



1
00:00:00,506 --> 00:00:14,876
[Music]

2
00:00:15,376 --> 00:00:18,346
>> My dad would take me
to JPL when I was little.

3
00:00:18,346 --> 00:00:21,226
They had the open houses there,
and that was really nice,

4
00:00:21,226 --> 00:00:24,046
just because I got to
see that perspective.

5
00:00:24,196 --> 00:00:26,866
I remember there was a
time when I went to JPL,

6
00:00:26,866 --> 00:00:29,956
and there was actually a
female engineer working there,

7
00:00:29,956 --> 00:00:35,086
and I said, "Wow, like, if she
can do that, then why can't I?"

8
00:00:35,086 --> 00:00:37,926
So, that really helped
me see that, you know,

9
00:00:37,926 --> 00:00:39,396
I could work at NASA someday.

10
00:00:39,436 --> 00:00:41,066
If she's doing it, why can't I?

11
00:00:41,326 --> 00:00:45,766
Eight-seventy, right turn, and

work east, ten to ten five.

12

00:00:45,916 --> 00:00:47,806

Five. My name is Steffi Valkov,

13

00:00:47,806 --> 00:00:50,286

and I am a flight

operations engineer at NASA.

14

00:00:50,556 --> 00:00:51,736

Comments,

two five six.

15

00:00:52,706 --> 00:00:55,666

>> NASA eight seven zero IP

inbound 9500 [inaudible].

16

00:00:55,666 --> 00:00:58,096

>> My background is in

aerospace engineering.

17

00:00:58,206 --> 00:01:00,516

I got my bachelor's

at Cal Poly Pomona,

18

00:01:01,166 --> 00:01:05,526

and I always really

wanted to work at NASA.

19

00:01:05,656 --> 00:01:08,626

So, as a flight operations

engineer, what I do is,

20

00:01:08,706 --> 00:01:12,646

I am part of a team that

organizes flight tests,

21

00:01:12,806 --> 00:01:15,706

so my project is called

UAS Integration in the NAS.

22

00:01:16,116 --> 00:01:19,796

The goal of UAS in the
NAS, it's in the name,

23

00:01:19,846 --> 00:01:22,666

is to safely integrate
unmanned aerial systems

24

00:01:22,666 --> 00:01:24,046

into the national airspace.

25

00:01:24,756 --> 00:01:28,966

So, what that means is that
UAVs like Ikhana can fly

26

00:01:28,966 --> 00:01:33,366

with other commercial
airlines and smaller aircraft.

27

00:01:34,136 --> 00:01:36,276

So, what we're doing
during this type

28

00:01:36,276 --> 00:01:39,766

of testing is having Ikhana
fly against a piloted aircraft,

29

00:01:39,856 --> 00:01:44,456

and what we will call these
piloted aircraft is a intruder

30

00:01:44,456 --> 00:01:46,796

or a manned intruder, because
there is an actual pilot

31

00:01:46,796 --> 00:01:47,336

on board.

32

00:01:47,836 --> 00:01:50,776
Ikhana would fly
within close proximity

33
00:01:50,966 --> 00:01:54,326
of the intruder aircraft, a
certain lateral separation

34
00:01:54,496 --> 00:01:57,916
and vertical separation, and
once they would get close,

35
00:01:58,026 --> 00:02:01,566
there would be, sensors would
be able to pick up the intruder.

36
00:02:02,136 --> 00:02:04,386
These are sensors
on board Ikhana,

37
00:02:04,676 --> 00:02:08,566
and we would actually be able to
see those alerts on the displays

38
00:02:09,036 --> 00:02:12,746
so that the pilot, remote pilot
that's on the ground looking

39
00:02:12,746 --> 00:02:17,116
at the display can say, "Okay,
I have an intruder to my left,

40
00:02:17,166 --> 00:02:19,246
so I have to turn
right," for example.

41
00:02:19,246 --> 00:02:21,586
So, the reason we're doing
this is so that one day

42

00:02:21,586 --> 00:02:24,946

when remotely piloted
vehicles are flying more

43

00:02:25,056 --> 00:02:27,986

in the national airspace,
different types of intruders,

44

00:02:27,986 --> 00:02:30,006

as we call them, more safely.

45

00:02:30,406 --> 00:02:34,166

So, one of the main functions
that I have on my project is

46

00:02:34,166 --> 00:02:37,666

that I am in charge of
putting together an operations

47

00:02:37,696 --> 00:02:38,246

working group.

48

00:02:38,296 --> 00:02:41,006

Ted, I have your cards up,

49

00:02:41,086 --> 00:02:43,126

if you want to start
going through them.

50

00:02:43,416 --> 00:02:45,646

So, different concerns
that we look

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00:02:45,646 --> 00:02:50,416

at during these meetings is how
we can most safely fly Ikhana

52

00:02:50,616 --> 00:02:51,996

against a piloted intruder.

53

00:02:52,536 --> 00:02:56,396

So, if you look at how close
we fly during our tests,

54

00:02:56,506 --> 00:02:58,536

we actually brought down
the vertical separation

55

00:02:58,536 --> 00:03:01,926

down to 200 feet, with
0.4 nautical miles'

56

00:03:01,926 --> 00:03:02,886

lateral separation.

57

00:03:03,176 --> 00:03:05,146

Now, this is really important,
because we would discuss

58

00:03:05,146 --> 00:03:07,716

with the pilots, you know, do
you feel comfortable with this?

59

00:03:07,756 --> 00:03:08,706

Do you feel safe?

60

00:03:09,016 --> 00:03:11,996

Would you be able to
acquire visual before,

61

00:03:12,056 --> 00:03:14,116

a certain distance before
the intercept point?

62

00:03:14,166 --> 00:03:15,986

So, this is really
critical, to make sure

63

00:03:15,986 --> 00:03:17,806

that everybody's comfortable
with what we're flying,

64

00:03:17,806 --> 00:03:19,946
because we are flying something
that's considered a little

65

00:03:19,946 --> 00:03:20,546
bit riskier.

66

00:03:20,856 --> 00:03:22,166
But, that's why we're doing it.

67

00:03:22,166 --> 00:03:23,766
That's why we have
the technology there.

68

00:03:23,766 --> 00:03:25,516
We have displays there,
we're looking all that,

69

00:03:25,656 --> 00:03:27,546
and we're testing it
in a safe environment.

70

00:03:28,666 --> 00:03:29,926
When I'm outside of work,

71

00:03:29,926 --> 00:03:33,236
I like to do what's called
a barbershop quartet,

72

00:03:33,236 --> 00:03:35,796
and I'm actually in
an all-female group,

73

00:03:35,896 --> 00:03:38,566
and three of the four
members actually work here

74

00:03:38,566 --> 00:03:39,586
at NASA Armstrong.

75

00:03:39,886 --> 00:03:46,566
>> [Singing] O, say can you
see, by the dawn's early light.

76

00:03:46,566 --> 00:03:49,156
>> A lot of times, we like
to sing at work events,

77

00:03:49,156 --> 00:03:52,096
so if there's, like, a big
event going on, and they need us

78

00:03:52,096 --> 00:03:55,266
to sing the National Anthem,
for example, we get together,

79

00:03:55,266 --> 00:03:57,826
we practice, we do it in the
barbershop style, and then we go

80

00:03:57,826 --> 00:03:59,136
and we sing together
and we perform.

81

00:03:59,506 --> 00:04:00,786
>> [Singing] Through
the perilous fight.

82

00:04:00,936 --> 00:04:02,936
>> The other thing I really
like to do is spend time

83

00:04:02,996 --> 00:04:05,396
with my little sister, Lynn,
and she's also a singer,

84

00:04:05,396 --> 00:04:09,166
so when I get a chance to sing
with her, it's really wonderful.

85

00:04:09,286 --> 00:04:11,896
It gives me a chance to
connect with her in that way

86

00:04:11,896 --> 00:04:13,976
that I think is really special.

87

00:04:14,516 --> 00:04:17,576
[Applause]

88

00:04:18,076 --> 00:04:20,326
>> Beautiful morning, isn't it?

89

00:04:20,326 --> 00:04:21,036
>> Stay us together.

90

00:04:21,036 --> 00:04:24,586
>> Working at NASA has
definitely been rewarding.

91

00:04:25,056 --> 00:04:27,516
This kind of research is paving
the road for what we're going

92

00:04:27,516 --> 00:04:30,406
to be flying one day, and how
things will be in the future,

93

00:04:30,486 --> 00:04:32,956
so it's been really great, and
it does give me a good feeling

94

00:04:32,956 --> 00:04:34,526
at the end of the day, you know?

95

00:04:34,876 --> 00:04:37,946

You work, and you think,
like, oh, I have to do this,

96

00:04:37,946 --> 00:04:41,976

I have to do this, I have,
you know, a meeting tomorrow

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00:04:41,976 --> 00:04:44,326

that I have to get
through, but in the end,

98

00:04:44,406 --> 00:04:47,146

it's really all worth it, when
you sit back and you look,

99

00:04:47,366 --> 00:04:49,376

saying, like, "Wow, like,
I'm actually doing this.

100

00:04:49,376 --> 00:04:51,046

I'm actually a part of this."