1   **IN THE CIRCUIT COURT OF THE SIXTH JUDICIAL CIRCUIT OF THE STATE FLORIDA, IN AND FOR PASCO COUNTY**

2   **CASE NO. CRC14-0216CFAES**

3

4   STATE OF FLORIDA,

5   Plaintiff,

6   vs.

7   CURTIS J. REEVES,

8   Defendant.

9   _____/

10

11   PROCEEDINGS: TESTIMONY OF ANTHONY IMEL

12

13   DATE: December 16, 2021

14

15   BEFORE: The Honorable Kemba Lewis
                          Circuit Court Judge
16

17

18   PLACE: Robert D. Sumner Judicial Center
                          38053 Live Oak Avenue
                          Dade City, Florida 33523
19

20   REPORTED BY: Charlene M. Eannel, RPR
                          Court Reporter
21

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A-P-P-E-A-R-A-N-C-E-S

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 1              P-R-O-C-E-E-D-I-N-G-S

 2         (The following witness testimony was transcribed

 3    per request of Counsel.)

 4                   *   *   *   *   *

 5         MR. MARTIN:  I don't have any further questions.

 6         THE COURT:  All right.  Thank you.

 7    Cross-examination.
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CROSS-EXAMINATION

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 9    BY MR. ESCOBAR:

10         Q.    Good afternoon.

11         A.    How are you doing, sir?

12         Q.    I'm doing good.

13         MR. ESCOBAR:  Judge, just so the Court knows, I

14    am not going to go through a lot of his background.

15    I'm sure you've read the deposition that I took of

16    him, 400-and-some pages.  So we've had -- we've had

17    some time together.  I just want the Court to know,

18    I'm going to try to cut this as short as I can

19    because you're able to read just like I am on the

20    transcript.

21    BY MR. ESCOBAR:

22         Q.    Now, Mr. Imel, you said that you had some

23    degrees, one in criminal justice; is that correct?

24         A.    I have two -- well, one criminal justice

25    associate's degree, and a bachelor's degree in criminal
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1   investigations.

2   Q.   What is criminal investigations?

3   A.   So it was a new bachelor's degree program, and

4   it was designed less in the managerial section where most

5   of your criminal justice degrees are, and more in the

6   action.

7   So during that time period, I was a tech agent,

8   I was a superintendent of an office in Texas where we took

9   care of investigations in five different states, seven

10   major cities.

11   Q.   Uh-huh?

12   A.   So my direction of law enforcement and my degree

13   lined up with that capability much more than the

14   management side. So I enjoy going out dealing with

15   technique (indiscernible) measures, dealing with

16   surveillance.

17   Q.   Those techniques that --

18   A.   Electronic surveillance was my background. It

19   is my -- that is my forte, you could say.

20   Q.   Now, you work for a department that's called the

21   Digital Evidence Department?

22   A.   The Digital Evidence Laboratory. Within there,

23   I work for the forensic audio, video, and image analysis

24   program.

25   Q.   Okay. So for that particular program, tell me

1 the different levels that you have of individuals that

2 work in that program and what their relative job

3 descriptions are?

4   A.   Right now, we are -- presently, we are down to

5 two sets of individuals. We have one individual who is an

6 audio examiner.

7   Q.   Okay.

8   A.   Then we have, I believe, several different --

9 six of us, I believe, that are photographic technologists.

10   Q.   Okay. Do you have any engineers?

11   A.   There are some engineers. So our audio

12 individual is an engineer. Then my supervisor who is the

13 leader or the senior supervisor is an engineer. Then we

14 have a senior scientist who has several Ph.Ds. He's

15 worked for NASA and a couple of other places.

16   Q.   So what does your supervisor and these other

17 scientists do in reference to your laboratory? What are

18 their functions?

19   A.   A lot of it is research and development. So

20 they research different software programs. We're into --

21 so back in 2014, a lot of us -- or a lot of the laboratory

22 was just enhancement, straight enhancement. That's,

23 actually, been pushed out to the field now.

24   So we are left with senior scientists and

25 examiners such as myself that deal mainly in opinionated

1 testimony.

2   Q. Is that because of budget cuts or?

3   A. Increasing the manpower out in the field, giving

4 them more training. The turnaround is a lot quicker. We

5 used to -- with 20 people, run close to 1,000 -- between

6 700 to 1,000 cases out of the laboratory.

7   Some of them were quick turnaround. Some of

8 them we had, like, 1- or 200 cases of backlog. We've sent

9 most of that out in the field and we're concentrating on

10 murders, rapes, kidnappings, terrorism, the higher impact

11 cases.

12   Q. Gotcha. Now, I reviewed your CV, and I see that

13 you have not published any work yourself?

14   A. No, sir. Most of my work is directly with

15 casework. I work the highest number of cases in the

16 laboratory. I testify the most. I'm on the road the

17 most. I deal with the infrastructure, the computers, the

18 programs, the hot cases that are coming in, the priority

19 cases, such as the Boston bombing, the Pulse Club, the

20 ISIS beheadings, stuff like that.

21   Q. So is it because you're too busy, you haven't

22 published; is that what you're telling me?

23   A. That is not my area of expertise.

24   Q. And do you ever review published material,

25 especially that's been peer-reviewed?

1   A.   I do, yes.

2   Q.   Why is it important for published material to be

3 peer-reviewed?

4   A.   You get different points of view from different

5 individuals in that forensic analysis or that forensic

6 capability.

7   Q.   So it's a testing process to see if the

8 individual that is writing the paper has the agreement of

9 other experts in the field, correct?

10   A.   It's the give and take. Let me put it that way,

11 it's a give and take. You have some people that disagree

12 just to disagree. Some people add some information. It

13 is a process to where, you know, you put your IDs out

14 there and see what people -- you know, how people affect

15 with it, and if you're on the right track.

16   Q.   But you would agree just because you publish a

17 paper it doesn't mean that you are accurate, right, or

18 correct?

19   A.   True.

20   Q.   And you have a lot of people out there that want

21 to publish, right?

22   A.   I guess. I don't know a lot of people.

23   Q.   And may not have the background or the expertise

24 to get it right in that published paper?

25   A.   I won't know. Again, I don't write the papers.

1 I review them every once in a while.

2   Q.   Well, have you ever read some published papers

3 that you think to yourself, Ha, this person has it wrong.

4 I don't know what he's talking about. He's got it

5 completely wrong. You've never done that?

6   A.   I haven't seen any papers that are completely

7 wrong, no.

8   Q.   Okay. You're testifying a lot in courts of law

9 throughout the country?

10   A.   Yes, sir.

11   Q.   How many times have you testified as an expert?

12   A.   Again, I lost count. About 45 to 50.

13   Q.   45 to 50?

14   A.   Yes.

15   Q.   Of those, in what particular area have you been

16 found competent to testify?

17   A.   Well, video enhancement, image comparison, image

18 enhancement, height determinations, authenticity,

19 retrieval of information from the media, such as metadata.

20   Q.   In those 45 to 50, how many in video

21 enhancements?

22   A.   Most of them are tied directly to video

23 enhancement or image enhancement.

24   Q.   So most would be?

25   A.   All.

1   Q.   All of them?

2   A.   Yes.

3   Q.   And in all of them you've used this Bicubic

4   Smoother?

5   A.   No, not all of them.

6   Q.   Okay. In what percentage of those have you used

7   Bicubic Smoother?

8   A.   I wouldn't have a guess. It really depends on

9   the case. Again, with extraction of metadata, I wouldn't

10   have to do an enhancement as far as increasing the size.

11   It's more of an analyzation of the media itself to see the

12   interaction of objects, places, and persons within the

13   video.

14   The output objects would be negligible. During

15   the process, I might resize it, as far as a viewing

16   process, but I wouldn't produce anything.

17   Q.   Well, let me ask you: Is resizing actually an

18   enhancement?

19   A.   Yes, sir.

20   Q.   It is?

21   A.   Yes.

22   Q.   So you would classify that as an enhancement?

23   A.   Yes. You're enhancing the video from its

24   original state.

25   Q.   Okay. Now, before I get too far away, because

I'll forget, you were trying a bit earlier to find one of

the videos that had been pointed out by -- one of the

images, I should say, that had been pointed out by the

prosecution as now not being in the proprietary software

and, for some reason, you couldn't find?

A.   Correct. I'm looking over that. So the initial

video that I processed back in 2015, that was utilized on

a Windows 8 computer. This is now a Windows 10 computer,

so some of the algorithms probably have changed, or some

of the process had changed.

I need to go through and make sure that when I

reestablish that database that it did, in fact, select all

of them.

Q.   But wait a minute. You were viewing the

proprietary system. That's not supposed to change.

That's the raw data in its proprietary format, right?

A.   Correct. And as I stated before, there's a

process where you reestablish the database and something

must have happened in there and a video must have slipped

and not reconnected. So I will go back to my office and

double-check to find where that problem was.

Q.   A video must have slipped? What does that mean?

A.   So the disconnect on the process in which they

have to rebuild the database. Again, I'm just thinking

that is the only possible idea is that it didn't reconnect

1   when I ran this through two nights ago.

2   Q.   I'm getting a little bit confused. You've got

3   the original hard drive, right?

4   A.   Correct.

5   Q.   You're using the proprietary software from the

6   DVR?

7   A.   Correct.

8   Q.   And somehow you're telling me that by using what

9   was supposed to be used to view the video, you're missing

10   an image?

11   A.   What I'm telling you is that the repair

12   functionality that I have stated before probably didn't

13   find that video. So I will have to go back through and

14   find out what happened.

15   Q.   Well, repair --

16   A.   Correct.

17   Q.   -- the process?

18   Well, do you know how that process even works,

19   the repair process?

20   A.   As I've stated before, that I'm not a computer

21   engineer. I didn't write the program. I'm going by the

22   manual that says repair the database, establishing that

23   link between the database itself, the raw video, and

24   linking it up with the proprietary.

25   Q.   Do you know who even wrote the manual?

1   A.   That would be someone, I believe, over in

2   Thailand.

3   Q.   Do you know the competency of that person that

4   wrote the manual?

5   A.   No, I don't.

6   Q.   Do you know the educational background of the

7   person who wrote the background?

8   A.   No, sir.

9   Q.   So let's talk a little bit about the beginning

10   of your involvement in this case.

11   A.   Yes, sir.

12   Q.   It's my understanding that you never went to the

13   Cobb Theater; is that correct?

14   A.   Not in a professional capacity in dealing with

15   this case directly. I've been there for a movie the last

16   time I was there.

17   Q.   Do you know what theater you actually saw that

18   movie?

19   A.   No.

20   Q.   Do you know what theater this was at the time?

21   A.   I don't recall.

22   Q.   Do you know if the theaters are even similar or

23   even alike in the one that you went to?

24   A.   Not that I recall. No, sir.

25   Q.   Okay. So at no point in time did Mr. Martin or

1 anybody ask you to come over, let's go to the Cobb

2 Theater, let me show you around, let me show you where the

3 cameras were, let me show you where the DVRs were?

4   A.   No, sir. Typically, I don't get involved with

5 the extraction process in a state case. That's usually

6 passed on to me later as it was.

7   Q.   In a state case?

8   A.   Yes.

9   Q.   But I think you talked about the Boston bomber

10 case that you actually went in to assist in actually

11 retrieving the DVRs?

12   A.   The FBI took over that case and I was sent up

13 there by the FBI to help process and locate the

14 individuals.

15   Q.   Did you actually take the DVRs?

16   A.   Not in the -- not the DVRs. I extracted media

17 from the DVRs in a couple of instances, yes.

18   Q.   Why would you do that?

19   A.   Because I was requested to help assist in the

20 investigation.

21   Q.   Okay. So that's the appropriate steps to take,

22 right?

23   A.   In that instance.

24   Q.   You go out there, you, as an expert, and you

25 extract what you need to extract in order to preserve

1 evidence, right?

2   A.   In that instance.

3   Q.   Okay. When the prosecution first reached out to

4 you, you mentioned on direct that there was some problem

5 that they were experiencing with another expert that they

6 had hired in order to do the same thing that you were

7 going to do?

8   A.   I believe that the local police had engaged an

9 individual who had some background in computer

10 investigations. Then the initial extraction was, in my

11 mind, correct where the police officers went in -- or the

12 officers went in and extracted the video on a thumb drive.

13   At one point or another, the hard drives were

14 extracted and dropped off at the prosecution's office, I

15 believe it was, and then that was taken over by some

16 officer.

17   Q.   No. I'm talking about the problems that they

18 were having with this individual that was trying to do the

19 same work that you did. Did you speak to Mr. Martin or

20 did you speak to some other prosecutor?

21   A.   Not the prosecutor. I talked to the case agent.

22   Q.   Okay. I've got your transcript here.

23   And what was that discussion about?

24   A.   He had said that the individual was trying to

25 recreate or rebuild the database from an open computer. I

1 stipulated that is not exactly the way it should be done

2 and they asked me to help.

3   Q.   They were concerned what had been done by their

4 own expert?

5   A.   I wouldn't call him an expert. It was the

6 individual who claimed that he could actually do the work,

7 yes.

8   Q.   And they were concerned that he wasn't able to

9 do that?

10   A.   Correct.

11   Q.   And so what items, in particular, did this agent

12 tell you they had given this other expert that may have

13 not known what he was doing?

14   A.   A box full of hard drives.

15   Q.   A box full of hard drives? Were those the

16 original hard drives that were in the DVR at the Cobb

17 Theater?

18   A.   I believe he stated that, but that was -- I

19 wasn't involved with that part.

20   Q.   Did they -- did this agent tell you what that

21 expert did with these hard drives?

22   A.   They tried to stick them into a computer and

23 start it up.

24   Q.   Can that be a big no-no?

25   A.   For computer forensics, yes.

         Q.   And did this agent indicate to you what happened
when this so-called expert tried to do that?

         A.   He relayed that, I believe, he wasn't able to
access any of the media or the DVR or anything
operationally and that's when, I believe, I was called.

         Q.   Let's talk about the number of hard drives,
because that's kind of important.

               How many hard drives were delivered to this
so-called expert that they had some doubts over?

         A.   I'm not sure, sir. I wasn't part of that
examination.

         Q.   Well, did you call the prosecutor? Did you ask
anybody about the specifics? I mean, all these hard
drives have numerical identification numbers, correct?

         A.   Again, I'm not -- that wasn't part of my
investigation. That was outside the scope of my
examination.

         Q.   Okay. So what did you tell the prosecution you
wanted from them now that these hard drives, I guess, had
been retrieved back from this local sheriff somewhat
expert?

         A.   By that time when I was talking to the case
agent, I had already received several thumb drives and an
external hard drive.

         Q.   Several thumb drives, and one external hard

1   drive?

2   A.   Yes.

3   Q.   Do you know how many hard drives were retrieved

4   by law enforcement in this case?

5   A.   I do not.

6   Q.   You never asked?

7   A.   No, sir.

8   Q.   Were you aware that the night of this particular

9   alleged incident that law enforcement did not secure

10 either the DVR nor the hard drives at the Cobb Theater?

11   A.   I believe the Export, the initial Export,

12 grabbed the camera views that was required during that

13 time.

14   Q.   You believe that what?

15   A.   The Export. So the best practices export is not

16 to take the DVRs, especially in this type of a system, or

17 secure the DVRs. It is to export the video of those areas

18 of interest that are required to view and identify the

19 actions of what happened that night.

20   Q.   Who told you that they did that?

21   A.   That was what I received.

22   Q.   Well, but who -- who told you that they had done

23 that there the night of the incident?

24   A.   I believe it was the case agent.

25   Q.   So if, in reality, that didn't happen, and what

 1   happened was that these hard drives were removed in the

 2   middle of the night by the IT person for the Cobb Theater

 3   and driven to Alabama, no one explained that to you?

 4   A.   Again, I was told that the hard drives were

 5   removed and dropped off with someone else.

 6   Q.   Well, but they also told you that before that

 7   happened, that somehow they put these thumb drives and

 8   they preserved those images in the thumb drives? That's

 9   what they told you?

10   A.   They said that through the best practices, they

11   located the videos that were required in this incident and

12   exported them out into an exe export file through the

13   proprietary player.

14   Q.   The night of the incident?

15   A.   I believe that's what I was told.

16   Q.   What agent told you that? What detective told

17   you that?

18   A.   I would have to look at my case file.

19   Q.   Please. Please. I certainly don't want you not

20   to have the ability to do that.

21   A.   If I recall, this is many years later, it was a

22   James Bucenell. B-U-C-E-N-E-L-L.

23   Q.   Okay. Well, you wrote some notes down, right?

24   A.   I wrote some notes?

25   Q.   Yeah, on that issue. That was the person that

1 told you that?

2   A.   It was a conversation of what happened

3 previously, but --

4   Q.   But you noted that he was the one that told you

5 that?

6   A.   That was the case agent who actually sent in the

7 case.

8   Q.   Okay. So you get one hard drive; is that

9 correct?

10   A.   Yes, sir.

11   Q.   And you were, I guess, told there was only one

12 hard drive?

13   A.   No, sir.

14   Q.   Did you not want all of the hard drives?

15   A.   No, sir.

16   Q.   Why not?

17   A.   I typically don't.

18   Q.   Why not?

19   A.   I expect to get the video that is required to

20 show the incident. So in these large format DVRs and the

21 establishments you probably have multitude of cameras all

22 over the place.

23   Q.   Uh-huh?

24   A.   Typically, the best practice is, instead of

25 collecting thousands and thousands of hours or months and

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 1    years' worth of video, you could research and view the
 2    active action that happened that night from the recorded
 3    video.  And most of your proprietary videos or proprietary
 4    players allow for an export to a thumb drive or a DVD or a
 5    CD of some sort.  Then they export what is required for
 6    that case.
 7         Q.   Okay.  So let's try to get some identifying
 8    features of the items that you received.
 9              One hard drive.  Was there any type of
10    information on the exterior of that hard drive to identify
11    that hard drive?
12         A.   I don't recall.
13         Q.   But I'm sure you wrote it down in your notes.
14    It's certainly best practices to identify the items that
15    you're getting to review, correct?
16         A.   Hard drive.  Toshiba.  1B3E5722558.
17         Q.   Is that the serial number of that particular --
18         A.   No, sir.  That was the item number that I
19    received.  So the FBI puts on an identifier number on
20    that.
21         Q.   Was there any type of numerical number or any
22    identifying feature on the hard drive itself that came
23    from the manufacturer when you pulled the hard drive out?
24    Did you try to look to see if, in fact, there are any
25    identifying numbers on the hard drive that you could
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1 memorialize to show this is what you've got?

2   A.   I kept with the identification numbers that were

3 received through the FBI.

4   Q.   Through the FBI?

5   A.   Correct.

6   Q.   And I guess there's a process. It comes to the

7 FBI, gets put in evidence, it gets properly packaged, and

8 that sort of procedure; is that correct?

9   A.   Yes, sir.

10   Q.   Okay. In addition to that, you've got you

11 said -- and that was an original hard drive from the DVR?

12   A.   No, sir.

13   Q.   That was not an original hard drive from the

14 DVR?

15   A.   No, sir.

16   Q.   Okay. So where and how was that hard drive

17 produced?

18   A.   I would say that the individual from the

19 computer crime -- or the computer investigations took the

20 hard drive, extracted those two hard drives, the video

21 drive, and the operational drive, and sent it to me.

22   Q.   What do you mean you would say? You don't know?

23   A.   No, sir. I wasn't involved in the collection

24 process in this case.

25   Q.   Did you not ask?

A.   I was not involved in the collection process in this case. I was told this is the video. The contents of the video that are required for this case are contained on this hard drive and the two thumb drives.

Q.   You recognized when you examined this hard drive pretty quickly that it was a clone?

A.   There were portions of a clone on there, yes.

Q.   Portions of it being a clone? What does that mean?

A.   It appeared that there was an operational drive and a single video drive on there.

Q.   Okay. So what did that tell you?

A.   That it was two hard drives -- possibly two hard drives that were cloned on there that that contained the video and the imagery that I required for the case.

Q.   And how are those two cloned into that one hard drive?

A.   Cloned through computer cloning software brought into a -- I believe it is an LO1 -- let me make sure here. So I used FTK Imager and loaded two drive images -- or two image drives contained on the hard drive and extracted the images of the drive.

Q.   But my question is: How do you know that they were cloned? What gave you that impression?

A.   They were -- it was just the file content.

Q.   But what of the file content indicated to you that it was cloned?

A.   It is the file format is in a clone format.

Q.   So what is the file format in a clone format?

A.   I believe it was an EO1 file, but I would have to go back and look at that.

Q.   Go ahead. You've got the notes. I'm all ears here.

A.   It was listed. It was in plain english.

Q.   It said "clone" on it?

A.   No. When I do this, I extracted it, and then it, I guess, rebuilt the hard drive so I could view the information on the clone.

Q.   What do you mean you guess it rebuilt the hard drive? That's a scary one.

A.   So I extracted the cloned hard drive in its proprietary format into -- back to the original format using FTK Imager.

Q.   How do you know you did that correctly?

A.   Because I used the software to uncompress the format.

Q.   And what do you know -- what software did you use?

A.   FTK Imager.

Q.   So how did that work?

1   A.   It took the EO1 file and uncompressed it.

2   Q.   So --

3   A.   It, basically, revised it, takes it out of the

4 EO1 file, and returns it back to the original state.

5   Q.   Okay. So that gave you the impression that

6 somehow now you had a clone?

7   A.   I had the software or the image that they sent

8 me, yes.

9   Q.   Well, let me ask you, when you're cloning a hard

10 drive, do you always get it right, or can you have

11 mistakes and problems?

12   A.   I have yet to have a mistake or a problem when I

13 clone a hard drive.

14   Q.   Well, I'm sure -- I'm not talking about you. Is

15 that something that can happen, that when you are cloning

16 a hard drive there are mistakes that --

17   A.   There are times when a hard drive fails, yes.

18   Q.   Any other issues other than the hard drive

19 failing?

20   A.   So normally when we clone a hard drive, we do a

21 hash value prior to, and then copy the hash values all the

22 way --

23   Q.   That's when you do the cloning?

24   A.   Yes.

25   Q.   And so if you don't do that hash value

1   comparison, then you don't know if you've got everything,

2   right?

3   A.   Correct.

4   Q.   So tell me what you did in reference to this

5   particular cloned hard drive to make sure that everything

6   that was on that cloned hard drive was on the original --

7   A.   You would have to ask --

8   Q.   -- hard drive in the DVR that was extracted?

9   A.   You would have to ask the individual who

10 initially did that, sir.

11   Q.   You didn't get any hash values in order for you,

12 yourself, to determine what you were about to work on?

13   A.   I received the clone. The clone copy which I

14 hashed internally, and then ran it from that point on.

15   Q.   You don't think the proper procedure for the FBI

16 lab is to get the hash values of the original hard drive

17 and match it up with what you're seeing on the clone?

18   A.   That is outside the scope of that investigation,

19 but I received a cloned copy from the individual.

20   Q.   Okay. So tell me why it is that you have one

21 cloned hard drive and two thumb drives? What's the

22 purpose of that?

23   A.   That's what I was sent. That's what I received.

24   Q.   Yeah, but did you look at it and say, Wow, I've

25 got one cloned hard drive. Why am I having these two

```
 1    thumb drives?

 2         A.    The case agent told me that those two hard -- or

 3    the two thumb drives where they exported video directly

 4    from the proprietary that night.

 5         Q.    That's what he told you?

 6         A.    Yes.

 7         Q.    And so if that was a lie, you would be very

 8    disappointed?

 9         A.    I have no reason to think he was lying.

10         Q.    That's not my question.  If that was a lie, you

11    would be very disappointed, correct?

12         A.    Again, I have no reason to think that he was

13    lying to me.

14         Q.    Well, did you ever speak to Mr. Martin and say,

15    Mr. Martin, did they take anything that night from that

16    hard drive, from that DVR?  Did you ever ask him?

17         A.    As far as I understand, they extracted video

18    through a thumb drive at the site.  Later on, they cloned

19    hard drives and gave me the relative video that was

20    included in this night.  That is my answer.

21         Q.    I will tell you, Mr. Imel, there was no thumb

22    drives extracted the night of this incident or the next

23    day of this incident.

24         A.    Okay.

25         Q.    Until those hard drives were found in Alabama.
```

1   MR. MARTIN: Your Honor, I'm going to object to

2   Mr. Escobar is testifying. He's not asking

3   questions.

4   MR. ESCOBAR: My apologies. He's correct.

5   THE COURT: I will sustain the objection.

6 BY MR. ESCOBAR:

7   Q.   Okay. So now you have a cloned hard drive and

8 you have two thumb drives?

9   A.   Yes, sir.

10   Q.   And you've been asked -- I think there were

11 three things that they asked you to do; am I right?

12   A.   Three examinations.

13   Q.   There were so many notes during that first --

14 one was enhancement?

15   A.   Correct.

16   Q.   Right? The other one, more enhancement?

17   A.   Correct.

18   Q.   So let's talk about that. We've seen the

19 proprietary video here, right?

20   A.   As much as we can right now, yes.

21   Q.   Well, not this one. I'm talking about when we

22 had it up?

23   A.   Yes, sir.

24   Q.   You can see there's nothing wrong with it,

25 right?

         A.   Other than that missing file, correct.

         Q.   Yeah. I'm talking about the clarity?

         A.   Yes.

         Q.   It was clear. You could see it. The Court

could see it. We could see it. Mr. Martin could see it.

Everybody here could see it, right?

         A.   Yes, sir.

         Q.   What did Mr. Martin need to enhance?

         A.   Again, most of the enhancements are extracted

from the proprietary, resized, do some lightening.

         Q.   That's not my question. If he's asking you to

enhance it --

         A.   Yes.

         Q.   -- there had to be some direction of, Hey, I

want it enhanced because I want to see this or I want to

see that. Tell me what it was that they told you they

needed you to enhance since it was so clear? You agree?

              MR. MARTIN: Your Honor, I'm going to object.

         That's my work product.

              THE COURT: As to the statement -- as to -- I'm

         going to sustain the objection as to the statement as

         to what was it that Mr. Martin told you in that

         capacity.

              MR. ESCOBAR: Your Honor, once it leaves his

         mouth to him saying, This is what I want you to do in

1   this case, there is no work product. That is over.

2   THE COURT: But the question that you asked

3   him -- you could rephrase the question as to the

4   question in regards to what was it that he was

5   enhancing, which I haven't heard the response to that

6   question yet.

7   BY MR. ESCOBAR:

8   Q.   So what were you going to enhance?

9   A.   So during this case I identified several videos

10   that were within both the proprietary and external

11   proprietary in the ENT files. During this case, I put

12   together what they call a timeline that shows the actions

13   of the defendant, and the actions of the victim, and their

14   interaction during this case.

15   Q.   A timeline, okay. So a timeline is really not

16   enhancing the actual image. It's just providing a

17   timeline?

18   A.   Well, the timeline is the final product of an

19   enhancement, yes, sir.

20   Q.   Meaning, that there's a timeline that you're

21   creating for the activity that is seen on the video?

22   A.   Yes, sir.

23   Q.   Okay.

24   A.   So extracting it out of the proprietary player

25   is part of an enhancement. That is part of the forensic

1   process that I used at the time.

2   Q.   Okay.

3   A.   Taking those into an open format is part of my

4   enhancement. Increasing the size, putting them in line,

5   making sure that we can see those, making sure the start

6   and stop is there, that is part of my enhancment exporting

7   it out.

8   The content in a strict enhancement, what is

9   happening in this content, I have no opinion to. So an

10   enhancement is an enhancement. The first two cases were

11   nothing more than enhancements. I was asked to, on

12   several occasions, do a side-by-side with the blue screen,

13   with the regular screen, with the unfiltered regular

14   video, individual cameras, and I exported those as needed.

15   Q.   Your first enhancement, let's talk about that.

16   Please tell me how you performed that first enhancement?

17   A.   As far as the exporting of the video?

18   Q.   I want to know all the details. I want to feel

19   like I'm right there with you.

20   A.   Okay. So I received three items.

21   Q.   Uh-huh.

22   A.   I reviewed the evidence.

23   Q.   What do you -- what does that mean, I reviewed

24   the evidence?

25   A.   So I went through every camera view that I could

1 possibly find to see if it was relevant to the case or not

2 relevant to the case.

3   Q.   How many camera views did you examine?

4   A.   One second, please.

5   Q.   Sure.

6   A.   135 camera views.

7   Q.   So what does that mean, a camera view?

8   A.   Independent camera view tied to the system.

9   Q.   Meaning that there were 130 -- how many did you

10 say?

11   THE COURT: 135. I'm listening. I'm right up

12   there with you.

13 BY MR. ESCOBAR:

14   Q.   So 135 camera views. Does that mean that there

15 were 135 cameras?

16   A.   No, sir. So the 135 camera views that I found

17 in the information that was sent to me.

18   Q.   From how many cameras?

19   A.   We've, I've got 135 camera views.

20   Q.   From how many cameras?

21   A.   I don't know that number.

22   Q.   So you don't know of the 135 camera views which

23 views came from which cameras?

24   A.   No, sir, other than what I received.

25   Q.   Why would you not know that?

1   A.   I'm not an investigator. I'm a forensic

2 examiner. I enhance what is given to me. So the

3 investigative part is on the shoulders of the sheriffs,

4 and the FBI agents.

5   Q.   How do you view this camera view? Just tell me

6 the process that you used in order to view these 135

7 camera views?

8   A.   How did I view the process?

9   Q.   Yeah. You've got a hard drive and you've got

10 two thumb drives. Tell me how you did it. Did you put a

11 thumb drive in the computer and did you search? I want to

12 know how you did it.

13   A.   So on the thumb drives, I put them into a write

14 blocker, copied them over to my hard drive, then reviewed

15 each one of the files that were on there, then capture an

16 image of each camera view.

17   Then with the hard drive, I went through and I

18 identified each one of the folders with the different

19 camera views, and then captured the cameras.

20   Q.   When we're saying "camera view," I want to make

21 sure that the Court and myself have a clear definition of

22 what you're talking about. Is this a video? Is that a

23 single image? Is it a pixel? What is it?

24   A.   It is a camera view. It's videos.

25   Q.   Videos?

1   A.   Yes, sir. I received videos --

2   Q.   So the 135 camera views that you were talking

3 about is 135 videos?

4   A.   Well, no. There's multiple videos in each

5 camera. As we've seen, some of those cameras are depicted

6 in multiple AVI videos.

7   Q.   Okay.

8   A.   So they're grouped into AVI files, and each one

9 depicts a certain camera view.

10   Q.   And you're looking through every file?

11   A.   I'm looking at those relevant to the case.

12   Q.   And some were not relevant?

13   A.   Correct.

14   Q.   So some of the 135 were not relevant to the case

15 because of what?

16   A.   They didn't depict anything dealing with the

17 incident at the Cobb Theater.

18   Q.   Well, let's talk about that. You weren't at the

19 incident, correct?

20   A.   No, I was not.

21   Q.   You never received any photographs of the scene

22 that forensics took the night of this incident, correct?

23   A.   Correct.

24   Q.   Why not?

25   A.   I didn't receive it. It's not part of my

1   examination.

2   Q.   So how can you tell whether there is film that's

3   relevant or not relevant if you don't know more about the

4   investigation in this case?

5   A.   I'm not an investigator, sir. I receive the

6   evidence. I'm required or requested to do enhancements on

7   that evidence. Then I return it.

8   Q.   Okay. So you viewed those. What did you do

9   with the 135?

10   A.   I found the incidents that were required to view

11   this case and then separated them from the rest of them.

12   Q.   How many of those views did we have that were,

13   in your opinion, relevant to this case?

14   A.   One second, please.

15   MR. ESCOBAR: Your Honor, I promise I will be

16   done by 5:00. I'm not going to be that long.

17   THE COURT: I'm not rushing you, sir.

18   BY MR. ESCOBAR:

19   Q.   You're probably going to tell me 135.

20   A.   Well, it's approximately 10, I believe.

21   Q.   Okay. I just saw you flipping --

22   A.   Yes. So, basically, I'm told the incident. I'm

23   told which theater it is. I'm given a time and a date.

24   Then I work backwards. So I see the individuals, and I'm

25   going through the cameras, and I'm very easily known to go

1   backwards, and then follow those folks that are involved

2   in this case.

3   Q.   So 10, you think?

4   A.   Yes, sir.

5   Q.   Approximately?

6   A.   Approximately.

7   Q.   I'm not going to hold you. Maybe 11, maybe nine

8   A.   It was eight years ago.

9   Q.   Exactly.

10   So now you've got 10 views, right?

11   A.   Yes, sir.

12   Q.   So what do you do with those?

13   A.   So I applied -- let me go back to the start

14 here. I converted the videos from proprietary to open

15 format.

16   Q.   What does that mean?

17   A.   I converted the videos from a proprietary format

18 to an open format.

19   Q.   What open format?

20   A.   So using GV -- GV AVI to exe, that's one of the

21 proprietary portions of this video, you can export or

22 exchange the exe files into an AVI format.

23   Q.   And so while you were doing that, I'm sure when

24 you were looking at the views -- the 10 views, they were

25 just as good as we saw here, right?

1   A.   Some of them better than most --

2   Q.   Okay.

3   A.   -- are better than others.

4   Q.   Okay. So why were you doing that? Why were you

5 doing that conversion?

6   A.   Because having it into a proprietary format is

7 not useable in any of the forensic software that we have.

8   Q.   It requires you to change?

9   A.   Change the container, yes.

10   Q.   Okay. So how does that process work? Another

11 algorithm?

12   A.   So I bring the software in. At this particular

13 point, some of these files were either AVIs or exe files.

14 Exe files are wrapped into an ENT format that was produced

15 by the proprietary player.

16   Basically, it's an AVI file internal. When you

17 hit the exe file, it goes out to your computer. It finds

18 out what open format player plays the AVI file and opens

19 it up in that. The video itself is dropped into a temp

20 folder onto the computer and that is where your open

21 format player plays the video and I extracted --

22   Q.   Is that an algorithm process?

23   A.   It is just a de-wrapper.

24   Q.   Okay.

25   A.   So that's part of the proprietary software. It

1 has nothing to do with that.

2   Q.   So now you do that.

3   A.   Okay.

4   Q.   What is your next function?

5   A.   Then I take -- so the AVI functionality,

6 sometimes that doesn't work too well in Premier, so I

7 changed the out -- or output into an MOV.

8   Q.   Sometimes it doesn't work --

9   A.   Yeah.

10   Q.   -- well in Premier?

11   A.   Yes.

12   Q.   But did you first determine whether it worked

13 well in Premier, or did you just assume that it wasn't

14 going to?

15   A.   I liked to work in MOVs at that time because it

16 is a solid type of object, as far as encoders and

17 decoders. So my work process during that point in time is

18 to put it into a MOV format and then work --

19   Q.   So now you're doing another conversion?

20   A.   I converted the player or the bucket, as they

21 would say. The video itself has not changed.

22   Q.   Okay. Now, what is your next process?

23   A.   Then for the timeline, I bring it into Adobe

24 Premier.

25   Q.   Okay.

1   A.   Start a project. Design the project. At this

2   point, it was a 1920 by 1080.

3   Q.   1920.

4   A.   Yes.

5   Q.   By 1080.

6   A.   Yes.

7   Q.   What does that mean?

8   A.   That's resolution.

9   Q.   Okay. I thought you indicated that the

10   resolution on these particular images was really low,

11   like, 320 by 240?

12   A.   That was the original imagery. So we are

13   talking video. Apples and oranges.

14   Q.   Okay. So we don't have to worry about in images

15   it being 320 by 240?

16   A.   That has a completely different process.

17   Q.   Okay. So now we've got this 1920 by 1080?

18   A.   Yes, sir.

19   Q.   What does that mean?

20   A.   That is the resolution of my project.

21   Q.   Okay. That's what you're trying to achieve, or

22   what it actually is?

23   A.   That is -- so, in dealing with video

24   enhancement, we have the capability of processing these

25   videos in one of two ways. You can keep it in the

original resolution, and then we're looking at a very

small video that most lawyers, most prosecutors, most

defense individuals or defense lawyers will take it on the

screen, hit full screen, then play it from that point, or

resize, resize, resize.

Q.   These are most lawyers?

A.   Generally, every lawyer that I've seen that are

operating my videos, that's what they do.

Q.   Are you worried about forensics and the

authenticity of the piece of evidence when you're doing

this?

A.   I am working on the evidence as I'm there.

There's no authenticity problem because that's what I

received.

Q.   Well, if you're changing something, right?

A.   I'm not changing something. I'm enhancing

something. That is the reason why it's coming to me.

Q.   We are going to get into whether you're changing

or you're enhancing in just a quick second, but you're

saying that the original resolution of that was what?

A.   320 by 240.

Q.   And now you're wanting to increase it?

A.   Yes.

Q.   And you want to increase it for what reason?

A.   For viewability capabilities.

1   Q.   But you can view it in the resolution that it

2 was in, though?

3   A.   You can.

4   Q.   And it was perfectly clear. We both saw it?

5   A.   In this instance, yes. But when you start

6 taking them into a timeline video, being able to enhance

7 them, that's just my work project.

8   A.   Okay.

9   Q.   So now you're going to enhance it and correct me

10 if I'm wrong, 1920 by 1080?

11   Q.   That was my project.

12   Q.   That was your project?

13   A.   Yes.

14   Q.   And so how do you get there? How do you get to

15 that resolution?

16   A.   It's built into the Adobe Premier project system

17 that I select. I control that.

18   Q.   This is where the algorithm comes in, right?

19   A.   What algorithm?

20   Q.   Yeah. Adobe Premier is an algorithm, right?

21 They have an algorithm that you don't know how that works?

22   A.   It's a software program, yes, sir.

23   Q.   And you don't know how that works, right?

24 You're not a computer engineer, right?

25   A.   I didn't write it, no.

1   Q.   So you don't know how that process takes place,

2   right?

3   A.   So the project --

4   Q.   Listen to my question.

5   You don't know how that process takes place,

6   correct?.

7   A.   As a user, I do. As far as the functionality of

8   what I'm doing from point to point to point --

9   Q.   No. I'm talking about how the software

10   itself --

11   A.   I do not know the programing of the software. I

12   do not write the software. I'm not a computer programmer.

13   I did not process in C++. I did not get down into those

14   weeds, no.

15   Q.   In those weeds, you didn't check to see -- you

16   had no capabilities of checking to see if in those weeds

17   there are some errors?

18   A.   No, sir. Other than a visual aspect or a visual

19   check of my project on the export function to the original

20   video, no, I don't.

21   Q.   And you would agree that your vision, my vision,

22   the Court's vision, the prosecutor's vision, we can see

23   all different types of things sometimes when we are

24   looking at something, right?

25   A.   Yes, sir.

1   Q.   Some better than others?

2   A.   Yes.

3   Q.   Okay. So you're using now Adobe Premier to do

4 this resolution enhancement. Is that also called

5 resizing?

6   A.   Resolution enhancement?

7   Q.   Yeah. You're going to 1920 to 1080, right?

8   A.   That is just building the project.

9   Q.   So that is just building the project?

10   A.   Yes.

11   Q.   Tell me what do you do from this point?

12   A.   So then I lay the videos in place in a

13 chronological order and then I place them in a way to

14 where it is either full screen, side by side the way I

15 want them onto the project. Then I apply my filters.

16   Q.   Okay. So your filters. Tell me about those

17 filters. Which one did you apply in this instance

18 initially? Because, remember, you're taking me through

19 the process as if I was right there on your shoulder.

20   A.   So I imported the MOV videos into my project.

21 Subject entry, Entrance 2, Customer Service, Theater Left,

22 Theater Left Side, Subject Walks By, Theater Right Side,

23 Right Side Customer Service Entrance, Theater Right,

24 Theater Left Side.

25   Q.   Mr. Imel, I think we were talking about the

```
 1   filters.

 2        A.    I am.  I'm getting there.

 3        Q.    Okay.

 4        A.    So I lay those videos down.

 5        Q.    Okay.

 6        A.    I'm going through it as you're sitting over my

 7   shoulder.

 8        Q.    Okay.

 9        A.    I start applying levels adjust on -- as the

10   individual walks into the ticket collection point.

11        Q.    Levels adjust?  What are you adjusting and at

12   what level?

13        A.    Brightness.

14        Q.    What's that?

15        A.    Brightness.

16        Q.    Brightness.  Okay.  So at this point in time,

17   initially, you're going to do brightness?

18        A.    Yes, sir.

19        Q.    You're going to try to brighten up -- it is

20   brightening up the pixels?

21        A.    It is brightening up the scene.

22        Q.    Well, does that involve brightening up the

23   pixels?

24        A.    Yes, sir.

25        Q.    So now you're brightening up the pixels.  Does
```

that mean that you're changing the color of the pixels?

    A.   I am brightening up the levels of those pixels, yes.

    Q.   These are gray scale type of pixels, correct?

    A.   Outside, it was full color, not a problem. I mean, it is --

    Q.   It's not color film, right?

    A.   No, sir.

    Q.   In fact, before we get too much further in that, let's talk a little bit about the camera. This is an infrared motion camera; is that correct?

    A.   It is an IR camera internal of that, yes.

    Q.   Yeah. So tell me how it is that it actually captures an image?

    A.   It has a chip or a light accepted chip CCD internal. It takes the levels of the light, transforms it into a voltage, then makes a video.

    Q.   Takes the level of the light. So that means that this camera captures an image that is either reflecting light or emitting light?

    A.   I guess, yes. The light is --

    Q.   You guess? You work for the FBI. What do you mean you guess?

    A.   Yeah, it collects whatever it is seeing, as far as the light coming in, and it is changing that light

1   level into a voltage that makes the video.

2   Q.   That's what it's recording. It's recording

3   emitting light and reflected light, correct?

4   A.   Yes, sir.

5   Q.   That's all it is doing?

6   A.   Yes.

7   Q.   Because it's dark in there?

8   A.   Yes.

9   Q.   It's infrared?

10   A.   It switches back and forth, but, yeah.

11   Q.   So that's what we're capturing. What we're

12   seeing here is the reflection of either reflective light

13   or emitting light, right?

14   A.   Yes.

15   Q.   That's why we see, you know, these bright table

16   tops in the CineBistro part that look like they're glowing

17   in the dark, right?

18   A.   Yes.

19   Q.   Because it's reflecting the light, right?

20   A.   Yes, sir.

21   Q.   It's not because it's that color, right?

22   A.   Correct.

23   Q.   On top of that, it's a pretty bad resolution to

24   begin with, right?

25   A.   It is --

1   Q.   It is an antique system, right?

2   A.   That's --

3   Q.   That's one of the premier first systems to come

4 out?

5   A.   Okay.

6   Q.   You don't know that?

7   A.   It's -- for that time period, it's normal

8 resolution that I've received many times around 2014.

9   Q.   It is a dinosaur; would you agree?

10   A.   As it is now, correct.

11   Q.   It was a dinosaur then?

12   A.   Okay.

13   Q.   Okay. So tell me -- continue the enhancement

14 process?

15   A.   So with these, we -- I scale the video to the

16 project size. And then --

17   Q.   What does that mean?

18   A.   So I right click and that video fills to the

19 resolution of my project, my resolution.

20   Q.   It fills to the resolution of your project?

21   A.   Yes, so the height. So it is going to keep the

22 aspect ratio, and it's going to continue to the 1080

23 height.

24   Q.   Does that mean that we're adding some pixels?

25   A.   It's interpolation, yes.

1   Q.   And so we're adding pixels. Let's talk about

2   adding pixels.

3   How many pixels did you add?

4   A.   Whatever the resolution is from 1080 to the

5   width of this.

6   Q.   I want to know. Where are your notes?

7   A.   I don't do that, sir.

8   Q.   So you could have added 4 million pixels?

9   A.   Me, personally, I didn't add pixels. That was a

10   computation done by Adobe Premier, right click, and then

11   --

12   Q.   My apologies. Adobe Premier added 4 million

13   pixels to this --

14   MR. MARTIN: Your Honor, I'm going to object to

15   the testifying. There is no testimony about 4

16   million. It is just a number he is making up.

17   MR. ESCOBAR: Well, the number is pretty

18   accurate, but we'll get to it in a second.

19   THE CLERK: Sustain the objection.

20   BY MR. ESCOBAR:

21   Q.   How many pixels were added in your process?

22   A.   I didn't count.

23   Q.   What color were the pixels that were added in

24   your process?

25   A.   I didn't count. I didn't add it. I didn't

1   look. I didn't survey color content.

2   Q.   Why would you not note the specific number of

3   pixels that were added, quote, in your project?

4   A.   Because it's an enhancement from the original

5   video.

6   Q.   So you're just saying, Hey, listen, we're just

7   using Adobe Premier, whatever they want to do with it, I'm

8   good with it?

9   A.   No, sir. It is a -- it is enhancement

10   capability where I am controlling the project size in 1920

11   by 1080. Expanding on the 320 by 240 video to the project

12   size.

13   Q.   You don't know how that algorithm works, do you?

14   A.   No, sir.

15   Q.   So how --

16   A.   I don't have that capability.

17   Q.   How can you just -- how can you just say, I

18   don't know how the algorithm works. I don't know how many

19   pixels are being included in this particular image. I

20   don't know what color the pixel are. And expect

21   everything to be just forensically correct?

22   A.   It is demonstratively correct.

23   Q.   Demonstratively?

24   A.   Yes.

25   Q.   What does demonstratively correct mean?

1   A.   It is a clear and accurate representation of the

2   original video as it was recorded that night.

3   Q.   In your eyes?

4   A.   Yes, sir.

5   Q.   Just in your eyes?

6   A.   I was the forensic examiner that processed this

7   video, yes, sir.

8   Q.   Okay. So now you have this -- let me ask you

9   this question.

10   Would you say that, at the very least, you

11   increased the pixel count by 50 times?

12   A.   I would have to get a calculator out, sir.

13   Q.   Go ahead. Listen --

14   A.   I'm not prepared --

15   Q.   I'll give you mine.

16   A.   I'm not prepared to analyze --

17   Q.   I'll give you my calculator --

18   A.   -- the examination content here by pixel count.

19   Q.   You can't do it, can you?

20   A.   I'm not going to right here --

21   Q.   No. My question is: You can't do it, can you?

22   A.   I could back in my lab, yes.

23   Q.   What's at your lab that we don't have here?

24   A.   I don't have my forensic examination system

25   there. I don't have the software here. I don't have the

1   original video here in my capability of processing this.

2   Q.   Okay.

3   A.   So this is a very simple derivative evidence for

4   demonstrative purposes that view this video for viewing

5   purposes in court so the jury can identify and view these

6   actions in a timeline view.

7   Q.   Even though the jury and the judge and us, we

8   all looked at the original proprietary one just perfectly

9   fine?

10   A.   Sir, however which way this is designed and

11   however which way the lawyers here preserve and view this

12   is not up to me. I produce the media, if they want to use

13   it or not, they're welcome to. If they want to go back to

14   the proprietary, I have no problems with that. I would

15   prefer that the proprietary is played upright before the

16   enhanced so you can see the differences in that media.

17   Q.   That's because you have more confidence in the

18   proprietary; isn't that correct?

19   A.   The proprietary in 2014 or '15 when I started

20   doing this, I had no problems.

21   Q.   So you have more confidence in that one?

22   A.   In that one, yes, and that is an algorithm that

23   I don't know either.

24   Q.   So now you've got the filter that you used, I

25   may have missed it?

1   A.   Levels. Levels adjust.

2   Q.   It's a levels adjust?

3   A.   Yes, sir.

4   Q.   Okay. What else did you do?

5   A.   I resized it to the project size. And then --

6   Q.   How did you resize it? What did you use to

7 resize it?

8   A.   It's a right click, increased video to project

9 size. It is a quick offering for Adobe --

10   Q.   How does it do that? How does it do that?

11 Right click? There has to be some software function --

12   A.   It's an option --

13   Q.   A software company that has developed something?

14   A.   I'm trying to answer your question.

15   Q.   Okay.

16   A.   It's a right click. It's an option in Adobe

17 Premier where it automatically aligns the video to the

18 project size.

19   Q.   Does it have anything to do with, you know,

20 those filters that we talked about, Nearest Neighbor,

21 Bicubic Smoother, any of that? Does it --

22   A.   Right now, it's just a viewing. So it's a level

23 above my project. Until I write it out, there is no

24 interpolation methodology applied.

25   Q.   Okay. But that's coming, right?

1   A.   Yes, it is.

2   Q.   Is that your next step?

3   A.   Once the same process has gone all the way

4 through to each video, everything is in line, then I

5 export it out, yes.

6   Q.   And you export it out to?

7   A.   In this case, a MOV with -- I don't have control

8 in Adobe Premier in the interpolation process.

9   Q.   That's going to be my next question. You have

10 no idea what this software is using? You don't know if

11 they're using Nearest Neighbor, Bicubic Smoother, or

12 whatever, right

13   A.   So the last several times that I've been out to

14 Adobe talking with the engineers and the individuals here,

15 as far as I understand, in Adobe Premier when they

16 increase the size, you are using Bicubic.

17   Q.   When did you talk to that person?

18   A.   I've talked to them over the years.

19   Q.   No. When did you talk to that person and have

20 that conversation?

21   A.   Over the last couple of years. I go back and

22 forth.

23   Q.   Well, in 2014, did you talk to anybody that told

24 you that?

25   A.   Not at Adobe, no.

1   Q.   I didn't think so.

2   So you didn't know whatsoever what Adobe Premier

3 did in applying whatever filter Adobe Premier wanted to?

4   A.   No, sir. The filters, I apply.

5   Q.   But you don't know which one they used?

6   A.   You're talking about interpolation?

7   Q.   Yeah. Exactly.

8   A.   That's not a filter.

9   Q.   That's not a filter?

10   A.   That's not a filter.

11   Q.   That's interpolation?

12   A.   Yes, sir.

13   Q.   You don't know which one Adobe Premier --

14   A.   Again, as I stated, I'm talking with the

15 engineers over there.

16   Q.   In 2014 --

17   A.   Previous in 2014. I've been over to the Adobe

18 complex several times.

19   Q.   Yeah.

20   A.   In dealing with this stuff several times.

21 Everything that I've understood with the video, they use

22 bicubic interpolation.

23   Q.   What does that mean everything that I've

24 understood? You either know it because you've studied it,

25 or you don't know it.

1   Did you study in 2014 how Adobe Premier selects

2   their interpolation?

3   A.   No, sir.

4   Q.   So you don't know?

5   A.   As I've stated -- I'm trying to state, is that

6   over the years I've been indicated and told that they use

7   bicubic interpolation in Adobe Premier. Photoshop for

8   images, you have the capability of selecting that.

9   Q.   And over the years means that you had that

10   conversation two years ago and your work was done in 2014?

11   A.   I've been going to the Adobe complex through

12   Adobe -- or, excuse me, Natia (phonetic), and those

13   engineers that come out to the Natia conference I'm

14   teaching as well. I've had multiple conversations with

15   the Adobe engineers. I've gone out to the complex and

16   I've talked with these engineers in this capability of

17   enhancements in this type of --

18   Q.   Mr. Imel, I'm going to ask you one more time

19   under oath.

20   A.   Yes, sir.

21   Q.   In 2014, did anyone at Adobe tell you the

22   interpolation method that they were using back in 2014?

23   A.   No, sir.

24   Q.   What did you do next?

25   A.   Exported out the video.

Q.   What does that mean?

A.   I exported out the video to the product that I produced. So it's, literally, you press the export button and define the export parameters and push it out.

Q.   And the export parameters?

A.   The export parameters are very simple whether you're using audio, whether you're using GPU information or GPU cards in your computer, the speed of it. Just general export functionalities for Adobe Premier.

Q.   So now you have the finished product?

A.   It is the start of a finished product, yes.

Q.   So what does that mean the start of a finished product?

A.   There were multiple enhancements. Again, there were three cases come across here --

Q.   But you did the same thing in all three of them?

A.   Not necessarily, no.

Q.   Oh, okay. So that was the first -- the first work of enhancement?

A.   Yes, sir.

Q.   Right?

A.   Yes, sir.

Q.   So tell me what you labeled these finished products? So I would imagine they would have some specific identifying labels that you would assign to -- I

think you called it your project, right?

A.   There are a multitude of them. I would have to

call back up to get specific -- or names. There are

timelines Camera 11, 12, side by side with the blue

screen --

Q.   There's no identifying numbers to identify each

product that you finished?

A.   Well, as far as the HQQ? Yes, sir.

Q.   Okay. What are they? That is what I am looking

for.

A.   So on the first one, was a USB storage device.

The identifier is HQQ003432.

Q.   Okay. Next? Is that it for that project?

A.   Yes, sir. Well, there were copies produced. So

there were two copies. Then I also produced 42 DVDs.

Basically, the individual videos that were on the hard

drive, they were just put onto individual videos, 14

enhanced videos, onto 42 DVDs. So if an individual wants

to play them on a DVD player, they had that capability.

Q.   From that project?

A.   Yes, sir.

Q.   So are we done with that project?

A.   For that one, yes, sir.

Q.   So when did you send that out? I would imagine

to the prosecution, right?

1   A.   I sent it to the case agent.

2   Q.   The case agent. When was that sent out?

3   A.   April 25th.

4   Q.   Of?

5   A.   2016.

6   Q.   Okay. So now what happens next in your line of

7   work on this case?

8   A.   So I received another request in August of 2016

9   for more enhancements.

10   Q.   Who did you receive that request from?

11   A.   The same case agent, James Bucenell.

12   Q.   Okay. And what was the reason that you were now

13   getting a second request for enhancements? Was the first

14   one not good enough?

15   A.   It says here, State Attorney's Office has

16   requested additional analysis to the videos. Immediate

17   produced. From the initial analysis, in which I produced.

18   Q.   So no reason why, just, Hey, I want more

19   enhancements?

20   A.   Yes, sir.

21   Q.   Well, where does that leave you? How do you do

22   that?

23   A.   I discussed the enhancement process with the

24   prosecutor and he wanted something beyond the initial

25   timeline.

1   Q.   So in addition to getting the information from

2   this agent, what you're telling me is that you also spoke

3   to Mr. Martin?

4   A.   Yes, sir.

5   Q.   Okay.   I'm not going to go into your

6   conversations with Mr. Martin, okay.

7   However, what was your next project?   Evidently,

8   you get a request, you have a project?

9   A.   So on the second request, that is where we came

10   into, if I recall, the side-by-side videos where you are

11   looking at both edges -- or both directions of the camera

12   that's coming on either side in alignment so you can see

13   those in one camera view.

14   Q.   Let's stop there for a second, because I don't

15   want to get too far away from the first project.

16   Did you do any interpolation of individual image

17   files at all during that first project?   We talked about

18   you certainly enhanced the movies, right?

19   A.   Yes, sir.

20   Q.   Then my question is: Did you do any individual

21   files of images in that first project?

22   A.   Let's see here.   48 proprietary video files

23   containing the areas of interest were electronically

24   processed from which 14 enhanced videos, 8,897 enhanced

25   images, and 7 image contact sheets were produced.

 1   So yes, sir.

 2   Q.   Quite a few, right?

 3   A.   Yes, sir.

 4   Q.   So now let's talk about the enhancement of

 5   images, because that is a little bit different, right?

 6   A.   It is a different program.

 7   Q.   Because here you get to select what

 8   interpolation method you're going to use, right?

 9   A.   Yes, sir.

10   Q.   So you've told us about what you did with the

11   videos. Tell me how you did the 8,000-plus images. You

12   call those enhancements as well?

13   A.   Yes, sir.

14   Q.   Okay.

15   A.   So taking those videos into Adobe -- or, excuse

16   me, Video Focus Pro, I select the images and export them

17   out into a TIF format.

18   Q.   Okay.

19   A.   That's no compression. So it's 320 by --

20   Q.   I've reviewed your TIFs.

21   A.   Yeah. Let me get to that portion of the notes.

22   Okay. In the export of -- okay. On Theater Camera 11, I

23   exported 2,354 TIF images between timeframe 13:18:10 to

24   13:26:41 from VideoFOCUS Pro. Cropped and centered date

25   and time. Applied shadows and highlights. So that's a

1 filter.

2   Q.   So you applied shadows and highlights. Where

3 did you decide to apply the shadows and where did you

4 decide to apply the highlights?

5   A.   So that is a Smart Filter, as I've described

6 earlier, in which I apply to it, and it automatically,

7 again, through an algorithm --

8   Q.   That you don't know, right?

9   A.   I'm sorry?

10   Q.   Just so we can get by it. An algorithm that you

11 have no idea how it works?

12   A.   Again, I'm not a computer programmer. I did not

13 write these programs. I did not write the software.

14   Q.   Okay.

15   A.   I'm a user of the software.

16   Q.   Okay.

17   A.   I applied the Smart Filter shadows and

18 highlights --

19   Q.   Right.

20   A.   -- by adjusting it to 20 and 0.

21   Q.   Why did you --

22   A.   So the highlights are 20 to 0.

23   Q.   -- select 20 and 0?

24   A.   Because I can review what the highlights and the

25 shadows are doing on the image. So I can adjust that. So

1 I had the ability to apply that filter and adjust those

2 filter contents so that --

3   Q.   Did you adjust it?

4   A.   Yes, sir. 20 and 0.

5   Q.   Did you adjust it further?

6   A.   I played around to -- that was my final

7 adjustment.

8   Q.   So what did you adjust it to first, and why did

9 you end up at that numerical number?

10   A.   Because it visually -- so normally when you put

11 it on there, it automatically adjusts to 35. I thought 35

12 visually was beyond the point where the filter was

13 over-applying the highlights, so I reduced it to 20.

14   Q.   So it automatically adjusted to 35?

15   A.   Correct.

16   Q.   So how many adjustments from 35 did you go

17 through before you selected the 20?

18   A.   I don't recall.

19   Q.   So tell me what the difference was -- the

20 particular difference was between the level 35 and the

21 level 20?

22   A.   It didn't. It did not -- the level 20 -- or the

23 level 35 I thought highlighted too much. So --

24   Q.   What was it highlighting that was too much?

25   A.   It was oversaturating portions of the video.

Q. What was it saturating?

A. Visually, it appeared to me that it was --

Q. Did you not take any notes as to what it was

oversaturating --

A. No.

Q. -- so that you could memorialize what you didn't

like about the 35 --

A. No, sir.

Q. -- and what you did like about the 20?

A. No, sir.

Q. You never memorialized that?

A. No, sir.

Q. Do you take notes when you do your examinations?

A. I have it right here, sir. That's why the final

product, the final number was 20.

Q. Okay. So you did that?

A. Yes.

Q. What else did you do?

A. I changed the mode to grayscale. So I removed

the color from the image.

Q. That was probably a good one because it is not a

color video, correct?

A. There is color --

Q. There's no --

A. There is color applied to it. So it is recorded

1 in a color mode. Even though it is a black and white

2 video, it does shift back and forth. Then because of the

3 color mode, when you have color effects on there, it can

4 introduce noise into the system, so I removed that.

5   Q. Just so that we all remember what "noise" means,

6 what is "noise"?

7   A. "Noise" is just information that is embedded

8 into the video or the imagery --

9   Q. That shouldn't be there?

10   A. Yes. It impedes the detail of the image.

11   Q. Okay. So what did you do next?

12   A. Increased the -- so I applied interpolation

13 Bicubic Smoother --

14   Q. Oh, you went right to Bicubic Smoother?

15   A. Yes, sir, for the final output.

16   Q. Well, you haven't told me you applied any other

17 interpolation method. You went right to Bicubic Smoother?

18   A. Yes, sir.

19   Q. Why?

20   A. Because that was the best one that I thought

21 was --

22   Q. Well, how do you know since you didn't apply any

23 of the others?

24   A. That was the best one that I thought that was

25 applied.

1   Q.   How do you know if you did not apply the others?

2   A.   That's the first one that I viewed and it was an

3   accurate representation of what the video was.

4   Q.   So you only applied one and said, I'm just going

5   to stick with this one?

6   A.   Correct.

7   Q.   Even though another one could have done much

8   better?

9   A.   I don't believe so.

10   Q.   You don't believe so?

11   A.   No, sir.

12   Q.   Well, how do you know that since you didn't try

13   them?

14   A.   So the Nearest --

15   Q.   It's not funny.

16   A.   The Nearest Neighbor, in my professional

17   opinion, would not affect this video correctly or these

18   images correctly because of the stairstepping. I don't

19   use bilinear because it is a less professional

20   interpolation than Bicubic Smoother. That is the one that

21   I used.

22   Q.   Okay.

23   A.   Bicubic Sharper, we're not reducing the imagery

24   down. I didn't want to sharpen it. I wanted to smooth

25   the effects to make it appear a true and accurate

1   representation of the original imagery.

2   Q.   So let's talk a little bit about this. So this

3   interpolation, again, you know, Glenn and I are always

4   struggling with this forensic area, but this interpolation

5   now of the images?

6   A.   Yes, sir.

7   Q.   Did it increase the number of pixels?

8   A.   Yes. Increasing the image increases the pixels.

9   Q.   Okay. So what's the number of pixels that you

10   started with, and what is the number of pixels that you

11   ended up with when you did this Bicubic Smoother?

12   A.   I did not write that down.

13   Q.   Well, hundreds of thousands more?

14   A.   Presumably more.

15   Q.   Millions more?

16   A.   Possibly.

17   Q.   Millions more pixels that were not in that image

18   when that system recorded that image?

19   A.   The pixels are derived from the original

20   pixels --

21   Q.   That's not my question.

22   My question is: Millions more pixels than were

23   in that particular image when that image was first

24   recorded by this system; correct or incorrect?

25   A.   Correct.

1   Q.   Now we're going to go to color. Tell me the

2 variety of colors of those millions of pixels that were

3 now inserted into this particular image.

4   Tell me the number of colors of each pixel that

5 was added during this process?

6   A.   Black and white and a variation of black and

7 white between lower and darker, because I removed the

8 color.

9   Q.   Black, white, and every variation in between

10 black and white? That's a pretty large number.

11   A.   255.

12   Q.   255. So we have 255 different shades between

13 black and white?

14   A.   I'm sorry, 256. Zero is going to be a number.

15   Q.   Shame on you for that one --

16   A.   I apologize.

17   Q.   256?

18   A.   Yes, sir, from 0 to 255 --

19   Q.   And you have no idea where those 256 were placed

20 within that image?

21   A.   Visually, no. I did not go in pixel by pixel

22 and level or identify the level of each pixel in those

23 2,000 images, no, sir.

24   Q.   So maybe we've got 1 percent of the original

25 pixels in that image that were still there? Meaning 1

1 percent versus the 4 million --

2   A.   That is.

3   Q.   The 1 percent of 4 million?

4   A.   That is interpolation.

5   Q.   That is interpolation?

6   A.   Yes, sir.

7   Q.   Okay. So what did you do next?

8   A.   So after the production of those full frame

9 images, I cropped each image to 5 by 7, 300 pixels per

10 square inch in the area of interest and saved those as a

11 TIF image. Then I produced a single image contact sheet

12 of the cropped images, and the full image -- full images.

13   Q.   Okay. Project Number 2, do you remember we went

14 back to the images.

15   A.   Yes, sir.

16   Q.   You probably forgot by now, but we went back to

17 the image. So your Product Number 2, that was more

18 enhancements?

19   A.   Yes, sir.

20   Q.   So were these enhancements of the videos or just

21 enhancements of the images?

22   A.   Let me go back to my report.

23   Q.   Yes, sir.

24   A.   So the second project was an accumulation of six

25 enhanced videos. No images were produced.

Q.   No images at all were produced?

A.   No, sir. I believe the 8,000-whatever images produced on the first set were sufficient.

Q.   So why these videos? Why? Why were they now enhancing again?

A.   So the prosecutor asked if I could place the camera side by side for ease of viewing. So you have multiple angles and multiple views to show the action inside the theater.

Q.   You're talking about Camera Number 11?

A.   Yes, sir.

Q.   Do you know where it was in the theater?

A.   On the side of the wall. Again, I didn't go in there and I didn't have the image.

Q.   Do you know what the capability is as far as distance of that camera was?

A.   No, sir.

Q.   Okay. So Camera 11 and Camera 12, the prosecutor wanted them side by side?

A.   Yes, sir.

Q.   Okay. I'm sure that you recognize that both Camera 11 and Camera 12 were not recording the same activity? I mean, that's a no brainer, right?

A.   Right. So when you look at it, one camera would record and the other one would stop and then go back and

four depending on the motion of the video.

Q.   Okay. So I would imagine you used -- I'm not
going to belabor this point concerning interpolation, but
you used the same process that we've just talked about in
the first project?

A.   Yes, sir.

Q.   Nothing different, right?

A.   I aligned the camera so they are playing in sync
with each other. So when you're seeing one view and the
other, they're both in synch.

Q.   So what I talked about before --

A.   Exactly the same, yes, sir.

Q.   So all my questions of the first project you
would answer the same?

A.   Yes, sir.

Q.   Did you have a third project?

A.   Yes, I did.

Q.   Okay. So what was the third project?

A.   The third project was identify the reflective
material that we see in different spots.

MR. ESCOBAR: I don't think that's part of this
motion; am I correct?

MR. MARTIN: It is not.

BY MR. ESCOBAR:

Q.   So we are not going to belabor that point.

1   They've conceded that point. We are done with that.

2   A.   Yes, sir.

3   Q.   Did you do anything else?

4   A.   Not that I recall, no.

5   Q.   That was the extent of your work in this matter?

6   A.   Yes. The production of the enhanced video, the

7   enhanced images --

8   Q.   Let's go to -- I'm almost done, I promise you.

9   MR. ESCOBAR: Can I have State's Exhibit 9

10   through 14, please, Madam Clerk?

11   May I approach?

12   THE COURT: Yes, you may.

13   BY MR. ESCOBAR:

14   Q.   In direct examination the prosecutor indicated

15   that you had been asked to provide him with some authority

16   for your process of enhancing videos and images, correct?

17   A.   Authority?

18   Q.   Yeah. I mean, do you not consider Defense --

19   excuse me, State's Exhibit --

20   A.   Oh, okay.

21   Q.   -- Number 9 authority?

22   A.   You're talking about the books and the articles

23   and whatnot.

24   Q.   Yeah. What do you consider those? I guess you

25   don't consider them authority. What do you consider them?

1   A.   Material that is relevant to interpolation.

2   Q.   Just like chitchat?

3   A.   No, they're forensic files.

4   Q.   Well, the first one, if my notes are correct,

5   the first one comes from a blog.

6   A.   That's --

7   Q.   Excuse me, Number 9.

8   A.   Number 9?

9   Q.   Yes.

10   A.   May I see Number 9?

11   Q.   Did that come from a blog?

12   A.   The book is right there.

13   Q.   So it didn't come from a blog? So in direct

14   examination with Mr. Martin, you didn't indicate that the

15   information from that came from a blog?

16   A.   A blog?

17   Q.   Yeah, a blog. I wrote it down. "Blog" in

18   quotes?

19   THE COURT: I thought he said book.

20   THE WITNESS: Book. I don't remember ever

21   saying blog.

22   BY MR. ESCOBAR:

23   Q.   That's a book.

24   A.   Yes.

25   Q.   Do you know if that book is peer-reviewed?

1   THE COURT: Excuse me, I hate to interrupt, I

2   really do, but just to be clear, State's Exhibit

3   No. 9 is the Forensic Photoshop, A Comprehensive

4   Imaging Workflow for Forensic Professionals?

5   MR. ESCOBAR: That's what it looks like.

6   THE COURT: I did hear the word "book," but, I

7   mean, was it a blog? I want to make sure I'm getting

8   the correct information.

9   MR. MARTIN: I have no idea.

10   THE WITNESS: The book is right there.

11 BY MR. ESCOBAR:

12   Q.   Okay. So that's a book?

13   A.   The book is right there, sir.

14   Q.   So do you know if that book has been reviewed by

15 anyone?

16   A.   I don't know. It's a published book, I'm sure.

17   Q.   Do you know this gentleman that is the author of

18 this particular paper?

19   A.   Yes, sir. Actually, he taught Amped Five with

20 one of my courses in the past.

21   Q.   Okay. So he taught you or he taught somebody

22 else?

23   A.   He taught a -- the examiners in my office at the

24 time.

25   Q.   An examiner in your office?

1   A.   Examiners. He taught a course on Amped Five in

2 my office.

3   Q.   So my question to you is: Did you do any

4 research on him to determine his level of proficiency?

5   A.   He is an instructor for Amped Five. He's dealt

6 with forensics for some time now. I've talked to him on

7 several occasions. I haven't done any background research

8 on him, no.

9   Q.   Number 10. Do you know that partcular author?

10   A.   I do not.

11   Q.   Okay. Have you done any work to determine his

12 proficiency in what he is writing about?

13   A.   No, sir.

14   Q.   Number 12. Do you know him?

15   A.   Yes, sir, I do.

16   Q.   Tell me how you know him.

17   A.   He has taught several courses that I've

18 attended. I've worked on several cases that he has also

19 worked on. He comes to my office quite regularly to

20 teach. I know his employer. I've known him for quite

21 some time.

22   Q.   That article is really a discussion about

23 printing, right?

24   A.   For this particular one, yes.

25   Q.   It's for printing?

```
 1        A.    Yes.

 2        Q.    Okay.

 3        A.    I have talked to him about interpolation and

 4  everything else in the past, but this particular article

 5  was printing.

 6        Q.    It was printing?

 7        A.    Yes.

 8        Q.    Exhibit No. 14.  Do you know that author?

 9        A.    I do not.

10        Q.    Have you done any research on that author?

11        A.    I have not.

12        Q.    So you don't know the proficiency of that

13  gentleman either?

14        A.    No, sir.

15        Q.    Do you even know if that's been peer-reviewed?

16        A.    No.  I received a paper from a colleague on

17  interpolation.

18        Q.    No. 13, the same questions?

19        A.    The same answers.

20        Q.    Okay.  And last but not least, No. 11.  It says,

21  The Image Processing Handbook by John C. Russ.

22              Do you know that gentleman?

23        A.    No, sir, I do not.

24        Q.    Have you done any research on that gentleman?

25        A.    No, sir, I have not.
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1   Q.   Did you even look at any other chapters that

2   possibly he had written? Is it a book?

3   A.   It is a book. The book is right over there.

4   Q.   And you have it?

5   A.   Yes.

6   Q.   Did you read the book?

7   A.   I didn't read the book cover to cover, no.

8   Q.   Well, did you at least examine the book to see

9   if maybe other areas of the book could enlighten you as to

10   the proprietary or the correctness of using these

11   interpolaters in a forensic setting?

12   A.   I looked for the interpolation methodologies

13   within the book, and then copied those over for the

14   prosecutor.

15   Q.   Okay. But certainly, if you gave -- especially

16   this last one by Mr. Russ you gave that to the prosecutor

17   so that he could use it here at this hearing for

18   presentation of information, correct?

19   A.   I wanted to show throughout a proportional books

20   and information that throughout -- even the image or the

21   information that you had given me on your side, that

22   throughout this Bicubic and then Nearest Neighbor have the

23   same effects, and all of them, generally, say the same

24   thing.

25   Q.   How much time did you spend on this research

1   project?

2   A.   That one right there, a couple of days. We're

3   actually setting up, again, for the scientific working

4   groups a paper on this. I have an individual who is doing

5   full research on it, has a multitude of different research

6   projects going on right now to write the paper for the

7   scientific working group.

8   Q.   So are you telling me that this other individual

9   was the one who did the research for you?

10   A.   No, sir. I'm saying I did that. That's been

11   expanded on as we speak right now.

12   Q.   And in those two days that you spent doing

13   research, how many articles did you read that said just

14   the opposite, that you should not use Bicubic Smoother in

15   a forensic setting?

16   How many articles did you read that said that?

17   A.   I don't recall seeing anything stating that, in

18   the forensic setting, to not do that. I keep saying that

19   the choice is with the examiner, as I've learned

20   throughout my last 20 years doing this. That my choice is

21   my job. And throughout this, the Nearest Neighbor is the

22   most simplest of algorithms to use and it does interject

23   anti (indiscernible) and noise into the system which is

24   not required and not needed.

25   MR. ESCOBAR: Your Honor, I have no further

1   questions.

2   THE COURT: Thank you. Any redirect?

3   MR. MARTIN: No, Your Honor.

4   THE COURT: May this witness be excused?

5   MR. ESCOBAR: Yes.

6   THE COURT: Thank you so much.

7   THE WITNESS: Thank you.

8   (Requested excerpt of testimony was concluded.)

1   C E R T I F I C A T E

2   STATE OF FLORIDA:

3   COUNTY OF PINELLAS:

4   I, CHARLENE M. EANNEL, RPR, certify that I was

5   authorized to and did stenographically report the

6   foregoing proceedings; and that the transcript is a

7   true record of the proceedings.

8   I further certify that I am not a relative,

9   employee, attorney or counsel of any of the parties

10   nor am I a relative or counsel connected with

11   the parties' attorneys or counsel connected with the

12   action, nor am I financially interested in the

13   outcome of the action.

14   DATED this 30th day of January, 2022.

15   /s/ Charlene M. Eannel, RPR

16   CHARLENE M. EANNEL, RPR

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