station this is danielle from the Royal Institution in London how do you hear me

and hear a loud and clear excellent hi

Samantha it's great to be talking to you from the Royal Institution Christmas

lectures hello hello everybody great

talking to you now one of the most fascinating things about this for me is

I'm actually talking to you on my mobile phone but I'm guessing that your mobile phone doesn't work up there so how do you communicate with your friends and family it's funny that you mentioned that because I've been up here for about
three weeks and I have never thought about my mobile phone once while when

I'm on earth I'm constantly checking my mobile phone so I guess I am getting over my mobile phone addiction but we are not disconnected from our family and friends up here we have access to the Internet it's a somewhat slow but we do have it and then we have the possibility to given them a call over an IP a voice over IP phone and once a week typically on the weekend we can even see them we have a two-way video conference where we can see them and they can see us that's
amazing and is it a weird feeling for

you to be to be very distant to be

literally the most distant woman from us

at the moment but actually be very connected at the same time

I guess you know I've come to expect it to be this way because the the ISS Space Station has been very well connected for four years now so sometimes I find it yeah even paradoxical when people think about my job as being an astronaut on the space station as being very isolated and it's true that physically of course I am very far away but compared to many
other jobs I actually have really good

possibilities of connections you know I

am thinking about people who I don't

know are deployed on submarines or doing

winter overseas in Antarctica I think we

are the Space Station are way more

connected with earth and with our fellow

human beings and friends and family then

those folks are yes I think you're right

so in in these lectures we are talking

about communication and the limitations

of communication and it's really

wonderful that we can get here and

seeing you from space but that's just

using two of our senses and so what
we're trying to explore in the lectures

is can we go to the next level and use

our other senses to communicate so

wouldn't it be great to be able to reach

out and touch somebody who wasn't there

and share share an experience of all of

the rest of their senses for you in in

space what is the next big goal or

I can think of simple things like for

every example right now we we don't have

continuous coverage on board in terms of

satellites sometimes our antennas are

just not be able are not able to pick up
a satellites for a few minutes sometimes

even 10 15 minutes and so we for that

period of time we say we are in lots of
signals so we lose communication so one

next step could be to have continuous

coverage another next step could be to

to make it easier on board for example

having wireless headsets

well now most of the time we use

headsets that are or microphones that

are connected by a long cable

but then of course what you say is

interesting to be able to see the world

through somebody else's eyes or or even
being able to touch them I think there

is an interesting technology
demonstration which is co-developed by

ISA which is going to fly with fellow

European astronaut of mine under

Morgenson next year so I'm not too

involved to date so I hope I'm not

saying anything is leading but I think

the point is is really that to try and

demonstrate the technology sort of an

augmented reality technology where

people on the ground can see where the

astronaut sees and and the astronaut can

have overlays that augment reality with
with information that can be sent from

00:04:31,680 --> 00:04:38,040
the ground so that all sounds absolutely

00:04:35,519 --> 00:04:40,680
fantastic and very very fascinating and

00:04:38,040 --> 00:04:43,010
I'm sure it would inspire the next

00:04:40,680 --> 00:04:45,990
generation of scientists and engineers

00:04:43,009 --> 00:04:48,110
to get into that work which is what we

00:04:45,990 --> 00:04:51,240
want to do in in the Christmas lectures

00:04:48,110 --> 00:04:53,280
so from your point of view what should

00:04:51,240 --> 00:04:55,470
the next generation of engineer's and

00:04:53,279 --> 00:04:57,719
scientists be working on to help achieve

00:04:55,470 --> 00:05:05,550
those communication goals that you need

00:04:57,720 --> 00:05:07,260
from space well I think the next

00:05:05,550 --> 00:05:08,910
generation of engineers and scientists

00:05:07,259 --> 00:05:11,339
should be working on stuff that I cannot

00:05:08,910 --> 00:05:12,660
even imagine right now because that's
really the cool thing about being in the next generation you know I think you should you know if you try find your own path and especially at the beginning of your career when you're not into the professional environment for that long you can really think out of the box and come up with new solutions so I don't want to you know shed any light on any preconceived path but on the contrary I would encourage people to really think after the box and maybe come up with some revolutionary ideas that's brilliant I'm sure that be very
very inspiring for them as well thank

you so um you've only been in space for

a few weeks now what have you found most surprising about microgravity

I guess I'm surprised but how much I have enjoyed it I am enjoying it I thought you know it would be something that would be fun for a few days and then I would just get used to it and get over it but you know it's just I keep enjoying it so much this this feeling of floating it's something so new and different from what we're used to and you know sometimes I find myself
thinking that it had never been different but I've been floating on my life but of course that's not the case and I find myself exploring new ways of you know controlling my body and and my attitude and my orientation and flying through the station so it's been a lot of fun I'm not very good at it yet so that that's fun too that I'm learning everyday that's good so can you do some practice now because I'm sure all of the audience would like to know have you perfected your somersault yet well to be honest I've done only one somersaulted
the other day and that was by mistake I

00:07:01,689 --> 00:07:07,569
didn't intend to so I will I will hold

00:07:05,228 --> 00:07:08,678
off from that it was wonderful it was

00:07:07,569 --> 00:07:10,360
really great I mean everybody was

00:07:08,678 --> 00:07:13,149
impressed except that I didn't intend to

00:07:10,360 --> 00:07:18,968
do it but so I will hold out from that

00:07:13,149 --> 00:07:20,528
for now and it'll be for a later call so

00:07:18,968 --> 00:07:23,110
yeah you can keep perfecting it and then

00:07:20,528 --> 00:07:29,829
we will keep tracking you on Twitter you

00:07:23,110 --> 00:07:33,610
can tell us when you perfected it yes

00:07:29,829 --> 00:07:35,228
definitely I will okay now obviously

00:07:33,610 --> 00:07:37,629
these are the Christmas lectures so

00:07:35,228 --> 00:07:39,368
we're very close to Christmas so how do

00:07:37,629 --> 00:07:41,139
you celebrate Christmas on the on the

00:07:39,369 --> 00:07:46,629
International Space Station I must be so
different to being at home well of

course it's definitely a day in which we

have time set aside to to talk to our

family and friends as I've mentioned

before we have this opportunities of

video conferences and on special

holidays like like Christmas

of course there's time set aside for

that and then we of course will spend

time together we have a little Christmas

tree here which is planted so to speak

upside down in the in our main lab

and our commander butch wilmore has has

been so thoughtful to set up some I
guess I miss in the world but you know

things for us to gather gifts for each

other so that on on Christmas Day

hopefully all of us will have gifts from

our crewmates and it can be something

simple like somebody's favorite drink

that you come across and you put it

aside for them so that it's going to be

a fun experience on Christmas Day to to

see what your crewmates have set aside

where you oh it's fantastic and at the

interesting to see what sort of gifts

that you give each other except that of

the normal gifts that you would give
each other on earth or they have a
sort of a space theme to them as well
well you know some of us might have
thought ahead I have for example and and
sent up some little things too as
Christmas gifts for for the
crewmates but as I said in my just be
that you know of the supplies that are
on board you know that one of your
crewmates really enjoys for example a
special dessert that you normally would
only come across maybe once a month and
then you you set that aside when you
find it and then that person is going to
be able to enjoy their favorite dessert

00:09:28,500 --> 00:09:35,279
for Christmas yeah that's really nice

00:09:31,860 --> 00:09:37,080
experience so in the in the lectures

00:09:35,279 --> 00:09:38,939
that that we've already filmed so far

00:09:37,080 --> 00:09:41,280
we've been looking at some wonderful

00:09:38,940 --> 00:09:45,030
pieces of Technology and one of them is

00:09:41,279 --> 00:09:47,009
haptic technology and we have seen how

00:09:45,029 --> 00:09:49,919
it can be used for training vets for

00:09:47,009 --> 00:09:54,000
example and it was just amazing I was

00:09:49,919 --> 00:09:55,919
using this piece of haptic technology

00:09:51,389 --> 00:09:55,919
and it was fantastic and I'm guessing

00:09:54,000 --> 00:09:58,799
that haptic tapes quite a lot it's quite

00:09:55,919 --> 00:10:04,709
a big role in the technology for the ISS

00:10:04,710 --> 00:10:08,759
something for the future and I'm not
directly involved with it but I know

that there is an experiment that

specifically studies the this or aims at

developing haptic technology so

definitely something for the future

that's great and I think that will also

in

spire see the next generation of

engineers and scientists as well so it's

been absolutely wonderful talking to you

Samantha thank you so much for your time

I think you're truly inspiring

all the next generation of engineers and

scientists down on earth
well thank you so much I really enjoy

this conversation and well happy

Christmas and happy Christmas to you too

Samantha thank you bye-bye bye-bye thank

you station this is Houston ACR that

concludes the event thank you thank you

you signed the Royal Institution section

we are now resuming operational audio

communication