

A woman with dark hair, smiling and looking slightly to her right. She is wearing a black t-shirt with a circular logo that says 'TARDIS' and features a stylized TARDIS console. The background is a dark, solid color.

EARLY CAREER SPOTLIGHT

BETUL KACAR

1
00:00:01,440 --> 00:00:13,870

[Music]

2
00:00:21,820 --> 00:00:19,510

I first developed an interest in

3
00:00:26,109 --> 00:00:21,830

understanding evolution I was getting a

4
00:00:28,570 --> 00:00:26,119

PhD in chemistry and I started realizing

5
00:00:30,400 --> 00:00:28,580

that public doesn't have an increased

6
00:00:33,640 --> 00:00:30,410

understanding of evolution if any and

7
00:00:35,979 --> 00:00:33,650

with that I started an outreach project

8
00:00:38,800 --> 00:00:35,989

where I translated evolution documents

9
00:00:42,190 --> 00:00:38,810

into different languages and a part of

10
00:00:44,200 --> 00:00:42,200

this was a section on astrobiology and I

11
00:00:48,250 --> 00:00:44,210

didn't even know about the field itself

12
00:00:50,500 --> 00:00:48,260

and I I read about astrobiology and what

13
00:00:55,120 --> 00:00:50,510

kind of questions it can address and I

14

00:00:57,130 --> 00:00:55,130

never back I studied chemistry in Turkey

15

00:00:59,650 --> 00:00:57,140

and I moved to the United States to

16

00:01:01,990 --> 00:00:59,660

study biomolecular chemistry during PhD

17

00:01:04,509 --> 00:01:02,000

and I was interested in enzymes I still

18

00:01:07,480 --> 00:01:04,519

AM I left proteins and I was interested

19

00:01:10,600 --> 00:01:07,490

in their behavior and later I want to

20

00:01:12,880 --> 00:01:10,610

understand how they evolved and more and

21

00:01:15,190 --> 00:01:12,890

more my questions got bigger and the

22

00:01:17,140 --> 00:01:15,200

ability of the field as a whole or the

23

00:01:20,080 --> 00:01:17,150

tools that be using chemistry or

24

00:01:22,389 --> 00:01:20,090

biochemistry felt limited so I did seek

25

00:01:25,359 --> 00:01:22,399

different tools and in a way

26

00:01:28,809 --> 00:01:25,369

astrobiology was obvious direction for

27

00:01:30,489 --> 00:01:28,819

me not because of the title of the field

28

00:01:31,959 --> 00:01:30,499

or the fact that there are a lot of

29

00:01:34,209 --> 00:01:31,969

different Sciences in it but the

30

00:01:37,389 --> 00:01:34,219

questions that I was interested in drove

31

00:01:40,090 --> 00:01:37,399

me to the field so it was inevitable why

32

00:01:42,849 --> 00:01:40,100

is life the way it is the way we see

33

00:01:45,099 --> 00:01:42,859

what through life - the way that we

34

00:01:48,999 --> 00:01:45,109

observe it now but kind of processes

35

00:01:50,679 --> 00:01:49,009

throw life I think understanding or at

36

00:01:54,219 --> 00:01:50,689

least making an attempt to understand

37

00:01:57,249 --> 00:01:54,229

are we alone why are we here what

38

00:01:58,870 --> 00:01:57,259

happened in the past to make our biota

39

00:02:01,059 --> 00:01:58,880

our whole planet to be the way it is

40

00:02:05,529 --> 00:02:01,069

however of the biggest questions you can

41

00:02:07,840 --> 00:02:05,539

ask and the ability of having a field

42

00:02:08,980 --> 00:02:07,850

and reaching to scientists from

43

00:02:11,230 --> 00:02:08,990

different backgrounds that are

44

00:02:13,839 --> 00:02:11,240

interested in these questions is very

45

00:02:16,690 --> 00:02:13,849

exciting if you go back hundred years

46

00:02:18,699 --> 00:02:16,700

ago the questions that astrobiology is

47

00:02:22,240 --> 00:02:18,709

trying to answer right now such as are

48

00:02:24,260 --> 00:02:22,250

we alone or regarded life come from how

49

00:02:26,660 --> 00:02:24,270

the life originates

50

00:02:29,930 --> 00:02:26,670

these were more questions related to

51
00:02:31,970 --> 00:02:29,940
philosophy and the fact that now we have

52
00:02:35,990 --> 00:02:31,980
the scientific tools to answer a

53
00:02:38,120 --> 00:02:36,000
philosophically is very unique if you

54
00:02:41,180 --> 00:02:38,130
think about it we we want to understand

55
00:02:43,880 --> 00:02:41,190
alien planets we want to find alien life

56
00:02:45,530 --> 00:02:43,890
life that is weird to us or life maybe

57
00:02:47,930 --> 00:02:45,540
that is gonna be very similar to what we

58
00:02:50,690 --> 00:02:47,940
have right now but we have no idea of

59
00:02:52,160 --> 00:02:50,700
what happened on one life-forms that we

60
00:02:54,440 --> 00:02:52,170
know the life-forms that we are familiar

61
00:02:57,800 --> 00:02:54,450
with on our own planet if you think

62
00:02:59,660 --> 00:02:57,810
about it our past state this planet were

63
00:03:01,340 --> 00:02:59,670

also different stages of alien

64

00:03:03,590 --> 00:03:01,350

life-forms right

65

00:03:06,320 --> 00:03:03,600

if you time-traveled to two billion

66

00:03:09,500 --> 00:03:06,330

years ago that would be an alien life

67

00:03:11,570 --> 00:03:09,510

for you it would be an alien planet but

68

00:03:13,310 --> 00:03:11,580

how much of this past do we really know

69

00:03:14,090 --> 00:03:13,320

that how much of it do we really

70

00:03:17,060 --> 00:03:14,100

understand

71

00:03:20,750 --> 00:03:17,070

I think astrobiology is right now the

72

00:03:22,640 --> 00:03:20,760

only field and NASA researchers I think

73

00:03:25,430 --> 00:03:22,650

are gonna be the ones that will be able

74

00:03:26,960 --> 00:03:25,440

to help address these questions I also

75

00:03:30,949 --> 00:03:26,970

at that time was reading a lot about

76

00:03:34,100 --> 00:03:30,959

evolution and one of the biggest ideas

77

00:03:36,620 --> 00:03:34,110

in evolution is the idea that whole life

78

00:03:38,210 --> 00:03:36,630

can be viewed as a tape and that we

79

00:03:40,580 --> 00:03:38,220

could perhaps you rind the tape and

80

00:03:44,300 --> 00:03:40,590

replay it and whether this rewind and

81

00:03:46,760 --> 00:03:44,310

replay mix of life tape with results in

82

00:03:49,040 --> 00:03:46,770

the same way that we see it now how

83

00:03:50,600 --> 00:03:49,050

repeatable is life itself and this was a

84

00:03:53,660 --> 00:03:50,610

thought experiment proposed by a

85

00:03:55,699 --> 00:03:53,670

biologist about 30 years ago and I

86

00:03:57,230 --> 00:03:55,709

wanted to give it a try and see perhaps

87

00:04:00,350 --> 00:03:57,240

you know can I develop an experimental

88

00:04:02,660 --> 00:04:00,360

system to address this and I wrote a

89

00:04:05,420 --> 00:04:02,670
grant proposal to the NASA postdoctoral

90

00:04:10,070 --> 00:04:05,430
fellowship and I was denied the first

91

00:04:11,840 --> 00:04:10,080
time and I I called the professors I

92

00:04:13,460 --> 00:04:11,850
called people in astrobiology field I

93

00:04:17,000 --> 00:04:13,470
came to the Stroh biological Prince's

94

00:04:19,250 --> 00:04:17,010
and I asked for a frank response Frank

95

00:04:21,680 --> 00:04:19,260
evaluation of my application I said tell

96

00:04:23,090 --> 00:04:21,690
me the biggest flaw that you see in this

97

00:04:25,100 --> 00:04:23,100
application tell me how can I improve

98

00:04:29,480 --> 00:04:25,110
this how can I get this better because I

99

00:04:30,860 --> 00:04:29,490
want this bad so they they were big you

100

00:04:32,930 --> 00:04:30,870
know they were very brutally honest

101
00:04:33,890 --> 00:04:32,940
which is good which is good and it was

102
00:04:36,220 --> 00:04:33,900
very constructive

103
00:04:39,130 --> 00:04:36,230
so I revised my application

104
00:04:42,030 --> 00:04:39,140
I fix the flaws I did more experiments I

105
00:04:45,130 --> 00:04:42,040
apply it again and then I was granted to

106
00:04:46,900 --> 00:04:45,140
fellowship with that and it was the best

107
00:04:50,980 --> 00:04:46,910
thing that ever happened to me

108
00:04:53,590 --> 00:04:50,990
as astrobiologist especially I would say

109
00:04:55,630 --> 00:04:53,600
that one of the most inspiring events

110
00:04:59,050 --> 00:04:55,640
was astrobiology graduate student

111
00:05:01,690 --> 00:04:59,060
conference at Brad comm and a bunch of

112
00:05:03,400 --> 00:05:01,700
us you know we got together and we

113
00:05:05,020 --> 00:05:03,410

realized that we are not alone we are

114

00:05:07,270 --> 00:05:05,030

all interested in the same kind of

115

00:05:10,240 --> 00:05:07,280

questions and we want to reach out to

116

00:05:13,840 --> 00:05:10,250

more people and that's how we formulate

117

00:05:18,160 --> 00:05:13,850

it and then later conceived second net

118

00:05:20,080 --> 00:05:18,170

and a tool to bring anyone who is

119

00:05:22,540 --> 00:05:20,090

interested in astrobiology regardless of

120

00:05:24,160 --> 00:05:22,550

the background and age to join in an

121

00:05:28,440 --> 00:05:24,170

online conversation about astrobiology

122

00:05:30,880 --> 00:05:28,450

so this was 2011 of grad comm

123

00:05:33,280 --> 00:05:30,890

astrobiology graduate student conference

124

00:05:35,260 --> 00:05:33,290

in Montana and we were all gathered

125

00:05:37,600 --> 00:05:35,270

together in a room I remember the moment

126

00:05:40,030 --> 00:05:37,610

very clearly and we were talking about

127

00:05:42,550 --> 00:05:40,040

the lack of opportunities in order to

128

00:05:45,850 --> 00:05:42,560

reach to people who study astrobiology

129

00:05:47,610 --> 00:05:45,860

and our challenges and our friend

130

00:05:50,410 --> 00:05:47,620

grasshopper who is one of the cofounders

131

00:05:54,070 --> 00:05:50,420

talked about his outreach project in

132

00:05:55,810 --> 00:05:54,080

Tanzania and he said that he would he

133

00:05:57,880 --> 00:05:55,820

was travelling to Tanzania and starting

134

00:06:00,250 --> 00:05:57,890

this outreach program and talking to

135

00:06:03,100 --> 00:06:00,260

kids and he talked about the inability

136

00:06:05,290 --> 00:06:03,110

of the kids to find a mentor or a role

137

00:06:07,830 --> 00:06:05,300

model and the inability of the mentors

138

00:06:10,930 --> 00:06:07,840

to travel to Tanzania at the same time I

139

00:06:13,450 --> 00:06:10,940

was organizing a workshop revolves with

140

00:06:16,450 --> 00:06:13,460

NASA Astrobiology Institute and during

141

00:06:18,910 --> 00:06:16,460

this workshop we realized that we have a

142

00:06:21,760 --> 00:06:18,920

lot of international participants in

143

00:06:24,160 --> 00:06:21,770

fact one of the participants were high

144

00:06:27,850 --> 00:06:24,170

school a group of high school students

145

00:06:30,820 --> 00:06:27,860

who apparently stayed up late so it was

146

00:06:33,370 --> 00:06:30,830

about 11 p.m. this is Turkey and they

147

00:06:35,980 --> 00:06:33,380

they emailed me saying that we be able

148

00:06:37,450 --> 00:06:35,990

to stay up late our teachers here we all

149

00:06:38,920 --> 00:06:37,460

gathered in the conference so when we're

150

00:06:40,150 --> 00:06:38,930

watching the workshop without holes and

151
00:06:43,240 --> 00:06:40,160
we don't speak English but it's

152
00:06:44,620 --> 00:06:43,250
inspiring and I felt so emotional

153
00:06:47,230 --> 00:06:44,630
about this so I shared this story

154
00:06:48,040 --> 00:06:47,240
grasshoppers sharing the other story and

155
00:06:52,029 --> 00:06:48,050
we realized that

156
00:06:54,339 --> 00:06:52,039
they're always interests in other side

157
00:06:56,409 --> 00:06:54,349
of this planet who wants to understand

158
00:06:59,350 --> 00:06:56,419
where we came from - you just don't even

159
00:07:00,490 --> 00:06:59,360
know that there is a field for them and

160
00:07:02,619 --> 00:07:00,500
what can we do about it

161
00:07:04,330 --> 00:07:02,629
so we said why don't we start an online

162
00:07:06,700 --> 00:07:04,340
tool where we bring all these people

163
00:07:09,490 --> 00:07:06,710

together let's add a outreach component

164

00:07:11,559 --> 00:07:09,500

let's add a grassroots component let's

165

00:07:13,899 --> 00:07:11,569

add a mentorship component and see Rael

166

00:07:17,520 --> 00:07:13,909

evolves the product is stagnant

167

00:07:20,920 --> 00:07:17,530

we have mentorship programs we have

168

00:07:23,529 --> 00:07:20,930

conferences very broadcast we have

169

00:07:27,219 --> 00:07:23,539

monthly talk to an astrobiologist future

170

00:07:29,469 --> 00:07:27,229

lots of internationals sign up they come

171

00:07:31,480 --> 00:07:29,479

in they join they ask their questions we

172

00:07:35,170 --> 00:07:31,490

highlight one of our mentors every month

173

00:07:38,320 --> 00:07:35,180

and it's nice because well one of the

174

00:07:41,860 --> 00:07:38,330

problems of graduate students who wants

175

00:07:44,020 --> 00:07:41,870

to mentor or who wants to inspire a

176

00:07:46,119 --> 00:07:44,030

younger person is simply the time

177

00:07:49,089 --> 00:07:46,129

commitment and their schedule not

178

00:07:51,939 --> 00:07:49,099

allowing it's ironic because we are

179

00:07:54,279 --> 00:07:51,949

familiar of this term coined second

180

00:07:55,870 --> 00:07:54,289

effects you do so much outreach that

181

00:07:58,450 --> 00:07:55,880

perhaps your science won't be taken

182

00:08:00,850 --> 00:07:58,460

seriously so we said okay let's let's

183

00:08:03,129 --> 00:08:00,860

take that second effect with the full

184

00:08:04,870 --> 00:08:03,139

astrobiologist spirits turn it around

185

00:08:07,839 --> 00:08:04,880

and make it positive and there's your

186

00:08:10,629 --> 00:08:07,849

second net I think doing outreach helps

187

00:08:13,149 --> 00:08:10,639

you to communicate yourself and what you

188

00:08:16,360 --> 00:08:13,159

do better we have that role as

189

00:08:17,830 --> 00:08:16,370

scientists you may not like it or you

190

00:08:20,469 --> 00:08:17,840

may like it but you have to do it we

191

00:08:22,689 --> 00:08:20,479

have a responsibility to taxpayers we

192

00:08:25,059 --> 00:08:22,699

need to explain to them what we do with

193

00:08:27,339 --> 00:08:25,069

their money why is that important how

194

00:08:29,140 --> 00:08:27,349

are we going to help them how are we

195

00:08:31,330 --> 00:08:29,150

gonna make their life better in the long

196

00:08:34,240 --> 00:08:31,340

term or the short term and if we cannot

197

00:08:35,800 --> 00:08:34,250

explain it to taxpayers it's it's gonna

198

00:08:38,079 --> 00:08:35,810

be problematic in the long run and

199

00:08:41,350 --> 00:08:38,089

that's something that scientists need to

200

00:08:46,000 --> 00:08:41,360

learn so I was a part of this outreach

201
00:08:48,430 --> 00:08:46,010
mentorship program myself in 2014 this

202
00:08:51,069 --> 00:08:48,440
was in Pittsburgh high school in

203
00:08:52,750 --> 00:08:51,079
California the the high school teacher

204
00:08:54,730 --> 00:08:52,760
reached out to us and he said he wants

205
00:08:55,790 --> 00:08:54,740
to integrate astrobiology in his

206
00:09:00,670 --> 00:08:55,800
curriculum

207
00:09:05,930 --> 00:09:03,320
challenged in their background and could

208
00:09:08,720 --> 00:09:05,940
use an opportunity like this where they

209
00:09:11,030 --> 00:09:08,730
can talk to scientists so we teamed the

210
00:09:13,490 --> 00:09:11,040
students up and we divided them into

211
00:09:16,370 --> 00:09:13,500
four groups and then we were assigned to

212
00:09:18,620 --> 00:09:16,380
each group where the idea was for us to

213
00:09:20,720 --> 00:09:18,630

meet them every week and help talk about

214

00:09:23,960 --> 00:09:20,730

an astrobiology concept this was all

215

00:09:26,360 --> 00:09:23,970

online so no travel involved they came

216

00:09:28,310 --> 00:09:26,370

into a room such like this and then we

217

00:09:29,690 --> 00:09:28,320

put we asked them to put their laptop

218

00:09:32,509 --> 00:09:29,700

right in front of them and then we

219

00:09:35,480 --> 00:09:32,519

talked about science concepts and with

220

00:09:38,180 --> 00:09:35,490

with my group we watched Neil deGrasse

221

00:09:40,639 --> 00:09:38,190

Tyson videos we watched Bill Nye the

222

00:09:44,389 --> 00:09:40,649

Science Guy and these kids were coming

223

00:09:46,730 --> 00:09:44,399

from very challenging backgrounds and I

224

00:09:49,370 --> 00:09:46,740

could see in their attitude that almost

225

00:09:51,230 --> 00:09:49,380

like therapy from escaping from the

226

00:09:53,060 --> 00:09:51,240

reality of their daily life the

227

00:09:55,100 --> 00:09:53,070

challenges that they're coming from

228

00:09:56,569 --> 00:09:55,110

families they're immigrants you know

229

00:09:59,240 --> 00:09:56,579

backgrounds that don't fit in the

230

00:10:01,100 --> 00:09:59,250

society or they feel different and weird

231

00:10:03,470 --> 00:10:01,110

and it's really at that age anyway and

232

00:10:06,710 --> 00:10:03,480

as in science is so powerful in that way

233

00:10:08,569 --> 00:10:06,720

that it can especially it's I feel like

234

00:10:11,090 --> 00:10:08,579

astrobiology where you're literally out

235

00:10:13,819 --> 00:10:11,100

of this world in your mind that we could

236

00:10:16,730 --> 00:10:13,829

see the effect in them and they did

237

00:10:18,560 --> 00:10:16,740

actually come up with a very cool final

238

00:10:20,569 --> 00:10:18,570

project and we are still in touch they

239

00:10:22,370 --> 00:10:20,579

write us cards and there one of them

240

00:10:24,530 --> 00:10:22,380

actually is coming out of college so

241

00:10:27,740 --> 00:10:24,540

it's pretty cool you can see the effects

242

00:10:29,780 --> 00:10:27,750

and how it can change and I know it

243

00:10:33,290 --> 00:10:29,790

because that's what astrobiology in

244

00:10:36,260 --> 00:10:33,300

science did for me so I even though I I

245

00:10:39,380 --> 00:10:36,270

was raised in a in an Eastern Muslim

246

00:10:43,400 --> 00:10:39,390

family I wasn't raised no standards of

247

00:10:46,069 --> 00:10:43,410

typical I would say Muslim community

248

00:10:48,380 --> 00:10:46,079

very women are really not really a part

249

00:10:50,120 --> 00:10:48,390

of the society my father was a big

250

00:10:51,920 --> 00:10:50,130

supporter of women in science and women

251
00:10:53,990 --> 00:10:51,930
in technology in business and everything

252
00:10:55,040 --> 00:10:54,000
he said just whatever you do be really

253
00:10:57,259 --> 00:10:55,050
good at it because that's your only

254
00:10:59,840 --> 00:10:57,269
choice because you're a woman he said a

255
00:11:01,550 --> 00:10:59,850
man could get a job without even a

256
00:11:03,889 --> 00:11:01,560
degree but everyone needs to have a

257
00:11:06,199 --> 00:11:03,899
diploma and that never left me

258
00:11:07,819 --> 00:11:06,209
he said they can take everything from

259
00:11:10,340 --> 00:11:07,829
you but not your education that's yours

260
00:11:14,270 --> 00:11:10,350
to keep so I was very dead

261
00:11:16,330 --> 00:11:14,280
and I had that in mind but then the

262
00:11:18,920 --> 00:11:16,340
reality happens right then you meet

263
00:11:23,840 --> 00:11:18,930

already get integrated in a society that

264

00:11:27,740 --> 00:11:23,850

does not see women that way so it wasn't

265

00:11:30,140 --> 00:11:27,750

I went through phases I would say that I

266

00:11:31,760 --> 00:11:30,150

don't see myself different I don't see

267

00:11:33,800 --> 00:11:31,770

myself as a woman I don't see myself as

268

00:11:36,620 --> 00:11:33,810

a man I just see myself as a human being

269

00:11:39,470 --> 00:11:36,630

with curiosity so you don't understand

270

00:11:41,120 --> 00:11:39,480

why you get these challenges that feel

271

00:11:42,380 --> 00:11:41,130

it feels a bit wrong it feels a bit

272

00:11:44,270 --> 00:11:42,390

different that you don't really know

273

00:11:45,800 --> 00:11:44,280

what's going on because you don't look

274

00:11:47,300 --> 00:11:45,810

at yourself and think you're weird

275

00:11:49,000 --> 00:11:47,310

you don't look at yourself think you're

276

00:11:52,070 --> 00:11:49,010

different if you don't have that

277

00:11:56,570 --> 00:11:52,080

intrinsicly in your upbringing but

278

00:12:00,410 --> 00:11:56,580

then it gets put in there so I was

279

00:12:04,070 --> 00:12:00,420

reading this code by Oprah who I love

280

00:12:08,120 --> 00:12:04,080

she said that we do as women we need to

281

00:12:10,940 --> 00:12:08,130

spend a bit of time attaching things

282

00:12:13,820 --> 00:12:10,950

that don't belong to us and then we

283

00:12:16,460 --> 00:12:13,830

spent decades to undo what they did to

284

00:12:18,050 --> 00:12:16,470

us and this is all emotionally and I

285

00:12:18,800 --> 00:12:18,060

think women hearing me will understand

286

00:12:22,010 --> 00:12:18,810

what I'm talking about

287

00:12:23,780 --> 00:12:22,020

I think women needs to keep that in mind

288

00:12:25,280 --> 00:12:23,790

maybe early on that it's not it's not

289

00:12:27,410 --> 00:12:25,290

going to be easy I think if we accept

290

00:12:30,200 --> 00:12:27,420

that you know it's gonna it's gonna be

291

00:12:32,330 --> 00:12:30,210

difficult it's gonna be hard I'm there

292

00:12:35,240 --> 00:12:32,340

will be times where I will hate it but I

293

00:12:36,940 --> 00:12:35,250

can do it and compared to what I think

294

00:12:40,340 --> 00:12:36,950

the generation before us went through

295

00:12:42,800 --> 00:12:40,350

our job is easier and think about that

296

00:12:48,920 --> 00:12:42,810

how hard it must be for them if this is

297

00:12:52,070 --> 00:12:48,930

the easy version I was flying to this

298

00:12:54,320 --> 00:12:52,080

conference and I was sitting next to a

299

00:12:56,660 --> 00:12:54,330

woman who talked about his daughter

300

00:12:57,950 --> 00:12:56,670

daughter to me and she said that my

301

00:12:59,850 --> 00:12:57,960

daughter is interested in space just

302

00:13:02,640 --> 00:12:59,860

like you

303

00:13:04,200 --> 00:13:02,650

I guess my TARDIS t-shirt with NASA logo

304

00:13:06,090 --> 00:13:04,210

and it kind of revealed that I like

305

00:13:08,430 --> 00:13:06,100

space so V that was the conversation

306

00:13:10,500 --> 00:13:08,440

starter and then she said that my

307

00:13:12,660 --> 00:13:10,510

daughter is nine years old and she's

308

00:13:15,210 --> 00:13:12,670

interested in space but I don't think

309

00:13:18,090 --> 00:13:15,220

she's going to make it I asked her why

310

00:13:20,370 --> 00:13:18,100

you say that and she said her school is

311

00:13:22,530 --> 00:13:20,380

very bad doesn't really have a good

312

00:13:24,540 --> 00:13:22,540

curriculum and teachers aren't that

313

00:13:27,870 --> 00:13:24,550

interested in teaching so I don't think

314

00:13:30,390 --> 00:13:27,880

she's going to succeed like you did so I

315

00:13:30,990 --> 00:13:30,400

turned to her and I said I come from

316

00:13:34,170 --> 00:13:31,000

Turkey

317

00:13:34,590 --> 00:13:34,180

I didn't even learn science like not

318

00:13:36,660 --> 00:13:34,600

level

319

00:13:39,150 --> 00:13:36,670

well there was not even real science

320

00:13:41,580 --> 00:13:39,160

curriculum in my high school no woman in

321

00:13:43,470 --> 00:13:41,590

my family made it to high school and I'm

322

00:13:45,300 --> 00:13:43,480

now at Harvard doing astrobiology

323

00:13:48,100 --> 00:13:45,310

research so if I could do it your

324

00:14:02,569 --> 00:13:48,110

daughter can do it

325

00:14:03,470 --> 00:14:02,579

[Music]

