



November 8, 2016

Assistant District Attorney
San Francisco District Attorney's Office
Hall of Justice
850 Bryant Street
San Francisco, California 94103

Goal:

Analyze multiple videos that capture the incident between Mr. Mario Woods and a group of San Francisco Police officers to determine if there is any evidence of Mr. Woods dropping the knife before officers shot Mr. Woods with lethal force.

Background:

Video capturing the shooting incident between Mr. Woods and a group of San Francisco police officers was captured by several different camera sources. The sources of these videos come from onboard security cameras from a Muni bus and three bystanders who used the video cameras on their cell phones.

Step One: Sync all relative videos to each other.

The video captured by the cell phones and the bus videos have different frame rates, while the cell phones have frame rate of 30 FPS, the bus video's frame rate is 15FPS. By converting the frames rate to all equal 30 FPS, we were able to sync the four videos we felt were most important to each other. This allowed us to analyze each video source together, as not one video captured the whole event from the most useful angles.

Step Two: Find the knife

With four videos to analyze, our next step was to find a still image within the video that would allow us to successfully identify the knife and to deduce in which hand Mr. Woods was holding the knife. Below are images that show the knife in Mr. Wood's right hand.

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Analysis – Laser-based Photogrammetry – 3D Working Model

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Figure 1: Knife in right hand pointing towards his left

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Figure 2: Image blown up 400% with knife highlighted in red

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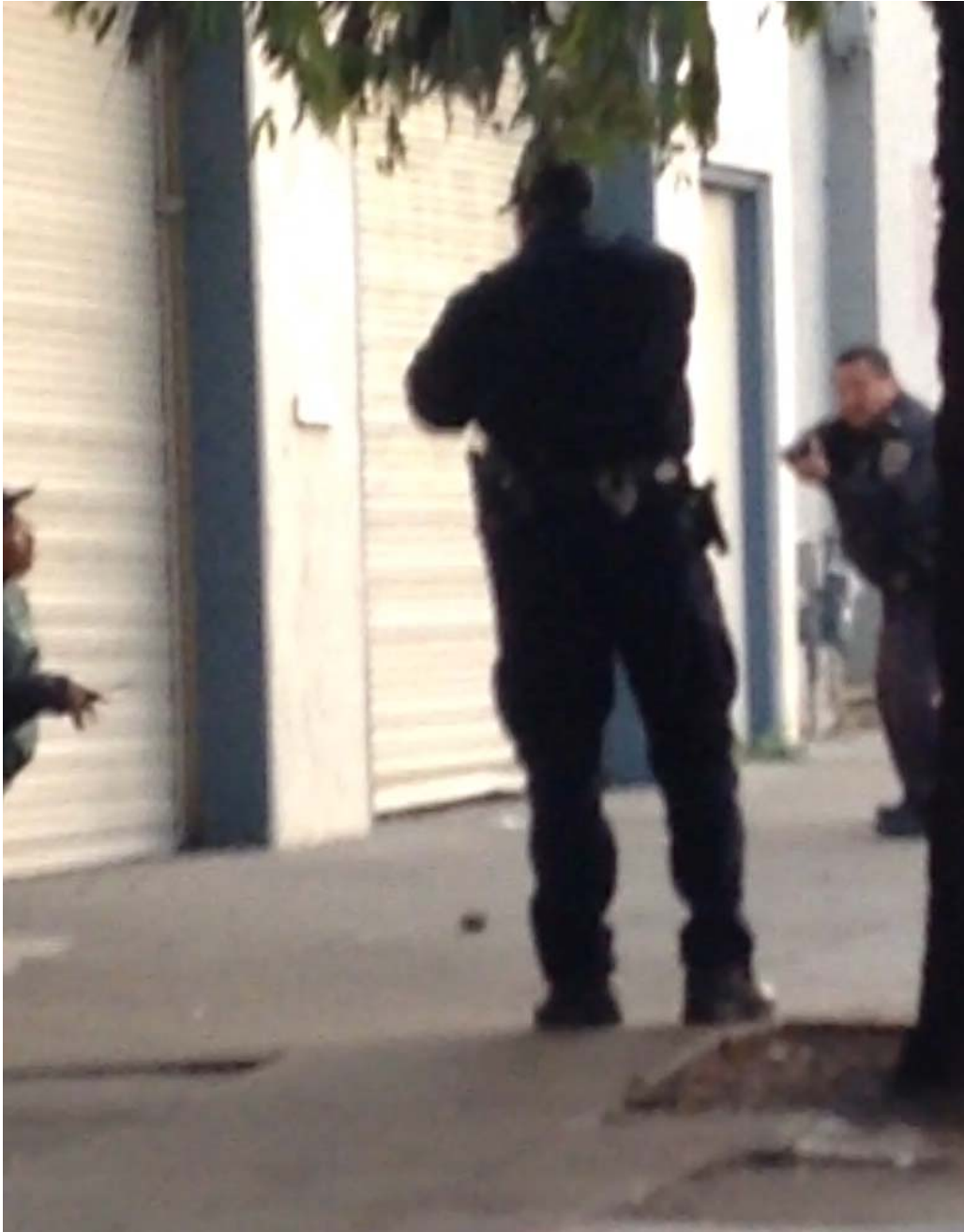


Figure 3: Knife in right hand with fingers spread apart

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Figure 2a: Image blown up 200% with knife highlighted in red with fingers spread

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Figure 3: knife in right hand, highlighted in red

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Step Three: Analyze when knife was dropped onto ground.

Photographs taken by police after the shooting incident illustrate the location where the knife was found.



Figure 4: Photograph of knife on ground

Analyses of the location of the knife places the knife next to the corrugated fence just to the right of where Mr. Woods is first recorded by bystander's cell phone. Looking at the video of this area, there is no evidence of the knife on the ground before shooting began.

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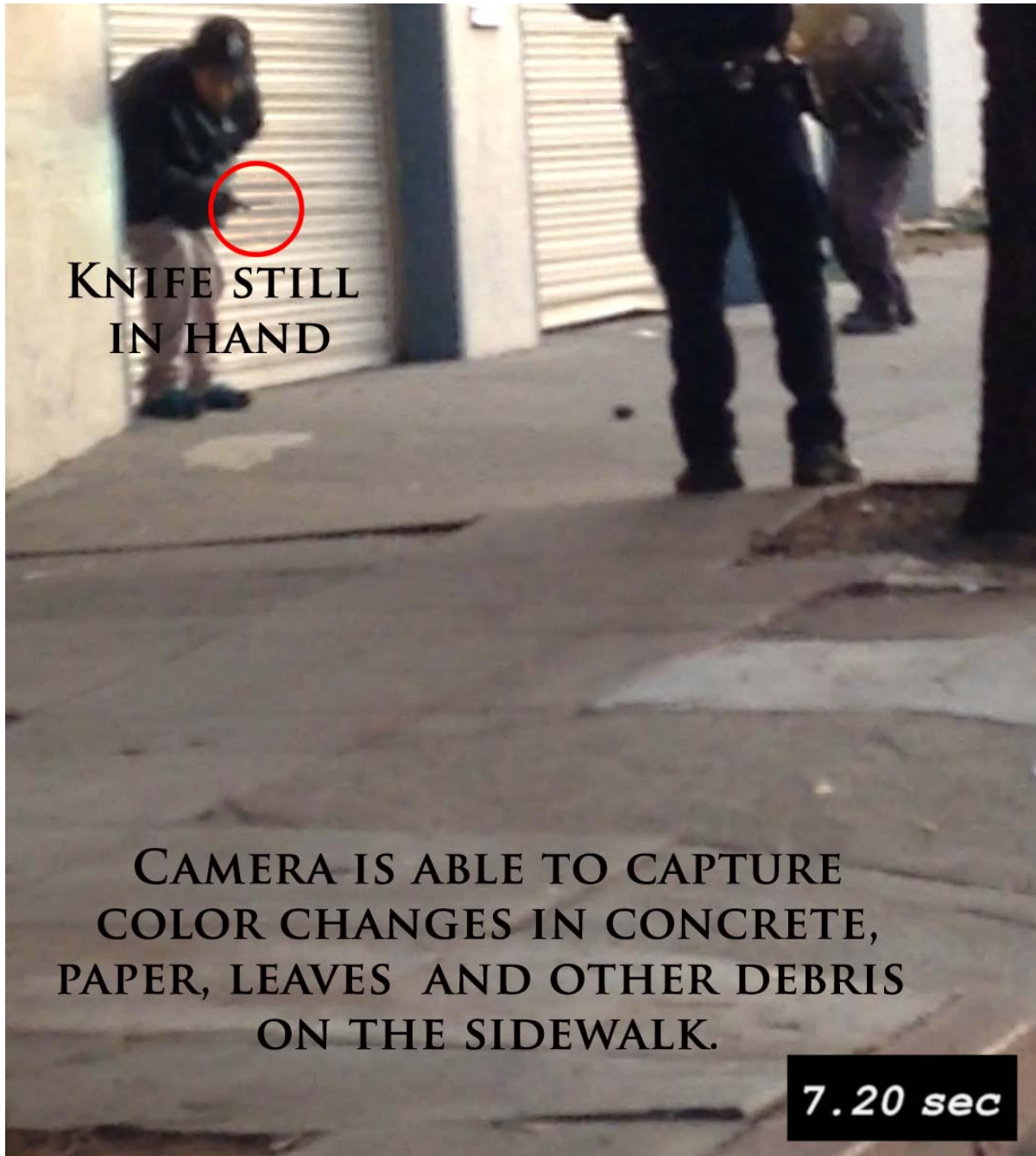


Figure 5: Still image taken from video captured by bystander

Figure 6 demonstrates that the video has enough clarity to pick up other items on the ground and the knife itself when it is being held by Mr. Woods. If this camera is able to capture small items on the ground and the knife itself while off the ground, we should be able to pick up the knife if it is dropped before the shooting incident occurs.

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Figure 7 is a still from another bystander's video and it too is able to not only pick up the knife in Mr. wood's hand but other small items found on the street, such as leaves, color differences in the concrete and the other debris.

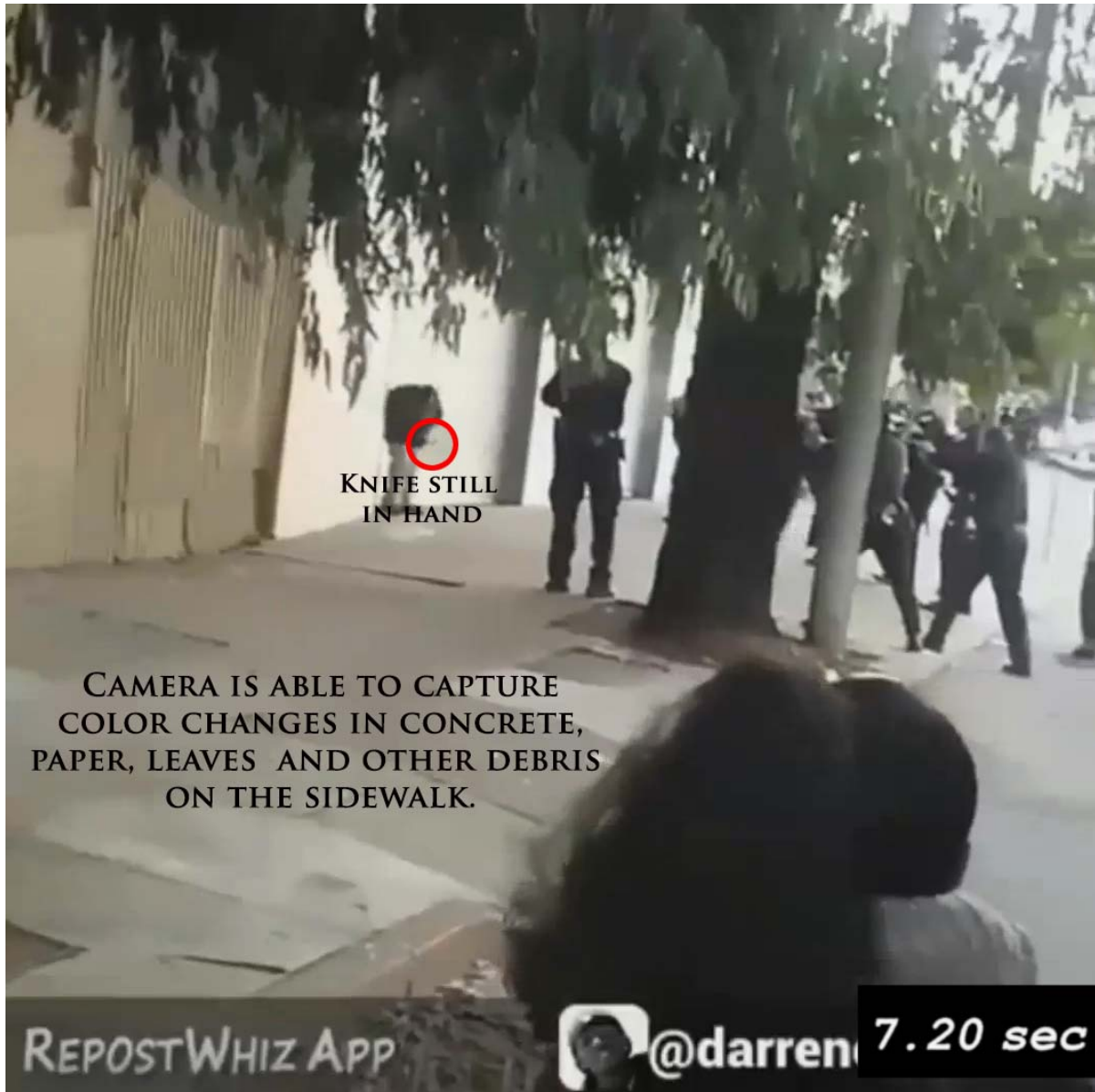


Figure 6: Still image taken from video captured by bystander.

We are never able to find evidence of the knife being dropped to the ground prior to the shooting incident occurring when viewing several still images from the captured video.

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Figure 7: Still image 1.0 seconds before shooting, no evidence of knife on ground.

Figure 8 Image is still able to pick up a lot of detail on the ground but no evidence of a knife. Due to the officer blocking some portions of the ground we looked at other stills with the officer moving to his left. Figure 9 is a still image 0.5 seconds before impact and still no evidence of the knife on the ground can be found.

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Figure 8: Still image 0.5 seconds before shooting, no evidence of knife on ground.

Figure 10 is a still image of the moment the shooting incident occurred and again, there is no evidence that a knife can be found on the ground.

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Figure 9: Still image moments before shooting incident occurred, there is no evidence of knife on the ground.

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Conclusion:

After analyzing videos captured from five different sources (frame by frame) we were able to find the following:

- 1) Mr. Mario Woods had a knife in his right hand.
- 2) Mr. Woods was holding the knife with the blade protruding out between the thumb and forefinger with his remaining fingers gripping the knife handle.
- 3) Mr. Woods turned to his right and began to walk down the sidewalk never dropping the knife before the shooting incident occurred.
- 4) The location where the knife was found on the ground is right next to where Mr. Woods dropped to the ground after being shot by police officers.

Jason C. Fries, CEO

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