39:55,726

I decided I wanted something
to do with space like

613

00:39:55,760 --> 00:39:59,330

that would keep me interested
for an entire career and allow me to help

614

00:39:59,330 --> 00:40:03,401

the world be more like this awesome
Star Trek show that I grew up with,

615

00:40:03,401 --> 00:40:06,804

even if we can only move the needle
a little bit in my career.

616

00:40:06,837 --> 00:40:10,541

So I studied mechanical engineering
in undergrad and then grad school

617

00:40:10,741 --> 00:40:14,044

and was very, very fortunate
to do an internship at NASA Langley

618

00:40:14,044 --> 00:40:15,446

when I was an undergrad,

619

00:40:15,446 --> 00:40:18,682

and that the same center where the ladies
from Hidden Figures were from.

620

00:40:18,682 --> 00:40:22,920

I had no idea about that history
until the book and the movie came out.

621

00:40:22,920 --> 00:40:25,122

And it was astonishing to me
that I had been walking

622

00:40:25,122 --> 00:40:28,459

those same halls and just had no idea
about all that that had taken place.

623

00:40:28,959 --> 00:40:31,662

And I was very fortunate to get hired
at the Jet Propulsion Laboratory

624

00:40:31,662 --> 00:40:35,032

right after grad school
and have been there for my entire career.

625

00:40:35,199 --> 00:40:38,869

And for me, even though I personally
have gotten to work with a lot of people

626

00:40:38,869 --> 00:40:43,407

from so many different backgrounds
and just educational experiences

627

00:40:43,407 --> 00:40:46,210

and trying to put together these complex
missions, it's been wonderful.

628

00:40:46,477 --> 00:40:47,545

I'll tag onto what Hortense was

629

00:40:48,546 --> 00:40:51,148

saying about the

importance of talking to students

630

00:40:51,148 --> 00:40:54,185

and letting them see like
all of these things that they could do.

631

00:40:54,385 --> 00:40:57,688

And it's not just about the scientists
and the engineers and the astronauts.

632

00:40:57,688 --> 00:41:01,258

We have people who are artists
full time who work at the lab

633

00:41:01,258 --> 00:41:05,296

and lawyers and computer scientists
and teachers and communicators.

634

00:41:05,296 --> 00:41:08,432

And no matter what it is
that you are passionate about doing,

635

00:41:08,432 --> 00:41:13,571

you can find a spot in the space industry
if you want to combine those two passions

636

00:41:13,838 --> 00:41:16,640

and help us as humankind,

637

00:41:16,640 --> 00:41:19,910

go off and explore our surroundings
and our universe.

638

00:41:22,480 --> 00:41:25,382

I'm blown away, guys. I really am.

639

00:41:26,217 --> 00:41:28,686

The entire conversation, your answers here

640

00:41:29,286 --> 00:41:32,289
and truly at my age,

641
00:41:32,323 --> 00:41:36,794
being able to look within and see
a bit more NASA in the space industry

642
00:41:36,794 --> 00:41:40,064
and how it's run today
and the kind of perspectives

643
00:41:40,764 --> 00:41:44,401
it embodies and shares
and the people who work there.

644
00:41:44,635 --> 00:41:47,137
You know, I started this by saying

645
00:41:47,404 --> 00:41:50,608
people would always come up to me
and say they were inspired by Star Trek.

646
00:41:51,509 --> 00:41:54,345
I am so happy to hear

647
00:41:54,778 --> 00:41:58,749
and more that people
are inspired by you guys.

648
00:41:59,683 --> 00:42:03,153
You guys are an inspiration,
the way that you talk about

649
00:42:03,153 --> 00:42:08,025
not just your agencies and where you work,
but why you work there

650
00:42:08,592 --> 00:42:11,662
and your belief in the future
and your belief in humanity.

651

00:42:12,029 --> 00:42:14,598

And that is, you know, again,

652

00:42:14,598 --> 00:42:16,967

from my point of view,
what Star Trek has always been about.

653

00:42:17,701 --> 00:42:20,137

You guys are doing it for real.

654

00:42:20,137 --> 00:42:23,040

Not just going into space
and not just getting people into space.

655

00:42:24,141 --> 00:42:29,413

But again, Star Trek was more than just
sci-fi, it was about humanity's future.

656

00:42:29,914 --> 00:42:32,883

And you guys are incredible.

657

00:42:32,883 --> 00:42:35,786

And to hear what you have to say,

658

00:42:36,220 --> 00:42:39,056

you are helping us work
towards a better future,

659

00:42:39,056 --> 00:42:40,257

and you are the inspiration

660

00:42:40,257 --> 00:42:43,260

for other people to want to make
that better future a reality.

661

00:42:43,260 --> 00:42:45,563

So I can't thank you enough.

662

00:42:45,563 --> 00:42:49,433

I can't thank NASA for letting me
and the Roddenberry Foundation

663

00:42:50,668 --> 00:42:51,769

talk to you all.

664

00:42:51,769 --> 00:42:53,971

I thank you. And I'll do this.

665

00:42:53,971 --> 00:42:56,974

Live long and prosper, everyone.

666

00:42:57,841 --> 00:43:00,210

And I will sum it up by saying

667

00:43:01,211 --> 00:43:04,949

celebrating Gene Roddenberry's one
hundredth birthday

668

00:43:04,949 --> 00:43:08,819

with all of you absolutely convinces me