SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF SANTA CLARA

CERTIFIED TRANSCRIPT

SZ HUA HUANG, Individually and as successor in interest to WEI LUN HUANG, deceased; TRINITY HUANG, a minor; TRISTAN HUANG, a minor; HSI KENG HUANG; and CHING FEN HUANG,

Plaintiffs,

-vs-

TESLA INC. dba TESLA MOTORS, INC., THE STATE OF CALIFORNIA, and DOES 1 through 100,

Defendants.
_____/

CASE NO. 19CV346663

VIDEOTAPED

DEPOSITION OF DHAVAL SHROFF

Taken before KAREN A. CRANGLE
Certified Shorthand Reporter
State of California
C.S.R. License No. 3816

July 22, 2021

VIDEOTAPED DEPOSITION OF DHAVAL SHROFF

Pursuant to Notice of Taking Deposition, and on Thursday, July 22, 2021, at the hour of 10:00 a.m., at BOWMAN AND BROOKE, LLP, 1741 Technology Drive, Suite 200, San Jose, California, before me, KAREN A. CRANGLE, Certified Shorthand Reporter, personally appeared DHAVAL SHROFF, produced as a witness in the above-entitled action, who, having been first duly sworn, was thereupon examined as a witness to said action.

APPEARANCES

Andrew P. McDevitt, Attorney at Law, WALKUP, MELODIA, KELLY & SCHOENBERGER, 650 California Street, 26th Floor, San Francisco, California, 94108, was present on behalf of the plaintiffs.

Seema Bhatt, Attorney at Law, MINAMI TAMAKI LLP, 360 Post Street, 8th Floor, San Francisco, California, 94108, was present remotely on behalf of the plaintiffs.

Vincent Galvin, Attorney at Law, and Lauren O. Miller, Attorney at Law, BOWMAN AND BROOKE LLP, 1741 Technology Drive, Suite 200, San Jose, California, 95110, were present on behalf of the defendant Tesla, Inc.

Rosemary Love, Deputy Attorney, State of California, Caltrans Legal Division, 111 Grand Avenue, Suite 11-100, Oakland, California, 94612, was present remotely on behalf of the defendant California Department of Transportation.

And there also being present Tesla inhouse counsel Jack Galvin, Brittany Wilson, Lindsey Adams-Hess.

And there also being present Cutler Andrus, videographer, Eureka Street Legal Video.

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I N D E X

Deposition of DHAVAL SHROFF



Plaintiff's Exhibits

[redacted]

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PROCEEDINGS

THE VIDEOGRAPHER: This begins video number one in the deposition of Dhaval Shroff in the matter of Huang versus Tesla, Inc., et al. venued in the Superior Court of the State of California for the County of Santa Clara. The case number is 19CV346663.

Today's date is July 22nd, 2021, and the time on the video monitor is 10:07 a.m.

The video operator today is Cutler Andrus representing Eureka Street Legal Video, (415) 215-2041.

We are located at 1741 Technology Drive in San Jose, California, and the deposition was noticed by the plaintiff.

Will counsel please voice identify yourselves and state whom you represent.

MR. MCDEVITT: This is Andrew McDevitt from Walkup Melodia for plaintiffs.

MR. GALVIN: Vincent Galvin and Lauren Miller are here for Tesla.

MS. LOVE: This is Rosemary Love for the State of California, Department of Transportation.

THE VIDEOGRAPHER: Anybody else on the phone for appearances?

MS. BHAT: Seema Bhatt for plaintiff.

THE VIDEOGRAPHER: The court reporter today is

Karen Crangle representing Crangle Reporting Services.

Will the court reporter please swear in the witness.

DHAVAL SHROFF,

sworn as a witness by the Court Reporter,

testified as follows:

EXAMINATION BY MR. MCDEVITT

MR. MCDEVITT: Q. Good morning. Could you please state your full name for the record.

A. My name is Dhaval Shroff.

Q. And what is your date of birth?

A. February 1st, 1992.

Q. All right. So Mr. Shroff, we have a court reporter in the room today who is transcribing everything that's spoken in the room. I'm going to give you a heads up that you're probably going to need to slow down because I can tell you might speak a little quickly for the court reporter. Okay?

A. Um-hum.

Q. And she can only take down one person speaking at a time so do your best to let me finish a question before you start your response; I will do my best to let you finish your response before I start my next question.

If I find that you're talking over me or I talk over you, I will try to catch that; I'm sure Vince will

catch it, too.

But just try to be patient; pretend like there's only one microphone. Okay?

A. Sounds good.

Q. All right. Fast learner.

I don't want you to guess; I don't want you to speculate; I don't want you to make things up. But I am entitled to your best recollection, your best estimate.

I get that some of the things I'm going to be asking you about likely occurred a number of years ago. There may be things that you do remember in detail; there may be some things that you don't remember in tremendous detail.

I don't know what you remember and what you don't, so I may probe your memory through some questions, but I'm going to rely on you to tell me when you don't remember something versus when you do. Okay?

A. Sounds good.

Q. I don't want you to answer one of my questions if you're confused by it. I'm sure I will get some of the terminology wrong, I can guarantee that, so if I ask a question, and the way I asked it because a term I used is inappropriate, or I used the wrong term or something, just let me know if you're confused. All right?

A. (Nods head.)

Q. That last response there was not quite verbal --

A. Yes.

Q. That's for the purposes of the court reporter. Even though we're videotaping today, the court reporter needs to keep the official transcript. Okay?

A. Sounds good.

Q. If you respond to my questions today, I'm going to believe you heard the question, you understood it, and you're providing a truthful response. Fair enough?

A. Yes.

Q. You understand you're under oath today?

A. Yes.

Q. And even though we're in a conference room, the oath you took today would be the same oath if you were in Court and there was a judge and jury present.

Do you appreciate that?

A. Yes.

Q. You can see the camera in front of you. Just so that you're spared notice, there's at least a potential that videotape of your testimony today or portions of it can be shown to a jury and to a judge if this case proceeds to trial. Okay?

A. Sounds good.

Q. What is your current job title?

A. Autopilot engineer at Tesla.
Q. How long have you been an Autopilot engineer at Tesla?
A. From 2015 February.
Q. And am I correct you started, initially started working for Tesla, when you were in college?
A. That is correct.
Q. And what year was that?
A. June 2014.
Q. Where did you go to college?
A. Carnegie Mellon University, Pittsburgh.
Q. What was your degree there?
A. Master's of Science in Robotic Systems Development.
Q. Where did you complete your undergraduate studies?
A. Mumbai University.
Q. And did you have a focus there?
A. Electronics and Telecommunication.
Q. I didn't ask you this. Did you look at any documents or materials as part of your effort to prepare for the deposition today?
A. No.
Q. And just so that I'm clear, when I say documents or materials, just so we're on the same page,

I'm including things that would be on the computer, so videos or PDFs or anything that -- any sort of media.

A. No.

Q. Okay. Did you speak with anybody in anticipation of your deposition today?

A. My lawyers.

Q. Okay. And how many times did you meet with attorneys prior to your deposition?

A. Twice.

Q. And when were those two occasions?

A. Tuesday and Wednesday of this week.

Q. And what was the duration of time that you spent meeting with attorneys?

A. About six hours on Tuesday and about four hours on Wednesday.

Q. So roughly ten hours total?

A. Yeah.

Q. Okay. And am I correct that in the meetings with the attorneys you didn't review any documents or videos or files. Is that true?

A. That is correct.

Q. You indicated that you started as an Autopilot engineer in February of 2015. Is that true?

A. Yes.

Q. Has your title been the same since you started

in 2015?

A. Autopilot engineer is the external title that we have; we have internal titles as well.

Q. Okay. So when you started with Tesla in February of 2015, were you with a sub group that worked on Autopilot?

A. Yes.

[redacted]

[redacted]

Q. Okay. Now let's focus on that. It's up to the user to determine what lane they want the vehicle in. Right? That's what you said?

A. Yes.

Q. Okay. And the user does that by engaging Autopilot Autosteer when they're within the bounds of a lane. True?

A. The user first goes to the UI where they enable Autopilot or Autosteer feature that they want.

Then they put their eyes on the road. Then they have a stalk next to them which they double press, giving confirmation that, like, this is the lane I want to drive in, and then they keep their eyes on the road and they continue monitoring the lane that the car is driving in. Is this the lane I want to drive in? If so, let the car continue driving in it.

If at any moment when they're sitting in the car and this feature is enabled, if they see the car is not driving in a lane that they want it to drive in, then it's

completely up to their discretion to drive in whichever lane they want to drive in; the car doesn't decide what lane to drive in.

Q. Okay. I'm focused just on there's, with respect to activating Autosteer, there's a moment in time when the driver does that. Right?

A. Just activating Autosteer?

Q. Correct.

A. Yes. The driver can activate Autosteer whenever the icon for activating Autosteer is available, and at that particular moment, the car will keep itself inside the lane that it's immediately in, but that is not true for two seconds after it has been activated, for instance.

Q. So two seconds after a driver enables Autosteer, the vehicle may go into a different lane that it was at the moment it was enabled?

A. Depends on where the driver wants that lane to be. If the lane is the same as what the driver wants it to be, sure.

If the lane is different, than what the driver wants it to be, then the driver needs to put it back in the lane where the driver wants it to be.

The lane is a concept that the driver is -- reminding that this is the lane I want to drive in.

Q. Okay. So let's just break it down again.

So say a person is driving on a freeway, let's say 101 south. And there may be a number of different lanes in that direction. Do you agree?

A. Sure.

Q. Okay. And if the driver is considering enabling Autosteer, one thing they need to do is to look at the user interface on the vehicle, and there's either going to be a steering wheel that's grayed out or is blue. True?

A. Correct.

Q. And if the steering wheel is blue, that is communicating to the driver you are in a location where you can enable Autosteer at this moment. Right?

A. No. If it is gray in color and the steering wheel shows up, that means this is in a location where you can start Autosteer.

Q. No, no. I'm talking about blue. Blues means --

Okay. If you're driving, and you look on your screen on the Tesla, and the steering wheel is colored in in blue, that's telling you, right now driver, if you want to, you can double push the stalk and Autosteer will engage. Right?

A. No.

Q. No?

A. No. When the icon gray-colored steering wheel is available, that is when if the driver wants they can engage Autosteer.

When it's blue, the driver has already confirmed and acknowledged that they want to activate Autosteer.

Q. Okay. So the gray steering wheel is present on the interface when the driver has the option in the moment to enable Autosteer. Right?

A. Yes.

Q. If the steering wheel is not there, that means the driver double pushing the stalk will not engage Autosteer. Correct?

A. Correct. It will give you a warning.

Q. It will make a weird noise --

A. Yeah.

Q. -- ehh, ehh, something like that?

A. Yeah, along those lines.

Q. So if the driver is going on -- they're in a lane on 101 south, and a gray steering wheel is present on their user interface, that signifies to the driver, if you double push the stalk, Autosteer will engage. Correct?

A. Yes.

Q. And Autosteer will, at that moment, whatever lane the person is in, that's the lane that Autosteer is

supposed to continue in. Correct?

A. Depends for how long.

Q. Okay. But in terms of the Autosteer, we're setting aside the Navigate on Autopilot, and actually let me just distinguish.

So the Autosteer for the Autopilot suite that did not have Navigate on Autopilot, if you activate the turn stalk to the left or right when you don't have Navigate on Autopilot, but you're in Autosteer, it won't do anything. Right?

A. It will do a lane change.

Q. It will do an automatic lane change?

A. If you give the turn indicator.

Q. For all vehicles that have Autosteer?

A. Not all of them.

Q. Okay. So if you are a driver of a Tesla vehicle that has Automatic Lane Change as part of your package, you can hit the turn stalk and that will give a request to the vehicle to make a change from the lane you're in to the immediately adjacent lane in whatever direction you hit the turn stalk. Right?

A. As long as it's parallel to the lane you are going in.

Q. Okay. And that's actually -- that would be a way to communicate to the vehicle that you want to move

from the lane that you were in at the time you hit Autosteer to a different lane. True?

A. Yes.

Q. All right. If you don't have Automatic Lane Change, then there isn't a way, with Autosteer still engaged, for the driver to communicate to the vehicle that he or she wants to change lanes. True?

A. No, they can disengage Autosteer and do it themselves.

Q. Okay. Listen carefully. I said with Autosteer engaged. Okay.

So if Autosteer is engaged, and you don't have Automatic Lane Change, there is no mechanism for the driver to communicate to the vehicle: I want to change out of the lane that I'm currently in.

A. Change to a parallel lane? Yes.

Q. Is there some mechanism to change it to a perpendicular lane?

A. I mean if the driver is putting the car in a location where they enable Autosteer, and next moment, the car is not in the lane where the driver wanted Autosteer to be enabled, that could be a different lane for them.

It's the driver's idea of what a lane is. It's not the car's idea of what a lane is; it's the driver's idea of what a lane is. Like what is the definition of a lane

is something that the driver has defined, like these two dashed lines or solid lines? Is that what the driver calls a lane? Then that is what the driver calls a lane.

[redacted]

Q. Okay. But again, the only way for the driver to -- there is no way for the driver to communicate to the vehicle, with Autosteer still engaged, in a vehicle that does not have a Auto Lane Change or Navigate on Autopilot, there is no way to communicate to the vehicle that a driver wants to change a lane.

A. I think communication is something that we define as a user interface, and by "user interface", it means that if the driver wants the vehicle to do anything, in case of a turn indicator, you can put a turn indicator which this car doesn't have. In the other case you can press the brake, steering wheel, anything you want, and do a lane change, which is up to the driver's discretion.

Q. Okay. But all the things you just said, that would disengage Autosteer.

A. Yes.

Q. Okay. So my question was with Autosteer still engaged.

Do you agree that with Autosteer engaged, there is no way for the driver to communicate to the vehicle to move out of the lane that they were in at the time Autosteer was engaged if the vehicle doesn't have Automatic Lane Change or Navigate on Autopilot.

A. Autosteer by definition is expected to keep you within two lanes that the driver agreed is the lane at the immediate moment that they want to drive in.

Q. Okay.

MR. GALVIN: We've been going about an hour and a half. Are you up for a break? I figure we should stop --

MR. MCDEVITT: Yes, that's fine. We can take a break.

THE VIDEOGRAPHER: We are going off the record. The time is 11:26.

(Recess.)

THE VIDEOGRAPHER: We're back on the record. The time is 11:42.

[redacted]

[redacted]

22 [redacted]

[redacted]

He said, quote: "When there is a serious accident, it is almost always, in fact, maybe always, the case that it is an experienced user and the issue is more one of complacency."

Do you agree?

A. I may want to read that to make full sense of it. Or if you could repeat that.

Q. Sure. "When there is a serious accident, it is

almost always, in fact, maybe always, the case that it is an experienced user and the issue is more one of complacency."

A. I don't fully understand that statement. I am guessing it's pointing to the complacency of the driver driving the car?

Q. Yes.

A. Where the driver is not paying attention is what it seems to get to?

Q. That the driver is complacent with its confidence in the system, Autopilot system.

MR. GALVIN: Is that what he said?

MR. MCDEVITT: I'm just reading it, and if in fairness to you, if you don't know, you can say you don't know; if you need to know more, you can say you need to know more.

THE WITNESS: I don't know about it.

MR. MCDEVITT: Q. Do you agree with Elon's statement also from May of 2018 that: "With respect to collisions, it's not a lack of understanding of what Autopilot can do; it's drivers thinking they know more about Autopilot than they do."

MR. GALVIN: What's the question?

MR. MCDEVITT: Do you agree?

THE WITNESS: Those are his words. I have no

response to that.

MR. MCDEVITT: Q. Okay. Have you ever heard the term within Tesla "meat computers"?

A. No.

Q. Have you ever heard Andre Karpathy refer to humans as "meat computers"?

A. Not to my best recollection.

Q. Have you ever heard anybody in the Tesla Software Development team refer to people as "meat computers"?

A. Not to my best recollection.

Q. Have you ever heard the phrase "meat computer"?

A. This is the first time to my best recollection.

MR. MCDEVITT: Okay. I'm going to ask you, again, this is going to relate to Autosteer, so this will be the next exhibit. This is going to be 72.

(Plaintiff's Exhibit 72 was marked for identification.)

MR. MCDEVITT: Q. Okay. Do you see Exhibit 72?

A. Yes.

Q. All right. So I'm going to ask you some questions about Autosteer.

A. Okay.

Q. Do you see this Model X overhead view adjacent to the number 1?

A. Uh, I can see a car there.

Q. Well, that isn't my handiwork; that is a Model X.

THE WITNESS: Okay. If you say so.

MR. GALVIN: I'm going to remind you that he's not here as an expert, so if you're asking him a hypothetical I'm not going to let him answer. But go ahead and ask if so you've made a record.

MR. MCDEVITT: Q. So as to Autosteer, the intended function of Autosteer, am I correct that the intended function of Autosteer, between, if we just look at points 1 and 2 on the road, is to stay within that lane that the vehicle is in at the time that Autosteer is activated. Is that true?

A. At point 1 it should be where it currently is.

And between points 1 and 2, it's up to the driver as to where it goes. And again, I point to, if you start right there, then it should be at point 2.

Q. So let me just break that down.

So between points 1 and 2, there's no predicability as to whether Autosteer will keep the vehicle in the lane that it was in at point 1?

A. Um, Autosteer is a system that's designed with the car's computer and driver in the loop together.

So if the driver in the loop activates Autosteer at

point 1, it depends on the driver's intention of where the car is going, versus where the driver wants it to go. And the driver may want to do something else.

So there is no guarantee based on what the driver's thinking is as to where the car goes after they activate at point 1.

Q. So let me separate the driver's intention and desire from actions by the driver.

So if the driver at point 1 in their head says I want to remain in this lane, and they activate Autosteer, and the entire time between point 1 and point 2 in their head they're saying I really want to stay in this lane. Are you saying then it will stay in the lane?

A. Yes, they can -- if the car tries to do something else, they can turn off Autosteer and stay in that lane, because the driver and the car are working together.

If the car does something that the driver, at any moment, every microsecond between 1 and 2, if the car does something the driver doesn't want it to do, the driver is free to take over and drive themselves to point 2.

Q. Okay. So I'm distinguishing here between interventions and what the car, from the design, the Tesla Autopilot software design perspective, is supposed to do by design.

MR. GALVIN: No, but he's answering it.
MR. MCDEVITT: No, he's not. This is like --
MR. GALVIN: The designing requires the driver's attentive.
MR. MCDEVITT: We're in Fantasyland, though. He's talking like people are like Jeddi knights that can control the car with their heads.
THE WITNESS: That is what every non-Tesla user does, control the car with their hands.
MR. MCDEVITT: Q. Okay. What I'm talking about is there was a design objective and an intended function of Autosteer. True?
A. It is what is provided to the -- provided in the Owner's Manual.
Q. Okay. So am I correct that the intended function of Autosteer is to keep the vehicle in the lanes that it -- between the lane lines that it was in when it was activated, absent other intervention.
A. Depends what a lane you define it as.
Q. Okay. So how does Tesla define a lane?
A. I'm not an expert matter on that subject.
Q. You don't know how --
MR. GALVIN: Don't argue. He's a fact witness. You picked him.
MR. MCDEVITT: Okay.

MR. GALVIN: So you can --

MR. MCDEVITT: Q. Over the course of your six-plus years with Tesla, you have not come to have an understanding of how Tesla defines a lane? Is that true?

A. I'm not the one making the design decision for labeling of lane.

Q. So I'm saying you don't have an understanding. I'm not talking about what somebody else decided to define; I'm talking about you, as a person. Your understanding as a Tesla design engineer, your understanding of what a lane is.

Do you have an understanding?

A. I have my thoughts on it, but those may not be the same as what Tesla's thoughts on a lane are.

Q. Okay. And am I correct that as you sit here today you don't know if your understanding of a lane by definition is the same as what Tesla defines as a lane? Is that true?

A. There are multiple stages in this process where there is somebody who designs the document for labelers as to label lines in an image which is called a lane which is completely abstracted from me.

There is a part where I get measurements which, from the image, tell me this is a lane. I track them, I make some consistency checks, and I make some other

checks, and that is what I pass downstream of it.

So I take in some data as input, I do something with that data, and then I pass it downstream.

The part upstream of me is not a part of my expertise or decision-making; the part downstream of me is not my expertise or decision-making.

So I get some data, and I make some sense of that data, and then it goes downstream.

Q. Okay. What is a lane?

A. It's whatever the network gives out to me and tells me that these are all the points that are defining a lane. So my part of the code, that is what a lane is.

Q. You have a driver's license?

A. I do.

Q. Okay. Just in your lay understanding, what's a lane?

A. It's wherever I intend to go, that is a lane. There may be markings on the ground that might help me where I want to go or there may be no markings on the ground in which case I should still not do a sine wave on the road.

Q. Do you agree that there is no uniform definition of a lane?

A. There may be somebody who has defined what a uniform definition of a lane is, but to my knowledge I use

references around me to determine what a lane is.

Say there's no paint on the ground, but I see a car going in front of me, then I follow that car because I'm presuming that car is driving in its lane.

If there's paint on the ground then I use that as reference to determine what a lane is.

Q. Okay. So then how can you define what Autosteer does without an accepted definition of a lane?

A. Uh, Autosteer does what, when a human decides at that instant moment that if I engage, and Autopilot immediately does something that they expect it to do, and it keeps doing that every second of monitoring what the car is doing, then that is what the design is. The design keeps the human in the loop to monitor exactly what Autopilot is doing at any given point.

Q. Okay. So would you disagree that there are defined lanes on roads like U.S. 101 south?

A. Depends when you're looking at the data and what the image in front of me looks like. I never drive with that view in mind.

Q. So in Exhibit 72, on the side of the road that the vehicle is on that's next to the number, am I correct in your mind you do not know how many lanes are there. Is that true?

A. I mean while driving, I'm never looking at that

view in driving; I'm looking at what I can see from the windshield and drive.

Q. Okay, sir. You're an engineer; you've had to do planned view, projected view. You have to be able to think in 3-D. True?

A. Sure.

Q. So you're not confused by this image, are you?

A. This particular image? No.

Q. Okay. So am I correct that you cannot tell us how many lanes are displayed on this image? Is that true?

A. Can I walk up and point to something?

Q. Sure.

MR. GALVIN: Keep your voice up if you say something.

THE WITNESS: Okay.

So let's say if we are here, I don't know if this is an HOV lane or not an HOV lane; like ignore the rest of the image. I can tell this is one lane, this is two lane, this is three, this is four, this is five, or this is six. I don't know if this is a shoulder at this point, or is it an exit only lane.

Let's move on to somewhere further ahead. At this point, I still don't know if this is an HOV lane or not, or is this a shoulder.

This is a lane; this is a lane; this is a lane;

this is a lane; this is another lane. I don't know if at this point there's one lane or two lanes, or just a wide-open lane ignoring the rest of the picture.

Then once I go here, I know this is an HOV lane; this is an HOV lane; this is not an HVO lane any more; and then this is one lane; this is one lane; this is one lane; and then I know this is a shoulder.

MR. MCDEVITT: Q. Okay. When you were just doing that demonstration, you were doing it from the perspective of instantaneous, what's the information only in this slice of view.

A. Right.

Q. You weren't taking the whole context of the image.

A. No.

Q. Why not?

A. Because totally I was only looking at it in parts and describing.

Q. Okay. But looking at it as a -- you can see the entire image, right?

A. In this particular case? Yes.

Q. Okay. So in this particular image, seeing the entire thing, can you tell us how many lanes there are?

A. Uh, it's still ambiguous. I still don't know if this is one lane or two lanes, and if two vehicles can

drive by side by side, sure, in my mind those are two lanes.

If you are here, is this two lanes? Unclear. Because it's going from being one lane into two lanes.

Q. Okay. Is there anywhere else on the image where you were ambiguous as to whether a lane exists?

A. Um, no.

Q. Okay. So the vehicle next to the number 1, would you agree that vehicle is in a lane?

A. In this particular image context, yes.

Q. Okay. And are you familiar with the lane numbering convention that goes from left to right, one, two, three, four, five?

A. Uh, no.

Q. Okay. If I say that the vehicle next to the number 1 is in lane number two --

A. This one (indicating)?

Q. Yes. No, no, no, sorry. The vehicle that has the blue arrow extending in front of it?

A. This one?

Q. Yes.

A. This is lane number one?

Q. Two.

A. Two. Okay.

Q. So if you're going from left --

A. So the top of the image --
Q. Yes.
A. Okay.
Q. -- one, and then increase by increment of one as you go away.
So do you understand then, at least with that convention, the vehicle that has the arrow in front of it is in lane number two?
A. Yes.
Q. Okay. And Autosteer, by design, the intention is to keep the vehicle in lane number two between points 1 and 2 unless the driver inputs another direction. True?
A. Autosteer does not have access to this view, so I can't comment on that.
Q. Okay. So just in your head go moment by moment. As you progress moment by moment forward, Autosteer, the intention is for it to stay in lane number two between points 1 and point 2?
A. No, Autosteer has no relevancy to this image because it doesn't have access to this image. It has access from the front of the car which is what it looks at, so Autosteer and this image don't go together.
Autosteer looks like something that's in frontal view, so if you show me an image of a frontal view, I can point you to where it will go in the image in the future.

Q. So am I correct that you cannot, you as you are here today, you cannot say that the intention of Autosteer is to keep the vehicle in the number two lane from point 1 to point 2 in this image. Is that true?

A. Like I said, Autosteer has no access to this image, so Autosteer doesn't use this image as an input, so Autosteer doesn't know about point 1 or point 2.

Q. I'm not saying it does. I'm asking you in function, is that what's intended to do?

A. Autosteer is intended to look at what the cameras can see. So if you show me a camera view of Autosteer, I can tell you what is the design and where it's intended to go.

Q. Okay. And I'm just talking about from a lay person description. If you're to say this is what Autosteer does, you cannot say that the function of Autosteer is to keep the vehicle in the number two lane on the road that's shown in Exhibit 72 from point 1 to point 2. You can't say that.

A. Autosteer doesn't have access to this view, so I cannot comment on what Autosteer would do because it could be that like one lane is blocked off with cones or something, or it could be that like there's no marking on the ground that looks like this any more. There's probably sunlight that's playing on your windshield.

There are a lot of conditions that the images show which this view doesn't show, so from the view, I cannot comment on capabilities of Autopilot.

Q. Okay. So let's start, though, by -- you're adding in a number -- you've just added into what I asked you a number of potential scenarios that might cause the vehicle to do something other than stay in a lane.

A. No, I just said what is the difference between looking at this view versus looking at the image that the car sees.

Q. Okay. I understand that. Exhibit 71, in Autosteer, it says: Autosteer keeps the vehicle in its lane.

And if we go to 72, with that definition in mind, you cannot say that Autosteer would keep the vehicle in the lane number two between points 1 and point 2, you can't say that?

A. No, because Autosteer stays in its lane. This is not Autosteer's lane; this is the lane you asked me or you defined that point 1 to point 2 is a lane. That is not what Autosteer is saying is a lane.

Autosteer's view of the world is from a camera. So when Autosteer says it will stay in its lane, it's the lane that it sees from its camera, and has nothing to do with the lane drawn here.

Q. So the lane that Autosteer sees as of March 2018, it may not coincide with the lanes that are on the image 72. True?

A. Because it doesn't have access to this image.

Q. Okay. But as a matter of correlation to the real world, it might not be in the number two lane by the time it gets to number two; you never know.

A. We cannot correlate without looking at data.

Q. Okay. Let's have the data be what is shown on Exhibit 72. Only 72; no cones no spaceships on the road, just what's there. And I'm using spaceships because that's an example of what Elon Musk uses.

MR. GALVIN: Okay. But let's not argue.

THE WITNESS: I can answer that.

So if Autopilot is given this view, it would be a completely different system which would be functionally different, designed differently.

Whereas this is not the view Autopilot looks at, so that stands the fact that Autopilot doesn't have access to this view, so Autopilot drives on views from its camera which are on the vehicle at any point, and not from the satellite view image that is probably pulled from Google Maps or something.

MR. MCDEVITT: Q. Okay. So am I correct that -- my question is: If Autosteer was engaged at point 1 by

the vehicle shown with the blue arrow in front of it, am I correct that you cannot say whether the vehicle, with Autosteer engaged, would be in the same lane by the time it gets to point 2.

A. Yes, that is correct.

Q. And there would be no way for a driver to know whether that would be true, either. True?

A. There's a complete way for a driver to know what would be true because a driver is thinking at what Autosteer thinks the lanes are, they are looking at the road in front of them, they can match what Autosteer's lane looks like as compared to the lane in front of them, and they can determine where the car is going; it's made very clear to the user if they're looking at the user interface and the road in front of them.

Q. My question is different.

My question is from a predictability standpoint, as a driver, as a driver you're saying at point 1, you engage Autosteer, and the driver is wondering, from a predicability standpoint, will I be in the same lane by the time I reach point 2? No way to know.

A. That's hypothetical because the driver doesn't have access to this image while they're sitting in the car, and the computer also doesn't have access to this image when they're sitting in the car.

The driver sees outside from the windshield onto the road, and onto the instrument cluster, and the car sees in front of them using the camera pointed outwards onto the road in front of it. So nobody has access to this image so this image is not relevant for what Autosteer's capabilities are.

Q. Okay. And I want to make clear. I'm not trying to suggest that Autosteer has access to this image.

I'm asking you if a customer, a Tesla owner said, "I want to know how I can expect Autosteer to function."

"Let me say, for example, if I put Autosteer on when my vehicle was at point 1, would I be in the same lane by the time I got to point 2?"

Your response is there's no way to know.

A. Um, I think Tesla in its user manual never shows an image like this and tells you that here is where your car will go --

Q. Sir, let me stop you. That is not my question at all. You are not answering my question. My question is nothing like that, okay?

So I'd like you to answer the question and restrict your response to the question.

If a Tesla customer, an owner of a vehicle, says, "I want to understand how Autosteer functions, will my vehicle, if I engage Autosteer at point 1, by the time I

get to point 2, will I still be in the number two lane?"

No way to know.

A. Not without sitting in the car.

Q. Okay. Now, let's go to page two of Exhibit 72.

Am I correct that there's no way for a Tesla driver to have a predictability as to whether Autosteer will keep his or her vehicle in the same lane between points 2 and 3 on Exhibit 72? Is that true?

A. Unless continuously monitored and seeing that like the car is going where it's -- the user wants them to go, because there's no way for the car to know that the user wants them to go from point 2 to point 3 in Autosteer functionality.

The car only knows about at point 2 I want to stay in the center of the lane where point 2 is, and that is that.

And then the user is basically an input to the system in terms of making sure that the car is doing what they intend the car to do.

So if between point 2 and point 3, if you draw like 100,000 points, and at every point the driver is looking at is this where I expect the car to be, and the car is at that point, I would like to go to the next moment, and so on and so forth. That is what the intended behavior of the Autopilot system is.

Q. So you would disagree that the intended function of Autosteer would be to keep a Tesla vehicle in the number two lane between points 2 and 3. Do you disagree with that. Is that true?

A. Again, this image is not what Autosteer has access to, so going from point 2 to point 3 in this image is irrelevant to Autosteer's design.

Q. Do you agree that there is a lane that exists continuously between points 2 and point 3?

A. There is an overhead bridge, so my best assumption is that there's a lane between 2 and 3, but there is no guarantee what is between 2 and 3 under the bridge.

Like I can interpolate the data and tell you that, like, yes, it's probably the same lane, but otherwise there no way to know like what is under the bridge. Like maybe that road like goes down underground or something and I don't know if 1 and 3 are even connected together from this view.

Q. Okay. So let's go to page three.

Between points 3 and 4 on page three of Exhibit 72 --

A. Um-hum.

Q. -- do you agree that there is a continuous lane?

A. Between points 3 and 4?
Q. Yes.
A. Um, if you don't want to lane change or any of that, in this particular view, if I were to use this view to go from point 3 to point 4, yes, I can draw a straight line.
Q. Okay. So we're in agreement there is a lane that goes between points 3 and 4. True?
A. In this particular view?
Q. Yes.
A. Yes.
Q. Okay. And if Autosteer was engaged on a Tesla vehicle when the Tesla vehicle was at point 3, do you agree that the way that Autosteer is designed would be to keep the vehicle in that lane between points 3 and point 4?
A. No.
MR. GALVIN: Objection. Foundation. Incomplete hypothetical.
MR. MCDEVITT: No?
THE WITNESS: Yeah, because Autopilot again, I would reiterate the fact I said earlier, doesn't have access to this view. So it depends on what the scene looks like when you're at 3. Four might not even be visible in the image for Autopilot.

MR. MCDEVITT: Q. Okay. And what I'm saying is if you're talking about the intended function of Autosteer, as a Tesla vehicle going between points 3 and 4, on this road, you cannot say that the intended function of Autosteer is to keep it in the same lane?

MR. GALVIN: Objection. Incomplete hypothetical. He's not here as an expert. You're basically retracing Mr. Huang's track, and asking him for an opinion about the performance of the vehicle. He's not an expert, and he's got no foundation.

MR. MCDEVITT: I'm asking him about the intended function of Autosteer. That's all I'm asking.

THE WITNESS: The intended function of Autosteer is not looking at this view. So --

MR. MCDEVITT: Okay.

Q. I want to make clear. I'm not suggesting that Autosteer looks at this view. I'm taking a fundamental piece, one piece, intended function of Autosteer is to keep the Tesla in its lane. True?

A. The intended function of Autopilot is to keep the vehicle in the lane the car is seeing in front of it, and this view is pretty fundamental to not being a part of the Autopilot system, so I disagree with you.

MR. GALVIN: Can we go off the record for a second?

THE VIDEOGRAPHER: We are going off the record.

The time is 12:48.

(Discussion off the record.)

(Recess.)

THE VIDEOGRAPHER: We're back on the record. The time is 1:22.

MR. MCDEVITT: Q. Okay. Mr. Shroff, looking at Exhibit 72, I'm on page four. I'm just going to ask you some questions just about terminology.

Going to page three, do you see that on page three, in between the numbers 3 and 4, if you're looking, focusing on the number one and number two lane --

A. Um-hum.

Q. -- the lane lines, the line between the number one lane and the number two lane begins to diverge into two lines?

A. Yes.

Q. And within the Tesla software team, what's the terminology you use to describe an instance where the line between two lanes begins to diverge?

A. Um, there is nothing for the line, but the point at which the line starts diverging, we call it a gore point.

Q. Okay. I've also seen terminology "lane split". Lane split; is that wording used to describe what we see on page three of Exhibit 72 when you have a line between

two lanes that starts to diverge?

A. No.

[redacted]

[redacted]

[redacted]

Q. Have you heard within Tesla the phrasing that "data drives vision"?

A. Not that exact phrase but similar things.

Q. And tell us what you have heard.

A. Um, just big data is the key to solving Computer Vision.

Q. Oh, have you heard vision -- never mind.

Have you heard of what's referred to as the "prime objective" for Autopilot?

A. I vaguely have heard Elon mention that at some point, the word "prime objective". I can't remember if it

was with respect to Autopilot or just prime objective.

Q. And what's your understanding of the prime objective?

A. Um, the main focus.

Q. And have you heard Elon indicate that the prime objective is to not hit anything?

A. Yes.

Q. I asked you earlier if you had done interviews for any podcasts. I didn't ask you: Have you ever had your deposition taken before?

A. No.

Q. Have you ever given testimony under oath before?

A. No.

Q. How many different podcasts have you been on since February 2016?

A. Two.

Q. And what were those two podcasts?

A. What the Hat, W-h-a-t, t-h-e, H-a-t, and Cold Blue Money.

Q. On either of those podcasts did you discuss Autopilot?

A. Yes, from an outsider's perspective.

Q. Did you discuss Autopilot on both podcasts?

A. Potentially.

Q. Okay. And do you recall that in one of the podcasts you indicated that the basic instructions with respect to Autopilot Software Development was don't crash into something?

A. Uh, could have been. I don't exactly remember.

Q. Is that consistent with comments you have made about the basic instructions for Autopilot?

A. Um, internal to the team that is what Elon Musk has often told us, and from my understanding this is also public information where the prime objective is considered an art smash.

Q. Okay. And to the extent you have any anxiety, he has said that in interviews with, for instance, Sandy Monroe.

A. Okay.

Q. And you've heard Elon say that within Tesla, "Don't smash?"

A. Yes.

Q. And "don't smash" meaning don't have Autopilot control the vehicle into a collision scenario.

A. No.

Q. What is "don't smash"?

A. "Don't smash" is prevent the car from smashing into anything, whether the user is in complete control and driving, whether or not Autopilot is engaged or not. It's

a part of our active safety.

Q. Okay. So "don't smash" applies to both the scenario where Autopilot is engaged and the scenario where Autopilot is not engaged?

A. Yes.

Q. And, for instance, when Autopilot is not engaged, there are features such as Forward Collision Warning or Lane Keep Assist and other features that are intended to reduce the probability of a collision. Correct?

A. Yes. And that also includes automatic emergency braking.

Q. What is automatic emergency braking?

A. I'm not an expert to answer that question.

Q. Okay. In what way does automatic emergency braking relate to the prime objective of don't smash?

A. Um, it's one of the features helping to not smash.

Q. And in what way does automatic emergency braking help not smash?

A. Uh, I'm not an expert at the details of how automatic emergency braking works.

Q. And I'm not -- I'm asking you your understanding. And you've commented that you're not an expert on the details, so with that caveat, can you

explain what your understanding of automatic emergency braking is?

A. Sure. Automatic emergency braking applies a brake when it realizes that if the user continues going at whatever speed or direction they are intending to go towards, that would lead to hitting something.

Q. Okay. In the podcast What the Hat you said: "If the car did something that was not close to what the human would have done, then that would have been bad and we cannot actually ship that product."

Do you recall commenting about that topic?

A. Yes.

Q. And what do you mean by that?

A. Um, when we are testing the development build on our cars, and the QA and engineers who go out and drive these development builds, these are non-production softwares, and they encounter something where they would have done something differently compared to the car, and they had to intervene and take over, which basically means that the car did not do what they intended, then we collect that data and we try to address that because I think Elon Musk has also said this in public, that every human intervention that -- I don't think I have the exact quote -- but along the lines of that every human intervention needs to be removed.

Q. You mean prior to a development build being pushed to production vehicles?

A. Yes.

[redacted]

[redacted]

So the driver is the last part of the system which is involved in the closed loop behavior of the Autopilot system, and which is why they're expected to pay attention at all times, keep their eyes on the road, hands on the wheel, and be attentive.

Q. Okay. But, at the back end of that whole process, where you have the controller doing something that could steer the vehicle or accelerate or decelerate the vehicle, there is a way that Tesla can evaluate whether the vehicle is doing what the feature designers intend.

A. The vehicle is doing where it thinks its lanes are and drive.

Q. Right. And do the feature designers, am I correct that the feature designers intend for Autosteer to keep the vehicle within the lane that it started in at the time Autosteer was activated?

A. No.

Q. They don't.

A. The vehicle is designed to keep itself in what its estimate of a lane is, which is what the design document that you showed me earlier also said. The

vehicle will maintain lane center in its lane.

Q. And that's always relative; it has nothing to do with whether there's an absolute truth as to what lane it was in or wasn't.

A. Yes. Which is why the driver needs to determine which lane they want to drive in, because the car will drive in which lane it thinks is the lane to drive in.

Q. And that could include a gore area. True?

A. I cannot comment on that. It determines where the lanes are on the image that is fed in, and wherever it thinks the lanes are, it will try to drive where the lanes are.

And it's up to the driver's determination to determine if where the car thinks the lanes are is the same place as where the driver thinks the lanes are.

Q. Okay. But based on what you've said so far, the Tesla vehicles as of March 2018, there was nothing programmed within the vehicle that intended to prohibit the vehicle from driving in a gore area. True?

A. As of 2018, the Tesla vehicle is capable of staying in lanes which it determines are the lanes without any knowledge of anything else.

Q. And what the Tesla vehicle, as of March 2018, Tesla knew that the vehicles could determine that a gore

area was lane lines.

A. Tesla vehicles were not trained with a neural network that could recognize anything but the lanes that it wants to drive in.

Q. So just focusing on my question, as of March 2018, Tesla knew that its vehicles could determine that the lines that defined a gore area were lane lines.

A. No, that is not correct. Tesla did not know about anything except the part where the vehicle draws lane lines. Or predicts lane lines given an image.

It's up to the driver to determine what those lane lines mean and where those lane lines intend to go.

The Tesla vehicle is capable of determining where it thinks are lane lines, and tries to drive on its lane lines, which would be different as compared to the user's lane lines.

Q. Understood. But the Tesla vehicle in March 2018, it could determine that the lines that form the boundary of a gore were lane lines.

A. I, again, going back to answering it exactly the same way, because it's the exact same question.

Tesla vehicles were capable in March 2018 to detect lane lines given images, and that is what they were capable of doing. They had no other context.

Q. I understand that. Because they had no other

context, there was nothing programmed into the Tesla vehicles that would prevent the vehicle from determining that the boundaries of a gore represented lane lines.

A. There is no gore involved here. The vehicle is supposed to be driving within its determined two lane lines, secondly only to the user who determines where they think the lane lines are.

The Tesla vehicle determines where the lane lines are, and then the user determines where the lane lanes are looking outside the windshield. And if they don't agree, the user is free to disengage Autopilot and drive on their own.

Q. So because of that, though, and with respect to that point, in March 2018, the Tesla vehicle, having lines that define the boundary of a gore area, had no way to know if those lines were lane lines or something else.

A. Gore area is completely out of the question in a Tesla vehicle running March 2018 software because Tesla vehicles were capable of detecting where it thinks there are lane lines. And it's up to the user's discretion to determine if those are the same place they expect there to be lane lines and want the car to drive in.

At any point the car doesn't force the user to go anywhere; the user has complete control of the car to disengage anything that's running and take complete

control.

Q. So I appreciate that you're saying the driver can take over. And my question is not -- that's not my question. My question is different.

Isn't it true that in March of 2018, there was nothing built into the Autopilot software for the production vehicles that would prevent the vehicles from believing that the lines that defined a gore area were lane lines?

A. The Tesla vehicle was equipped to determine lane lines in an image independent of what area it's in.

Q. And in March 2018, a Tesla vehicle could erroneously interpret the lines that define a gore as lane lines.

A. The Tesla vehicle interprets its best estimation based on data it has seen of where lane lines are.

MR. MCDEVITT: Can I have the question read back, Karen?

THE REPORTER: "And in March 2018, a Tesla vehicle could erroneously interpret the lines that define a gore as lane lines."

THE WITNESS: Um, like I said, a Tesla vehicle will detect lane lines given that image based on the neural network that was trained to see a lot of examples

of lane lines. So whatever the neural network recommends there to be lane lines, it predicts there to be lane lines.

Q. Respectfully, you're not answering the question.

If you disagree, then I'm going to ask you why you disagree. But so far, I haven't -- it doesn't seem like you're disagreeing but you're also not saying that this was something that --

MR. GALVIN: Well, erroneous relative to what? Vague.

MR. MCDEVITT: Okay.

Q. So in March 2018, are you saying that there was some feature of Autopilot that prevented a Tesla vehicle from interpreting the lines that define the boundary of a gore area as lane lines?

A. I'm going to answer the question based on the data I have available which is we train the neural network with a lot of examples of human label lane line data, and like any other machine-learning model, it learns using a distribution of data of what lanes lines look like.

And then at test time, it is fed new images from the cars, and it makes its best estimate to put the lane lines in that image.

Q. Okay. Understanding all of that, do you agree

that in March 2018, there was no feature of the Autopilot software that would prevent a Tesla vehicle from interpreting lines that define the boundary of a gore area to be lane lines?

A. I cannot comment on that because I haven't seen data related to it.

Q. You are not aware of any feature of the Autopilot software as of March 2018 that would prevent a Tesla vehicle from interpreting lines that define the boundary area of a gore area to be lane lines. True?

A. I cannot comment on that because that boils down to the hundreds of thousands of labels that the network is trained with and what those labels look like.

Q. Okay. Sir, I'm asking you if you are aware or not aware. Okay?

So it's true, you are not aware of any feature of the Autopilot software that, as of March 2018, would prevent a Tesla vehicle from interpreting lane lines that define the boundary of a gore area to be lane lines for a travel lane.

A. I --

MR. GALVIN: Wait a minute. That misstates his testimony. He's already testified that a 2018 Model X couldn't identify a gore.

MR. MCDEVITT: So why are we getting anything but a

"yes" or a "no"?

MR. GALVIN: Wait a minute. I can start yelling, too. Well, I really can't anymore.

But if it can't identify a gore, how can it identify what the lines are?

MR. MCDEVITT: That's my point. But he's --

MR. GALVIN: Well, why are you asking the question --

MR. MCDEVITT: Because he's saying everything except that. I mean that's the point. Everybody in the room knows that, but you're not saying it.

MR. GALVIN: He's said it multiple times; I didn't make it up.

MR. MCDEVITT: I know that. No, he hasn't said it.

Q. It's true that in March 2018 there was no feature of Autopilot that would prevent the vehicle with Autosteer engaged from interpreting the gore lines to be lane lines.

A. That is completely dependent on the labeling that was done and you would have to look at hundreds of thousand of images that the neural network was trained on to determine what the neural network was trained on to identify as lane lines.

So if a neural network has images in the training area which has lines drawn into the two lines of the gore,

then your claim is legitimate, but since I have not seen all of the data that has been labeled to train the neural network which identifies lane lines, I cannot accept or deny that claim you just made.

Q. Okay. So at least as far as you know, just limiting it to what you know, as of March 2018, there were not any features of Autopilot that would prevent the vehicle with Autosteer engaged from interpreting gore lines to be lane lines.

MR. GALVIN: He just answered that.

THE WITNESS: My extent of knowledge is not covering what was labeled as a lane line. So I cannot comment on any of the lane line labels on what is considered to be a lane line.

MR. MCDEVITT: Q. As of March 2018, as far as you know, was there any feature of Autopilot that had as part of its purpose to prevent a Tesla vehicle with Autosteer engaged from entering a gore area?

MR. GALVIN: Asked and answered.

THE WITNESS: An Autopilot vehicle in March of 2018 is supposed to stay between the two lane lines it determines are lane lines. That is the feature extent of Autopilot in March 2018.

MR. MCDEVITT: Q. And it was independent of whether those lane lines actually represented a gore area.

True?

A. Those lane lines could be different from a human interpretation of where lane lines are. That is the extent of the knowledge that I have about where the neural network predicts lane lines.

Q. Okay. So from the basis of your knowledge, a quality assurance engineer could interpret lines that are to represent the boundary of a gore area and a vehicle at the same time could interpret those to be line lanes.

MR. GALVIN: Objection. Foundation. Calls for speculation as to someone's interpretation.

THE WITNESS: The lane lines based on any driver who is sitting in the car at any time could be different from the neural networks' interpretation of those lane lines, because the driver intent is not the same as the neural network's intent, because this car is not navigating on Autopilot; this car is just expected to stay in the lane at that given moment that the driver has determined is okay in his driver confirmation.

MR. MCDEVITT: Q. And you agree that staying within the lane is not the same thing as controlling the vehicle into a gore area. That is not the same thing as staying in a lane. True?

A. If the driver thinks that is the correct lane, then it is okay. It's completely upon the discretion of

the driver to, at any point -- it's basically considered an acknowledgment that the driver is completely involved when the vehicle is driving on lanes at any point that Autopilot is engaged.

So if the driver sees it fit to where the car is driving, that is considered the driver's intent.

Q. Okay. And so from the perspective of a Tesla software engineer, it was acceptable for a Tesla vehicle to drive into a gore area as long as the driver didn't disagree with that decision?

A. If the driver is attentive and agrees to not do anything about where the car is driving, that is considered a valid decision on the driver's front.

It is the same as what you would do if cruise control is engaged on a car, and the car is going at 70 miles per hour, and there's a sharp curve where you need to slow down to like 30 miles an hour, and the driver decides to not intervene and jumps off of a cliff.

Q. Except for, in that scenario, the driver intended for the vehicle to stay at 70 miles an hour, it did stay at 70 miles an hour, and in my example, the driver intended for the vehicle to stay in its lane, but it's going into a gore area.

A. No, the driver intended for the vehicle to stay in its lane in the given instant that it was at, not

50 meters from now, not 100 meters from now. There's closed-loop behavior of the vehicle which is involved in control of the vehicle.

Q. Okay. What is the basis for your statement that the driver, 100 yards back, did not intend for the vehicle to stay in the same lane that it's in 100 yards from there?

A. The driver is in complete control of the vehicle, so if the driver is letting the vehicle going somewhere, the driver is aware of the fact that the vehicle is going somewhere.

And if the driver decides not to do anything about it, that is considered the driver's intent.

Q. So, if you put on Autosteer, wherever the vehicle goes is fine, doesn't matter if it stays in its lane, goes four lanes over; from the Tesla perspective, that's okay as long as the driver doesn't object.

A. If the driver doesn't object then that means that the car is doing as the driver has intended.

Q. Even though it's moving four lanes.

A. If the driver has intended, then that seems to be the correct thing to do.

If the driver intervenes, that means that the car is doing something wrong. If the driver does not intervene, the interests of Autopilot and driver at that

point are considered aligned.

Q. So from your -- based on that definition, Autosteer can never malfunction.

A. An Autosteer is a convenience feature that has been given to the driver to ease the amount of work that the driver needs to do and not substitute for the driver.

Q. Okay. But you would agree from your definition, Autosteer, it's incapable of malfunctioning. True?

MR. GALVIN: No, no, that's not what he said.

MR. MCDEVITT: That's what you're saying.

THE WITNESS: I did not say that.

MR. MCDEVITT: Q. Okay. At any point in time has Autosteer been capable of malfunctioning?

A. Autosteer can do what the driver intends to do, in which case the driver is free to keep it engaged.

If the Autosteer does something that the driver doesn't intend to do, then driver is free to disengage Autosteer and drive manually.

Q. Okay. So my question was different.

Do you agree that from your perspective it is not possible for Autosteer to malfunction?

A. I did not say that. All I said was Autosteer is an assistance feature to the driver, and driver is in closed-loop control of the vehicle, and the driver can

allow the vehicle to do whatever the driver intends to do.

Q. Okay. Define for us an example.

What would be an example of the Autosteer malfunctioning?

A. Um, I cannot think of an example.

Q. Okay.

[redacted]

[redacted]

Q. Okay. During your employment with Tesla -- well, independent of being involved in the deposition today, did you become aware of the crash with Mr. Huang?

A. Yes.

Q. And when did you first learn about it?

A. Through a news article.

Q. And was the first time you interacted with any attorneys in relation to the crash several days ago?

A. Uh, last week I had a ten, 15-minute call with Ryan. And -- who happens to be one of the Tesla attorneys.

And then yesterday, and day before yesterday, I met with these guys.

Q. Okay. Prior to that had you had any interaction with any attorneys relating to the crash involving Mr. Huang?

A. No.

Q. So you learned about the crash by seeing it on the news. Right?

A. Yes.

Q. Did you hear about it through any discussions with co-workers at work?

A. Some of them heard the same news.

Q. Did you take any steps or were you involved in any efforts to figure out what happened?

A. Not directly with this crash.

Q. Were you indirectly involved with respect to this crash?

A. Not seeing any data, anything similar to this, but I worked on Navigate on Autopilot which involves gores and forks.

Q. Okay. And so let me -- I'm going to be specific right now.

So what I'm wondering is after you learned about this crash, it's a crash obviously involving a Tesla vehicle, and it's within 100 miles of where you work. Right?

A. Yes.

Q. Did you at any point, after the crash, during your time with Tesla, did you do or take any steps where you tried to look at the data or try to figure out what happened?

A. No.

Q. Were you asked at any point to go to the area and do a drive-through to evaluate how a car running Autopilot interacted with the environment?

A. No.

Q. Did you accompany anybody that did that?

A. No.

Q. Who did you have discussions with about this particular crash?

A. I don't remember anyone specific, but a lunchtime discussion with whoever had heard the same news the day it came out.

Q. Okay. Given that you had, with respect to Navigate on Autopilot, some job tasks that related to gores, did you have any discussions with anybody about what the data on the Model X showed with respect to how the Autosteer performed?

A. No.

Q. Were there any discussions within Tesla that you became aware of that were along the lines of, you know, let's see if there's anything that needs to be

changed in the software so that this type of an incident doesn't occur in the future?

A. No.

Q. Did you hear anybody within the Tesla Autopilot software group question whether the Autopilot software had potentially malfunctioned in the moments leading up to the crash?

A. Could you repeat what was the first part? Did I hear it?

Q. Yes.

A. No, I did not hear.

Q. So by that I mean -- okay.

So we talked about earlier Mr. Musk said, or Elon Musk said, you know, "Don't smash." Right?

A. Yes.

Q. And with Mr. Huang's crash you would agree you could put that into the category of a smash into an object?

A. Yes.

Q. And in light of that, was there any discussion about, hey, was there any aspect of Autopilot that perhaps contributed to the crash occurring?

A. Uh, not that I was involved in.

Q. Okay. Did you hear or did you learn of anybody indicating, you know, let's make sure that, you know,

there was nothing that Autopilot did that could have contributed to this crash?

A. I did not hear any of that.

Q. Does Tesla have a human factors division?

A. I don't know what human factors means.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Q. All right.

MR. MCDEVITT: Why don't we take a break here.

THE VIDEOGRAPHER: We're going off the record. The time is 4:11.

(Recess.)

THE VIDEOGRAPHER: We're back on the record. The time is 4:22.

MR. MCDEVITT: Q. In any of the different roles that you've held at Tesla, have you ever had any job responsibilities that related to reviewing accident data?

A. No.

Q. Just so I'm clear, included within that I mean

have you ever had a role where part of your job duties was to look at the data that's from the Car Log in a vehicle that had been in a crash and to review that for some analysis purpose?

A. No.

Q. Okay. All right. I'm going to show you Exhibit 78.

(Plaintiff's Exhibit 78 was marked for identification.)

[redacted]

[redacted]

Q. Okay.

MR. MCDEVITT: I don't have any other questions. Thank you.

MS. MILLER: Rosemary, do you have any questions for the witness? Hearing nothing.

THE VIDEOGRAPHER: We are going off the record. This concludes today's deposition. The time is 6:06 p.m.

(Discussion off the record.)

(Plaintiff's Exhibit 85 was marked for identification.)

(Deposition concluded at 6:07 p.m.)

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DHAVAL SHROFF

STATE OF CALIFORNIA )
) ss
COUNTY OF ALAMEDA )

I, Karen A. Crangle, hereby certify that the witness in the foregoing deposition named

DHAVAL SHROFF

was by me duly sworn to testify to the truth, the whole truth, and nothing but the truth in the within-entitled cause; that said deposition was taken at the time and place herein named; that the testimony of said witness was reported by me, a certified shorthand reporter and a disinterested person, and thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said deposition, nor in any way interested in the outcome of the cause named in said caption.

Date: August 13, 2021

Karen A. Crangle

Karen A. Crangle, C.S.R.

August 13, 2021

DHAVAL SHROFF
c/o Vincent Galvin, Attorney at Law
BOWMAN AND BROOKE LLP
1741 Technology Drive, Suite 200
San Jose, California 95110

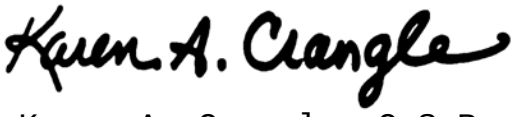
RE: HUANG vs. TESLA

Dear Mr. Shroff:

Your deposition transcript has been prepared and is available at our office for reading, correcting and signing, and shall remain so available for 35 days.

Should you wish to review your deposition transcript, please contact our office for an appointment.

Sincerely,



Karen A. Crangle, C.S.R.

cc: All counsel

Errata Sheet

NAME OF CASE: HUANG vs. TESLA INC., et al.

DATE OF DEPOSITION: 07/22/2021

NAME OF WITNESS: Dhaval Shroff

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