CRIMINAL LAW BULLETIN

Volume 59, Number 1

Guest Editor: Francesca Laguardia

FEATURE ARTICLES

1  Let’s Go to the Tape: Science-Based Standards for Non-Eyewitness Identifications in a Surveillance World
   Kathy Pezdek and Tamar Lerer

60  A Case of Mistaken Identity: The Criminalization of Victims of Labor Trafficking by Forced Criminality
    Julia Einbond,, Kaitlyn Zedalis, and Hanni Stoklosa

78  What to Expect When You’re Expecting In Prison
    Venezia Michalsen

95  Assessing Legal Needs: Is It Time to Criminalize Swatting?
    Lauren R. Shapiro

COMMENTARY AND REVIEWS

115  Forensic Science
    The Perception of Fingerprint Examination
    Edward J. Imwinkelried

154  SIGNIFICANT FEDERAL COURT DECISIONS
161  SELECTED STATE COURT DECISIONS

For Customer Assistance Call 1-800-328-4880
Let's Go to the Tape: Science-Based Standards for Non-Eyewitness Identifications in a Surveillance World

Kathy Pezdek and Tamar Lerer*

Abstract

Eyewitnesses to an event have always been able to testify about their memory for that event. This Article concerns a less obvious phenomenon: “non-eyewitnesses,” which we define as people who did not actually perceive an event but testify about what they think a video shows about who the video depicts. Despite increased awareness of the dangers of eyewitness identifications and a growing reliance on scientific research to ensure that only reliable eyewitness identifications are admitted, non-eyewitness identifications have been treated as a completely unrelated issue, with lax standards of admissibility untouched by scientific research. This issue is particularly pressing with the proliferation of smartphones and surveillance cameras, which has led to the increased availability of video footage of crimes. Thus, non-eyewitnesses are regularly identifying people from surveillance footage in court with little procedural or substantive protections to ensure the accuracy of their identifications. Such non-eyewitnesses range from a police officer who has arrested the defendant before, to the defendant’s mother, to a person who has met the defendant only once.

This Article illustrates the problems with how these non-eyewitness identifications are being handled by courts and proposes a solution. We first review the evolution of the law governing eyewitness identifications, demonstrating the increasing embrace of scientific research into many courts’ jurisprudence. Then we review the scientific research relevant to the accuracy of non-eyewitness identifications and compare that to the jurisprudence around non-eyewitness identifications, demonstrating that the science and the law do not correspond at all. We next propose an innovative solution:
a two-prong framework for assessing the accuracy of non-eyewitness identifications. In the first prong, we consider, first and foremost, the quality of the available video. Only if the available video is of adequate quality should the assessment advance to the second prong, in which we consider the plethora of situational characteristics that affect the accuracy of identifications by non-eyewitnesses. This test incorporates critical scientific findings including: (1) the quality of the image is the most important determinant of the reliability of an identification; (2) familiarity varies along a continuum; (3) expectations and outside information can contaminate non-eyewitness identifications; and (4) cross-racial non-eyewitness identifications are less accurate, just as cross-racial eyewitness identifications are. We end by applying this test to admissibility decisions and jury instructions in a variety of situations in which non-eyewitness identifications are frequently presented to courts.

INTRODUCTION

Eyewitness identifications are the leading cause of wrongful convictions in the United States. Accordingly, they have attracted much jurisprudential concern and scholarly critique. Scientific research on eyewitness identifications has generated some movement toward reconciling the science with the case law, which had long operated without any recognition of that science. Although only a minority of jurisdictions have truly overhauled their eyewitness

1 See, e.g., Russell D. Covey, Suspect Evidence and Coalmine Canaries, 55 Am. Crim. L. Rev. 537, 546–48, 547 tbl.2 (2018); Brandon L. Garrett, Convicting the Innocent Redux, in Wrongful Convictions and the DNA Revolution: Twenty-Five Years of Freeing the Innocent 40, 45–46, 46 fig.3.3 (Daniel S. Medwed ed., 2017); Samuel Gross, What We Think, What We Know and What We Think We Know About False Convictions, 14 Ohio St. J. Crim. L. 753, 769–73 (2017); Andrew M. Smith & Brian L. Cutler, Introduction: Identification Procedures and Conviction of the Innocent, in Reform of Eyewitness Identification Procedures 3, 7–11 (Brian L. Cutler ed., 2013).


3 See sources cited supra note 2.
identification standards, all stakeholders in the criminal justice system—defense attorneys, judges, prosecutors, and, critically, jurors—are increasingly aware of the fallibility of eyewitness identifications due to high-profile exonerations and, in some places, instructions that warn jurors explicitly of these dangers.

However, another type of identification has gone largely unnoticed by courts and scholars, even as it becomes a more common form of proof used against criminal defendants. These identifications are made after the fact from some type of recording, by a person who is at least somewhat familiar with the defendant. We have coined the term “non-eyewitness identifications” to refer to these identifications. For instance, an acquaintance, a neighbor, or even a law enforcement officer who has had interactions with the defendant may be asked to identify him in a still image from surveillance footage of a crime.

Non-eyewitness identifications have long been subject to their own liberal standards of admissibility, essentially being permitted to

---


5See, e.g., Criminal Jury Instructions for New Jersey, Identification—In and Out of Court Identifications (Rev. May 18, 2020) (informing jury that “[e]yewitness identification evidence must be scrutinized carefully. Human beings have the ability to recognize other people from past experiences and to identify them at a later time, but research has shown that there are risks of making mistaken identifications.”); Criminal Jury Instructions for Massachusetts, Eyewitness Identification (Nov. 16, 2015) (informing jury that “[p]eople have the ability to recognize others they have seen and to accurately identify them at a later time, but research and experience have shown that people sometimes make mistakes in identification. The mind does not work like a video recorder. A person cannot just replay a mental recording to remember what happened. Memory and perception are much more complicated.”).

6See e.g., George Bach, Moderating The Use Of Lay Opinion Identification Testimony Related To Surveillance Video, 47 FLA. ST. U. L. REV. 445, 460 (2020) (“Courts have been dealing with the issue of lay opinion identification testimony related to surveillance recordings since the mid-1970s. Yet, there appears to be an increase in focus on the issue in recent years, particularly in the state courts, several of which are addressing the appropriate use of this testimony for the first time.”); Yael Granot, et al., In the Eyes of the Law: Perception Versus Reality in Appraisals of Video Evidence, 24 PSYCH. PUB. POL. & L. 93, 94 (2018) (discussing proliferation of video evidence in criminal prosecutions); Mary D. Fan, Justice Visualized: Courts and the Body Camera Revolution, 50 U.C. DAVIS L. REV. 897 901–905 (Feb. 2017) (same).

7This definition separates what we called non-eyewitnesses, who are performing a memory task, from the jurors, who might be asked to perform a matching task: comparing a video to a defendant before them. We discuss the special case of jurors and their matching task infra Section III.
come in whenever the witness has any degree of familiarity with the defendant. The case law governing these identifications has proceeded on a separate track from that of eyewitness identifications, resisting the adoption of scientific knowledge about how memory works, despite the relevance of that knowledge to these non-eyewitness identifications. With the ubiquity of recording devices in public and private spaces—from smartphones to doorbells that record video to police body-worn cameras—the use of these identifications is on the rise. The lack of scientifically informed standards as to how to handle this evidence is a matter of grave concern for those of us who are disquieted by the risks it poses to the wrongly accused and who are invested in the fairness of trial proceedings.

Why does the lack of scientific understanding of non-eyewitness identifications in the courtroom matter? Imagine that a robbery is committed. If an eyewitness sees the robber conducting the robbery and identifies him, that identification is subject to significant review for reliability. Under the best circumstances, some jurisdictions consider all of the factors that impact reliability, both in the control of the police (system variables) and out of their control (estimator variables), in making an initial determination as to the admissibility of the identification. If the case goes to trial and the identification is admitted, the jury will be guided regarding how to consider that identification, including, in some jurisdictions, an admonition to remember that human memory is fallible and that “research has shown that there are risks of making mistaken identifications.”

But what if, instead, that robbery is caught on surveillance camera video and later that same witness does not see it live but only views the video and then identifies that perpetrator? That identification, a non-eyewitness identification, is subject to none of the protections or limitations required of an eyewitness identification. If the non-eyewitness claims almost any degree of familiarity with the perpetra-

---

8 See infra Section III.A, for a discussion of the admissibility standards for non-eyewitness identifications.

9 See infra Section I.C.2.

10 See sources cited supra note 6.

11 For a definition of this distinction, see Gary Wells, Applied Eyewitness-Testimony Research: System Variables and Estimator Variables, 36 J. PERSONALITY & SOC. PSYCH. 1546, 1548 (1978).

12 For a discussion of these factors, see infra Part I.

13 See supra note 5.

14 See infra Section III.A, and accompanying text.
tor, that identification will be admissible. The judge will not consider any suggestiveness in the circumstances leading to the identification. The judge will not consider the risk of an irreparable misidentification. And the jury will not be told about these risks.

This disparate treatment persists even though the memory exercise is in many ways similar in both eyewitness and non-eyewitness identifications: The witness is comparing their memory of a face to an image of a face and deciding if these are the same person. In the case of the eyewitness, the “face in memory” is from having actually witnessed a person commit a crime and, sometimes, also from some prior exposure to that person in the course of their life. In the case of the non-eyewitness, the face in memory is always from some prior exposure. But, except for the fact that claimed familiarity is always a factor in non-eyewitness identifications and only sometimes in eyewitness identifications, the underlying cognitive processes are typically very similar. And we know, empirically, that identification errors with eyewitnesses occur with familiar faces, just as with strangers: In a review of the first twenty-five years of DNA exonerations, fifteen percent of misidentifications involved a witness with a prior confirmed familiarity with the person identified but who was actually innocent. The inconsistent standards applied to identifications by eyewitnesses and non-eyewitnesses, and the lack of scholarly critique of these standards, undermines the reliability of non-eyewitness identifications and the fairness of convictions that rest on them.

This Article fills the vacuum of scientific and legal literature on non-eyewitness identifications. It proceeds in four parts. In Part I, it traces the history of the concern over eyewitness identifications and the reform of the standards governing those identifications, which has gained momentum in the courts over the last decade. Part II reviews what we know about how video evidence is perceived by those watching it and the science that applies to non-eyewitness identifications.

Part III reveals courts’ ongoing failures to apply the science to these kinds of identifications and presents the innovation of the Article: a two-pronged, scientifically grounded approach that courts should use in assessing the admissibility of these identifications and in articulating jury instructions at trial. The first prong presents a threshold requirement: If the video image of the face is of such low quality that the probability of an accurate identification is unaccept-

See infra Section III.A, for a discussion of the admissibility standards for non-eyewitness identifications.

ably low, no non-eyewitness identification should be admitted. If the threshold requirement of sufficient quality is met, such that there is a reasonable probability of an accurate identification, then the court should go on to consider other factors in assessing the admissibility of the identification, including familiarity, priming, and the cross-race effect. By making image quality a threshold question, the test acknowledges the primacy of this factor. It also acknowledges that in a criminal trial, the question of who is depicted in an image of the crime is often the ultimate question. Simply put, it is not possible to assess an observer’s claimed familiarity with the person in the image if the image is of such low quality that the identity of that person cannot be determined. While context and cognitive bias will often lead people to believe they are familiar with a person in the image, the question of whether someone is in fact familiar cannot even be considered with a low-quality image. Part IV applies this framework in multiple settings—to non-eyewitness identifications by lay persons and by police.

I. ADMISSIBILITY OF IDENTIFICATIONS BY REALTIME EYEWITNESSES

June 12, 1967, marks the advent of modern eyewitness law. On that day, the Supreme Court of the United States decided three cases—United States v. Wade; Gilbert v. California; and Stovall v. Denno—in which the Court held, for the first time, that there were some constitutional limitations on the admissibility of eyewitness identifications. Wade established that the Sixth Amendment requires the presence of defense counsel at a lineup of potential suspects, Gilbert established a way for identifications to be admitted in evidence even if the lineup procedure violated Wade, and Stovall approved of the use of show-up procedures—an identification procedure in which the suspect is presented singly to the crime victim—while noting that such procedures were “widely condemned.” In Wade, Justice Brennan famously noted that “[t]he


22 Gilbert, 388 U.S. at 272–73.

23 Stovall, 388 U.S. at 302.
vagaries of eyewitness identification are well-known; the annals of
criminal law are rife with instances of mistaken identification.”

In 1972, Neil v. Biggers laid the groundwork for the test of the
admissibility of eyewitness identifications that is still in use in federal
courts and many state courts today. The Court explained that courts
must determine the admissibility of an identification, even one that is
produced by a suggestive identification procedure, under the “totality
of the circumstances,” examining the now-familiar five factors to
determine the “likelihood of misidentification”: (1) “the opportunity
of the witness to view the criminal at the time of the crime”; (2) “the
witness’ degree of attention”; (3) “the accuracy of the witness’ prior
description of the criminal”; (4) “the level of certainty demonstrated
by the witness at the confrontation”; and (5) “the length of time
between the crime and the confrontation.” An identification would
be suppressed only if there existed a “very substantial likelihood of
irreparable misidentification.”

When Biggers was decided, the scientific research around
identification was not yet robust, and these factors were distilled
from the Court’s prior cases, not from any scientific source. The
applicability of these factors, which are to be weighed against “the
corrupting effect” of a suggestive identification proceeding, was
cemented in 1977 in Manson v. Brathwaite. The Court famously
explained that “reliability is the linchpin in determining the admissibil-
ity of identification testimony,” but that reliability would be assessed
against only the Biggers factors. And for the federal courts, nothing
has changed in the forty-five years since.

However, much has changed in the decades following Manson,
both in science and in our popular understanding of the risks of

24 Wade, 388 U.S. at 228.
27 409 U.S. at 198 (quoting Simmons v. U.S., 390 U.S. 377, 384, 88 S. Ct. 967,
19 L. Ed. 2d 1247 (1968)).
28 Kahn-Fogel, supra note 17, at 183–84 (explaining that “the science of eyewitness
identification remained largely stagnant until the late 1970s”).
29 Biggers, 409 U.S. at 199.
30 Manson v. Brathwaite, 432 U.S. 98, 114, 97 S. Ct. 2243, 53 L. Ed. 2d 140
31 432 U.S. at 114.
32 Arguably, the state of the law has moved even further away from the state of
the science due to Perry v. New Hampshire, 565 U.S. 228, 132 S. Ct. 716, 181 L.
Ed. 2d 694 (2012), in which the Supreme Court held that unreliable identifications
caused by suggestive procedures undertaken by non-state actors are not subject to
any due process protections and therefore would not be excluded pretrial under
Biggers and its progeny.
mistaken identifications. The critiques of *Biggers* and *Manson* began almost immediately and have continued, fortified by robust scientific research on memory and on the factors that affect the reliability of identifications. States began to rely on these developments to depart from *Manson*, often by adopting a per se rule rendering inadmissible identifications that are the product of unnecessary, inherently suggestive identification procedures. In one such case, the Supreme Court of Wisconsin began its analysis by noting that “over the last decade, there have been extensive studies on the issue of identification evidence, research that is now impossible for us to ignore.” It also echoed the statistic this Article began with: “The research strongly supports the conclusion that eyewitness misidentification is now the single greatest source of wrongful convictions in the United States.”

The watershed moment for reform of eyewitness identification standards came from New Jersey in 2011, when the state supreme court decided *State v. Henderson*. *Henderson* was the culmination of a process that began in 2009, when the New Jersey Supreme Court appointed a special master “to evaluate scientific and other evidence about eyewitness identifications.” Seven expert witnesses testified at a hearing presided over by the special master and hundreds of scientific studies were reviewed. The result was that the New Jersey Supreme Court “conclude[d] that the current standard for assessing eyewitness identification evidence does not fully meet its goals. It does not offer an adequate measure for reliability or sufficiently deter inappropriate police conduct.” Relying on scientific research, the court threw out the *Manson* factors and

---

33 See, e.g., *State v. Leclair*, 118 N.H. 214, 385 A.2d 831, 834 (1978) (finding it “questionable if a totality-of-circumstances test provides either a sufficient deterrence against the unnecessary use of one-man showups or a sufficient protection against misidentifications which may result therefrom” and establishing a different standard on state constitutional grounds).

34 See, e.g., Rosenthal, supra note 2, at 186; Davis & Loftus, supra note 2, at 49–53; Garrett, Convicting the Innocent, supra note 2, at 62–79 Yacona, supra note 2, at 539; Dwyer et al., supra note 2, at 74–75.


36 Dubose, 699 N.W.2d at 591.

37 Dubose, 699 N.W.2d at 592.


39 Henderson, 27 A.3d 872 at 877.

40 Henderson, 27 A.3d 872 at 877.

41 Henderson, 27 A.3d 872 at 878.
established a new framework for assessing the reliability of eyewitness identifications. The court divided the factors affecting reliability into two groups: system variables, that largely relate to the procedures attending an out-of-court identification; and estimator variables, those that are “beyond the control of the criminal justice system” but are “equally capable of affecting an eyewitness’ ability to perceive and remember an event.” These factors are much more expansive than the *Manson* factors, encompassing ten separate variables.\(^\text{42}\)

The court then created a new framework for assessing the admissibility of an eyewitness identification. To obtain a pretrial hearing, “a defendant has the initial burden of showing some evidence of suggestiveness that could lead to a mistaken identification,” which generally must be tied to a system variable.\(^\text{44}\) The burden then shifts to the prosecution, which “must then offer proof to show that the proffered eyewitness identification is reliable—accounting for system and estimator variables.” Finally, “the ultimate burden remains on the defendant to prove a very substantial likelihood of irreparable misidentification.”\(^\text{46}\) When identifications are admitted, the court required that jurors be instructed on the system and estimator variables, as well as on the risk of mistaken identifications in general.\(^\text{47}\) Other courts have followed suit in the wake of *Henderson*, adapting their rules about admissibility of identification evidence to better reflect the scientific consensus around the reliability of such evidence.\(^\text{48}\)

\(^{42}\) *Henderson*, 27 A.3d 872 at 904. The system variables include blind administration, pre-identification instructions, lineup construction, avoiding feedback and recording confidence, multiple viewings, simultaneous versus sequential lineups, composites, and showups. The ten estimator variables are stress, weapons focus, duration, distance and lighting, witness characteristics, characteristics of the perpetrator, memory decay, race bias, the impact of private actors, and speed of identifications. 27 A.3d 872 at 896–904. For more information on these variables, see also Wells, *supra* note 11.

\(^{43}\) *Henderson*, 27 A.3d 872 at 878–903.

\(^{44}\) *Henderson*, 27 A.3d at 920.

\(^{45}\) *Henderson*, 27 A.3d at 920.

\(^{46}\) *Henderson*, 27 A.3d at 920.

Although most courts have followed *Manson*, and scholars have debated the impact *Henderson* has had on actual outcomes, there can be no doubt that the decision is notable in its adoption of a “social science framework” for guiding police conduct, for changing how the reliability of identifications is evaluated pretrial, and for instructing jurors on how to assess that reliability. This is remarkable in the law, given courts’ general reluctance to incorporate science into their jurisprudence.

But this noteworthy advancement of the science of identification into the law of identification has only gone as far as one form of identification: eyewitness identification. The jurisprudence of non-eyewitness identifications—identifications made after the fact from video surveillance or other footage by those who were not witnesses to a crime and who have claimed familiarity with the person they identify—has been almost entirely ignored during this revolutionary entry of science into the courts. The next section explains why these non-eyewitness identifications are becoming increasingly important, what we know about how people perceive visual images in general, the scientific research on non-eyewitness identifications, and courts’ science-resistant response to them.

---


II. NEW CHALLENGES FOR IDENTIFICATION JURISPRUDENCE: VIDEO EVIDENCE

We live in a multimedia society in which video recordings are omnipresent. Most people carry cell phones with them at all times and can record high-quality video with the push of a finger, and then with a few more clicks can distribute the video on the Internet.\(^{53}\) So too, the use of body-worn cameras (BWCs) by U.S. police departments is growing and will likely soon be ubiquitous.\(^{54}\) In the United States there are estimated to be 85 million surveillance cameras, with most of these installed primarily for the purposes of retail and commercial usage.\(^{55}\) Calculated another way, in 2020, the United States was estimated to have the highest per capita number of surveillance cameras in the world, 15.3 CCTV cameras per 100 people.\(^{56}\) In addition, with video doorbells installed on an estimated 36% of homes in the United States in 2020 (and security cameras installed on additional homes),\(^{57}\) and Pew Research Center’s 2021 estimate that 85% of adults in the United States had smartphones capable of recording video,\(^{58}\) video recordings truly have a universal presence.

The literature around how people perceive video evidence, reviewed in this first section below, reveals a largely uncritical acceptance of video evidence and a belief that it shows a complete, objective account of events that occurred.\(^{59}\) The law similarly has liberal standards for the admission of such evidence: If the proponent of the video evidence can demonstrate that the system that captured that video operates properly and the footage was downloaded properly, that video evidence is admissible in most jurisdictions as a


\(^{55}\) Pezdek, supra note 54.


\(^{58}\) PEW RSCH. CTR., supra note 53.

\(^{59}\) See notes 61–65, infra, and accompanying text.
“silent witness” that can stand on its own. Despite this tendency to naively accept video evidence, eyewitnesses have always had a role in the evaluation of video evidence—under the “pictorial theory” method of authentication of such footage, the video serves as an adjunct to eyewitness testimony, supporting or supplying detail to that testimony, that can also encompass facts and feelings not viewable on a video.

The core of our Article pertains to a kind of testimony that departs drastically from both letting the video speak for itself and from letting people who were at the scene depicted in the video speak to authenticate and augment that video. Instead, we address testimony from people who were never at the scene: non-eyewitnesses. What does the scientific research tell us about when a non-eyewitness can reliably add value to what is depicted in the video, specifically when attempting to identify someone on that video? And how does the case law track that understanding?

It is important to note that there are a few limitations to the comparison we make here. We stated earlier that the memory exercise is in many ways similar in both eyewitness and non-eyewitness identifications. For an eyewitness, the face in memory is from having actually witnessed the perpetrator of a crime. For a non-eyewitness, the face in memory is from some prior exposure to a person in the course of their life. And, as we will elaborate further below, the situational characteristics that come into play can be somewhat different for eyewitnesses and non-eyewitnesses.

Consider first that the circumstances of non-eyewitnesses can be highly diverse. Non-eyewitnesses can be making an identification from a video or a still image derived from a video or a photograph. They may identify someone who is a relative, an acquaintance, or, in the case of a law enforcement officer, a civilian who they have had interactions with previously. Across these examples, it can be seen that a non-eyewitness is more likely to be familiar with the person being identified than is an eyewitness, and, as we will discuss later in Section II.C.2, the degree of familiarity is related to the probability of a correct identification, and this is true for both non-eyewitnesses.

---


62 *See infra* Section 2.C.
and eyewitnesses. It is important to note, however, that, despite this general relationship, familiarity does not cure the issue of misidentification by eyewitnesses, and the advantage of familiarity cannot overcome fundamental problems with image quality. One striking example of the truth that people can misidentify even those intimately familiar to them is the recent exoneration of Ronnell Johnson, who was wrongly identified as being the perpetrator on surveillance footage by both his own father and aunt. His father testified on the stand that he was positive that saw his son on the footage: “I mean, this is clear as day.” Mr. Johnson’s father and aunt were tragically mistaken.

Further, the situational characteristics or estimator variables that we discuss later in this review, including time delay, exposure time, and the cross-race effect, although relevant to both non-eyewitnesses and eyewitnesses, are likely to affect non-eyewitness identifications less than eyewitness identifications. The point here is that although there are important fundamental similarities between the cognitive processes of identification for eyewitnesses and non-eyewitnesses, just as the circumstances for all eyewitnesses are not the same, the circumstances for all non-eyewitnesses also are not the same, as we articulate throughout this Article.

A. Is Seeing Believing? What We Know About How We Perceive Video Representations of Events

Before addressing non-eyewitness identifications specifically, a general overview of how legal decision-makers, in particular jurors, perceive video evidence is helpful. Philosophers have long suggested that people fall prey to what they call “the Grand Illusion” of perception; they also speak of a widespread “naïve realism.” These terms refer to the false notion that our vision (and, with it, our visual memory) provides a detailed, accurate, complete depiction of

---

63 See West & Meterko, supra note 16, at 737 discussing DNA exonerations of people convicted in part on eyewitness identification by a person with confirmed familiarity with the exoneree.

64 See infra notes 148–67 and accompanying text.


66 Johnson, supra note 65.

67 Johnson, supra note 65.

68 See infra Section C.2.


what is in front of our eyes.71 As a result, people are inclined to explicitly or implicitly believe that vision provides full and irrefutable evidence.72 Therefore, people put great faith in this visual evidence, with correspondingly little awareness of (or concern about) visual illusions, interpretive errors, incompleteness, and more.73

Various considerations suggest that people are likely to apply the same naïve acceptance to visual representations of events, such as photographs and video playback. These representations, in other words, typically enjoy the same credibility that is routinely given to direct visual input, even though many factors impact how viewers perceive an event based on how it is recorded.

Consider, for instance, research on the role of camera angle in the evaluation of videos of a police interrogation.74 These are cases of perception and interpretation by those who did not witness the interrogation themselves. The data are clear that the choice of camera angle has a powerful biasing effect both for inexperienced audiences such as jurors, and skilled audiences, such as judges.75 Specifically, viewers are more likely to report that a confession is voluntary if the interrogation was recorded with a narrow camera angle on just the suspect; they are more likely to report that the confession is coerced with a broad camera focus that includes both the interrogator and the suspect.76 Moreover, viewers seem unaware of the biasing effect of the camera angle, and simply accept the visual evidence “as given.”77 Indeed, in these studies, research participants’ confidence in their evaluation of voluntariness does not differ between the two perspective conditions, and the majority consider their evaluation to be correct.78

Just as camera angle influences viewers’ perceptions, so does camera focus.79 In a video recording of an interrogation, if the camera was focused on the interviewed suspect, student participants rated the interviewee more negatively and the officer more positively.

---

71 Noë, supra note 69, at 2.
72 Noë, supra note 69, at 2.
73 Noë, supra note 69, at 2.
75 Lassiter & Irvine, supra note 74 at 274; Lassiter et al., supra note 74 at 195.
76 Lassiter & Irvine, supra note 74, at 272.
77 Lassiter & Irvine, supra note 74, at 273.
78 Lassiter & Irvine, supra note 74 at 271.
79 Ashley Kalle & Georgina Hammock, Bias in Video Evidence: Implications for Police Body Cameras, 15 APPLIED PSYCH. CRIM. JUST. 118 (2019).
compared to if the camera was focused on the officer or on both the officer and the suspect.80 Again, participants accepted the visual evidence at face value and were unaware of the biasing effect of camera focus.81

Despite these concerns, video evidence often stands on its own in the courtroom as proof of what occurred. Traditionally, an authenticated video has been said to "speak for itself."82 Much has been written about Scott v. Harris,83 the case in which the Supreme Court reviewed a police pursuit and car crash to determine whether a reasonable jury could believe that the officer’s pursuit violated the motorist’s constitutional rights.84 The Court, viewing the footage itself, held that no reasonable jury could believe that the officer was in the wrong, despite the lower court’s findings, the Court of Appeals’ holding to the contrary, and the dissent of Justice Stevens.85 “The videotape tells quite a different story” from what the apparently unreasonable Court of Appeals and apparently unreasonable dissenting justice saw on the video.86 The Court of Appeals “should have viewed the facts in the light depicted by the videotape,” the Supreme Court admonished, displaying its belief in the myth that

---

80 Kalle & Hammock, supra note 79 at 132.
81 For a discussion on the relevance of these biases and legal factfinders' lack of understanding of them, see Yael Granot et al., In the Eyes of the Law: Perception Versus Reality in Appraisals of Video Evidence, 24 PSYCH. PUB. POL’Y & L. 93, 101 (2018), and Mary D. Dan, Justice Visualized: Courts and the Body Camera Revolution, 50 U.C. DAVIS L. REV. 897, 947–58 (2017). There is of course also the ability to manipulate these images directly. Note, for instance, the widespread concern about video forgery—and, in the extreme, cases of “deepfakes.” See, e.g., Daniel Victor, Your Loved Ones, and Eerie Tom Cruise Videos, Reanimate Unease with Deepfakes, N.Y. TIMES (Mar. 10, 2021), https://www.nytimes.com/2021/03/10/technology/ancestor-deepfake-tom-cruise.html. Technology now makes it easy to alter digital images, including videos, and then widely distribute these forged images electronically. Rohini Sawant & Manoj Sabnis, A Review of Video Forgery and Its Detection, 20 IOSR J. COMPUT. ENG’G 1, 1–3 (2018). What is especially troubling about these forgeries is that in many instances, given the credulity people display towards videos, they are likely to be accepted at face value and then be difficult to correct.
82 For a thorough discussion of this concept, see Bach, supra note 6.
84 Harris, 550 U.S. at 380–81.
85 Harris, 550 U.S. at 380–81
86 Harris, 550 U.S. at 380.
there is one truth to be seen, even while two courts and their own colleagues disagreed.\textsuperscript{87}

B. How Officers and Civilians Perceive Video Footage of Police-Civilian Encounters

One kind of video regularly pits the perception of eyewitnesses against non-eyewitnesses: the video of a police-citizen encounter in which there are allegations of police wrongdoing. In these circumstances, the direct eyewitnesses—law enforcement professionals—routinely express skepticism about video evidence\textsuperscript{88} and urge that their own account be relied upon. Police skepticism of videos may be rooted in the frequent contrast between the accounts of the officers who participated in an incident as the direct eyewitnesses, and the harsher accounts of civilians—the non-eyewitnesses—who viewed a video of the incident afterward. These differences in perception often prompt the public to ask in disbelief, “what were the police officers thinking?”\textsuperscript{89} The public, in these circumstances, are tacitly assuming that the video gives them all the information they need to evaluate the event.

Part of law enforcement’s concern about video evidence is arguably self-service, especially given the prominence of this evidence in some of the high-profile prosecutions of police.\textsuperscript{90} But surely there is some basis for this skepticism: The video typically does not show what happened in the lead-up to the recorded incident. The video obviously does not show anything outside of the camera’s view, and the video may be pointed in a direction different from the direction of the officer’s gaze, thus capturing different visual information. Indeed, for reasons like these, the limited view of a BWC recording has been described as akin to “watching a baseball game through a straw.”\textsuperscript{91}

How do these factors play out in the contrast between a participat-

\textsuperscript{87} Harris, 550 U.S. at 381.
\textsuperscript{88} As evidence for some of the skepticism about these videos, consider the legislation proposed in some states which would criminalize the filming of police officers. See, e.g., Lindsey Bever, New Arizona Law Criminalizes Filming Police from Less than 8 Feet Away, WASH. POST (July 8, 2022), https://www.washingtonpost.com/nation/2022/07/08/arizona-police-recordings-8-feet.
\textsuperscript{90} Consider, for example, the horrific video that led to the conviction of Derek Chauvin for the murder of George Floyd. For a discussion of the importance of this video and others in prosecutions, see Cheryl Corley, How Using Videos At Chauvin Trial And Others Impacts Criminal Justice, NAT’L PUBLIC RADIO (May 7, 2021), https://www.npr.org/2021/05/07/994507257/how-using-videos-at-chauvin-trial-and-others-impacts-criminal-justice.
\textsuperscript{91} Geoffrey P. Alpert, Working Toward the Truth in Officer-Involved Shootings: Memory, Stress, and Time, FBI LAW ENFORCEMENT BULLETIN, 4 (May 2012).
ing officer’s view of an event (i.e., the eyewitness’s perceptions based on having experienced the event) and civilians’ views (i.e., the non-eyewitnesses’ perceptions based on viewing a video recording)? A recent study by one of the coauthors of this Article compared (a) responses of police officers, the direct eyewitnesses, who had participated in a simulated use-of-force incident at a training facility and recorded this interaction on their BWC with (b) responses of civilians, the “non-eyewitnesses,” who each viewed BWC footage from one of the officers.\textsuperscript{92} Several differences emerged. Officers more accurately remembered how many times they had fired their gun (civilians underestimated the number of shots fired) and were more accurate than civilians at remembering which equipment they had first pulled out. Compared to civilians, officers rated the incidents as more dangerous to themselves and to other people, indicated that they had less control during the incident, and perceived the start of danger earlier in the incident, suggesting a higher level of stress experienced by officers. Officers were also more likely to indicate that the level of force they had used was justified.\textsuperscript{93}

At least some of this contrast may reflect motivated misrepresentation by the officers, but it seems unlikely that this is the full account. Among other considerations, notice that officers reported having shot their guns more than the civilians did. This finding seems inconsistent with either self-service on the part of the officers or the sort of critical perspective we might expect from some civilians, suggesting a genuine difference in perception and memory between direct eyewitnesses to an event and non-eyewitnesses to an event.\textsuperscript{94}

So far, the research literature discussed supports two conclusions. First, although members of the public generally trust and rely on
video evidence without much regard for its limitations, police officers


tend to be skeptical about the value of video evidence, especially


when pitted against the value of their own reports. Second, eyewit-

cnesses to an event and non-eyewitnesses who watch a video of that
event afterward perceive the events differently. To be sure, the video


in many cases provides crucial information that can and should be


considered by the trier of fact. Even so, viewers need to acknowledge


the various limitations of this sort of visual evidence, especially if


they are attempting to determine the perspective of an officer on the


scene.95


C. The Science of Identifications from Surveillance Videos


Where does the science leave us in terms of understanding


identifications from videos? Video evidence is largely accepted as


an independent truth, with little recognition of the biases baked into


the video itself and little concern that the image may be


manipulated.96 However, as exemplified in the case of videos captur-


ing police-civilian actions, there is a strong disparity between how


the event is perceived by officers who were direct eyewitnesses and


civilians who only viewed the video of the interaction afterward.97


This disparity is part of the reason eyewitnesses to an event are


able to testify about their perceptions of an event caught on film—


whether they thought they were in danger, what the object in a


person’s hand looked like from their perspective98—or to authenticate


that a video does in fact represent what occurred.


95 See Graham v. Connor, 490 U.S. 386, 109 S. Ct. 1865, 104 L. Ed. 2d 443


(1989).


96 See supra notes 72–89 and accompanying text.


97 See supra notes 90–95 and accompanying text.


98 Courts have recognized that eyewitness testimony may depart from video


evidence in a given case due to the witness’s specific perception of the events. See, e.g., McDowell v. Sheerer, 374 Fed. Appx. 288, 289–94 (3d Cir. 2010) (holding that, in civil rights case against prison officials, the existence of a video of the disputed event was not a reasonable basis to grant summary judgment because the video could not conclusively resolve the claims raised by the plaintiff-eyewitness, who testified to facts showing officers used force “maliciously and sadistically”); Moore v. Casselberry, 584 F. Supp. 2d 580, 587 (W.D. N.Y. 2008) (emphasizing that summary judgment should not be granted in favor of defendants in civil rights case against prison officials just because plaintiff’s recollection of the precise sequence and timing of a traumatic assault did not correspond perfectly with events shown on videotape); Robinson v. State, 5 N.E.3d 362, 367 (Ind. 2014) (deferring to trial court’s finding that to the extent officer testimony conflicted with video evidence—dash cam footage did not clearly demonstrate defendant’s car veered off the roadway, while the officer testified that the car veered completely off the roadway twice, thus justifying a stop—the officer’s testimony was more reliable); Madden v. State, 242 S.W.3d 504, 516 (Tex. Crim. App. 2007) (deferring to trial court’s assessment that no contested fact issue was raised where an officer testified his visual
But this Article is concerned with a less obvious phenomenon: non-eyewitnesses, meaning people who did not actually perceive an event, testifying about who is depicted in the video. Before we address what value courts think these non-eyewitnesses add, we must consider how good they are at the task in front of them: identifying a person from video evidence.

This Section reviews the scientific research on identifications from surveillance videos.\(^9\) Compared to the wealth of research available on factors that affect the accuracy of eyewitness memory and identification, there is less research on the other side of this coin: non-eyewitness identifications from surveillance videos and still images. The research available does demonstrate, however, that identifications by non-eyewitnesses, especially unfamiliar non-eyewitnesses, are far from accurate and highly prone to errors.\(^{10}\) This is a significant cause for concern because, although the prospect of having ubiquitous surveillance videos could be viewed as potentially removing the need to rely on identification testimony, by letting the evidence “speak for itself,” it has instead created a shift towards non-eyewitness testimony even in cases without “notoriously unreliable” eyewitness identification testimony.\(^{11}\) In the past, with few if any surveillance cameras to record a crime or its surroundings, a crime without an eyewitness was a crime without an identification. Today, given the prevalence of recording devices across the country, a crime without an eyewitness is nonetheless likely to be caught on video.\(^{12}\) The image on the video creates the potential for infinite identifications by non-eyewitnesses: Many people can view an image on a video and form an opinion of who is in it, with different non-eyewitnesses “recognizing” different people.\(^{13}\)

Before embarking on a review of the research in this area, it is important to consider how identifications from surveillance videos

\(^9\) An exhaustive review of this research is not included here; this is beyond the scope of this paper. However, the research reviewed includes findings that are representative of the broader work on each topic.

\(^{10}\) See infra notes 111–95 and accompanying text.


\(^{12}\) See supra notes 54–56 and accompanying text.

\(^{13}\) In one case, upon a video of a crime being played on the news, more than two dozen people were identified by callers familiar with them. Transcript of May 3, 2016, at 45, State v. Custis, Ind. No. 14-01-0204 (N.J. Super. Ct., L. 2016). Other than the person charged with the crime, those identified (and not charged) include the uncle of a caller and the ex-husband of a caller. Transcript of May 3, 2016 at 57, 135, Curtis, Ind.
typically occur. Here, we use the example of identifications by police
officers, although most of this process applies to identifications by
civilians as well.

When a crime occurs, police officers typically search the area for
surveillance cameras that may have recorded events related to the
crime or the commission of the crime itself.104 If surveillance camera
video is available, as it often is, officers review the video to find seg-
ments that best capture the appearance of the perpetrator.105 They
then obtain stills from the video and circulate one or two of the stills
to relevant officers in their department and ask if anyone can identify
the perpetrator on the still.106 However, a statement summarizing the
crime that has occurred and the location where it occurred is often
circulated along with the stills.107 This statement might indicate, for
example, “a purse-snatch occurred at the Powell Street BART
station. The perpetrator was described as a tall, thin, White male in
his late twenties. Attached is a photo that was obtained from the
surveillance video at the scene. Can you help us identify the
perpetrator in the photo?”

In this context, prior to viewing the photo, officers are provided
clues intended to prime their memory for who may have committed
previous purse-snatches around the Powell Street BART station, as
well as who might match the description provided. Research findings
clearly show that our expectations bias what we see, a concept to
be discussed later in this Article.108 As a result, identifications from
surveillance video footage that are accompanied by a statement with

104 See, e.g., State v. Gore, 342 Conn. 129, 269 A.3d 1, 6 (2022) (surveillance
footage captured video of a shooting, which brought police to a car similar to that
depicted in the footage; the person whose home the car was parked in front of told
police it was defendant’s car and subsequently identified both the car and the
defendant from the footage of the shooting); State v. Sanchez, 247 N.J. 450, 255
A.3d 1118, 1123–24 (2021) (flyer was distributed to police officers with image of a
single seated suspect, but detailing that two suspects had possibly committed a
homicide and detailing their heights and race); U.S. v. Jackman, 48 F.3d 1, 2, 41
Fed. R. Evid. Serv. 361 (1st Cir. 1995) (a bank robbery was caught on surveillance
camera; after defendant was identified by an eyewitness, police brought
photographs of the robber to defendant’s wife and acquaintances identified
defendant in the photographs); see also Nancy G. La Vigne et al., Urban Institute,
Using Public Surveillance Systems for Crime Control and Prevention: A Practical
Guide for Law Enforcement and Their Municipal Partners (2011), 34–47 (noting that
officers seek out surveillance cameras in order to find footage of events, which can
aid in the identification of perpetrators when the footage is shown to “other officers
or neighborhood residents”).

105 Supra note 104.

106 Supra note 104.

107 Supra note 104.

108 See Floris P. de Lange et al., How Do Expectations Shape Perception?, 22
TRENDS COGNITIVE SCI. 764 (2018) (reviewing available research); see also infra
Section II.A.2.
details of the incident are likely to be biased by this additional context. Thus, while identifications from surveillance videos are likely to be affected by a myriad of factors related to the clarity of the video and how familiar the officer is with the perpetrator, they are also likely to be biased by complex contextual factors. The scientific research on both of these types of factors will be reviewed in the next section.

We start by considering the accuracy of those undertaking a task similar to that of a jury in court, the seemingly simple task of deciding whether the defendant sitting in front of them is the same person they are viewing in a surveillance video. This is referred to as a matching task, rather than a memory task—individuals need not remember someone, but must only match the defendant with the person in the video. In one study, participants viewed a thirty-five second color video of a target man performing a sequence of choreographed actions. At the same time, a man—either the target from the video or a different man—wearing different clothing entered the room and stood in front of the participants. Their task was to decide if the man in front of them was the same as the target man in the video. Even in the optimal condition, 22% of participants did not identify the man when he was, in fact, the target man from the video, and 18% of participants erroneously made a positive identification when a different man was presented to them. This false positive rate of almost one in five should be of grave concern to the criminal justice system, where the liberty, if not life, of the defendant is at stake.

Similar results were reported in a study that assessed people’s ability to match a photograph of an unfamiliar target person taken from a high-quality video to simultaneously presented photographs in a ten-person lineup. Even in the optimal condition, when the initial photograph showed a full-face view of the target, the correct identification rate for the target was only 70%. Studies like this make it clear that even in an identity match task, in which no memory

---


110 Josh P. Davis & Tim Valentine, CCTV on Trial: Matching Video Images with the Defendant in the Dock, 23 APPLIED COGNITIVE PSYCH. 482, 486 (2009).

111 Davis and Valentine, supra note 110, at 487. Note that this task did not involve memory for the target man, as both the target man and the video appeared simultaneously in front of participants.

112 Davis and Valentine, supra note 110, at 488.

113 Vicki Bruce et al., Verification of Face Identities from Images Captured on Video, 5 J. EXPERIMENTAL PSYCH. 339, 342 (1999).

114 Bruce et al., supra note 113, at 348.
for the target person is involved, correct identifications by non-eyewitnesses are far from perfect; in fact, the rates of erroneous identifications are troublesomely high.

Thus, there is significant reason to doubt that a jury, left to its own devices, will be reliably accurate when determining whether a person in a video is the defendant. It is also important to note that when a jury is tasked with making that decision, it is given only one potential option for the perpetrator on video: the defendant sitting at counsel table. In this way, the face-matching exercise the jury is faced with is akin to a single-suspect show-up, a less reliable identification procedure than a photo array, in which multiple potential identification suspects are shown.115

Other studies have reported that the correct identification rate varies as a function of a number of factors relevant to identifications by non-eyewitnesses.116 These factors may be understood as broadly corresponding to the estimator variables described in Henderson.117 When it comes to video quality, the factors that affect non-eyewitness identifications correspond to the factors that determine the adequacy of the circumstances in the perception phase for a direct eyewitness—when the eyewitness sees the event happening.118 Regarding situational characteristics, the factors included here for non-eyewitness identifications correspond to the factors that determine the adequacy of the circumstances for memory and identification for a direct eyewitness—the “estimator variables” discussed in Section I.119 The following sections divide the relevant studies into those that examine the effect on correct identification rates as a function of the quality of the available video and those that examine the situational characteristics likely to affect cognitive processing of a person in a video.

1. Image Quality

Image quality is the most important factor impacting the reliability of identifications, at least on the lower end of the spectrum; low-quality images lead to low identification accuracy. In the study reported above, the matching accuracy rate for unfamiliar targets was only 70% even though participants viewed high-quality videos.120 It is not surprising then that correct identification rates from poor-

---

116 See infra Sections II.C.1 and II.C.2.
117 See supra notes 42–48 and accompanying text.
118 See infra Section II.C.1.
119 See supra notes 42–48 and accompanying text.
120 Bruce et al. (1999), supra note 113, at 348.
A related study assessed identifications of people in video clips that were recorded on a CCTV camera and time lapse cassette recorder present in buildings on an academic campus. The videos produced by this security system were described as “poor-quality.” Participants first viewed a series of ten of these four-second videoclips two times each. In the test phase, they were then asked to judge whether the man depicted in each of twenty high-quality photographs had been seen in the video clips or not and respond on a scale from one (definitely not seen) to seven (definitely seen). Some of the photographed men in the test phase had been seen in the videos and some had not. The seen faces received higher ratings than unseen faces (indicating a higher correct recognition rate) only when the people in the video were familiar. However, unfamiliar viewers rated seen faces and unseen faces as more similarly likely to have been seen; that is, they had difficulty discriminating between the faces seen and those not seen in the previous videos. It is important to note that in this study, a group of twenty police officers with an average of thirteen-and-a-half years of service performed as poorly as other subjects unfamiliar with the targets. Poor-quality videos produced similarly poor recognition memory for police officers and civilians.

To a large extent, the quality of an image is determined by the resolution of the image and the distance of the subject from the video camera. Many studies have assessed how face recognition is affected by the resolution of the visual image. With low-resolution images, the amount of information available is reduced and so too is recognition memory accuracy. This is important because most faces observed naturally in the world are observed in low-resolution conditions, including, for example, observing a face from a distance, with motion blur, under poor lighting, and with refrac-

122 Burton et al., supra, note 121 at 243.
123 Burton et al., supra, note 121 at 244.
124 Burton et al., supra, note 121 at 245.
125 Burton et al., supra, note 121 at 245.
126 Burton et al., supra, note 121 at 243–45.
128 Loftus & Harley, supra note 127, at 44.
Surveillance videos frequently capture faces under these conditions. A representative study on this topic reported that the accuracy of identifying well-known celebrities from photographs was reduced by reducing the number of pixels (i.e., reducing high spatial frequencies from the original image) and increasing blurring (i.e., manipulated by a procedure known as Gaussian blurring) of the faces. Similarly, the false positive rate (i.e., erroneously judging an unknown person to be familiar) for photographs of a separate group of unfamiliar people was also higher with increased blurring and a decrease in the number of pixels. Other researchers have also reported that accurate identification of even familiar faces was reduced by these two low-resolution conditions. A similar finding was reported when the blurring of a face was achieved by simply increasing the distance of the face image from the camera, a condition that is common in video images from surveillance cameras, typically placed well above street level or far from the incident captured. Together, these findings suggest that although familiar faces are generally recognized more accurately than unfamiliar faces, image quality affects face recognition accuracy for both familiar and unfamiliar faces.

As mentioned earlier, it is a common police procedure to circulate a still from a surveillance video for help obtaining an identification. However, several studies suggest that at the time of the test, looking at a still image of faces will result in less accurate recognition than

---

130 Lander et al., supra note 129.
131 Pei Li et al., On Low-Resolution Face Recognition in the Wild: Comparisons and New Techniques, 14 IEEE TRANSACTIONS ON INFORMATION FORENSICS AND SECURITY 2000, 2000 (2019) (describing the entire field of Low-Resolution Face Recognition, that explores the “common” surveillance-based scenario in which “faces . . . are often contaminated by blur, non-uniform lighting, and non-frontal face pose.”).
133 Lander et al., supra note 129, at 107.
134 Lander et al., supra note 129, at 114; see also Talis Bachmann, Identification of Spatially Quantised Tachistoscopic Images of Faces: How Many Pixels Does it Take to Carry Identity?, 3 EUR. J. COGNITIVE PSYCH. 87, 96 (1991) (reporting that face recognition was significantly impaired when the spatial resolution was reduced below eighteen pixels per face).
135 Loftus & Harley, supra note 127, at 61; see also Sharon Gilad-Gutnick, et al., Recognizing Degraded Faces: The Contribution of Configural and Featural Cues, 41 PERCEPTION 1497 (2012) (reporting that reducing image resolution (i.e., systemati-
ically blurring the images) reduced the ability to detect changes in properties of faces—both featural (interior facial features such as eyes, nose, mouth) and configural (the metric distances among the featural features), suggesting that holistic processing of faces is disrupted in low-resolution images).
136 See cases discusses in note 104, supra, as well as La Vigne et al., supra note 104. See also cases discussed at notes 246 to 310, infra, and accompanying text, for further examples of this investigative technique.
looking at a moving image. In addition, one might assume that matching an unfamiliar person to a photograph would be more accurate if the person was initially observed live versus in a still photograph. However, in a test of this hypothesis, no difference resulted between these two conditions in both an identification test (that involved comparing memory for a previously seen face with the test photograph) and a matching test (in which the to-be-compared faces were both in front of the subject simultaneously). Of note as well, in all conditions, assessing both memory for a person observed live and a person observed in a photograph, correct identification of the target person was, on average, only about 70%.

Regarding other aspects of video quality, researchers have assessed how the accuracy of matching two simultaneously presented photographs of unfamiliar people was affected by lighting (face illuminated from above or below) and viewpoint (face presented in three-fourths profile or full profile view). Although performance was nearly perfect when the two photographs were identical on these dimensions of quality, matching accuracy was significantly reduced with changes in both lighting and viewpoint. This finding is important in forensic situations because rarely would the visual appearance of a person be identical between an initial viewing and a later identification. This would be especially true if a video still from the scene of a crime was recorded under poor lighting and, for example, with the face only shown from a side profile viewpoint.

A range of other dimensions of video qualities follow this same pattern. For example, surveillance cameras are often positioned high on buildings, likely to capture the broadest possible view and avoid equipment theft. The resulting video records incidents on the street below from a downward camera angle, a perspective that differs from that of a typical face-to-face encounter or the jury’s view

---

137 Lander et al., The Role of Movement in Recognition of Famous Faces, 27 Memory & Cognition 974, 983 (1999); see also Lander et al., supra note 129 at 114.


139 Megreya & Burton, supra note 138, at 367.


141 See also Bruce et al., supra note 113, at 357 (presenting evidence that identifying a person from a video is not consistently affected by whether the video is in color or black-and-white).

of a defendant. This view from a downward camera angle is likely to impair subsequent recognition accuracy of a person seen in full frontal view, especially if the target person was initially viewed from above wearing a head covering, such as a cap or hat, thereby blocking the target person’s face. The presence of obstructions between the camera and the perpetrator will also be relevant. Vehicles, other people, and foliage, for example, between the camera and the perpetrator will allow less time to look at the perpetrator and will obscure information about the perpetrator’s gestures, gait, and facial movements. In addition, the image of a perpetrator in a video is often quite small, especially if the camera is located high on a building or far from the location of the incident of interest. Although a still photograph taken from such a video can be an enlarged image from the video, the resolution of the video declines with the enlargement of the image. Each of these factors compounds the deficiencies in the reliability of surveillance videos.

2. Situational Characteristics

A number of situational characteristics impact the accuracy of identifications from videos, as we describe below. These include familiarity, time delay, the cross-race effect, and the biasing effect of relying on information presented prior to the identification. These variables, which we refer to as situational characteristics and are akin to estimator variables, are each discussed in turn.

Familiarity. Among the situational characteristics that affect the accuracy of identifications by non-eyewitnesses from videos, perhaps the most important is whether the person observed is familiar to the observer, as the studies we describe below illuminate. To clarify, a familiar person is one you have seen before, regardless of whether you remember their name or where you encountered them. Although familiar people are more accurately recognized than strangers, correct recognition rates even for familiar people are far from perfect. Moreover, familiarity exists on a spectrum: The more familiar a person is with another, the more likely they are to identify

145 See infra notes 148–234 and accompanying text.
147 See infra notes 153–61 and accompanying text.
that person accurately. However, it is important to note that claimed familiarity is not the same as actual familiarity. Anyone who has had the experience of believing they saw an acquaintance in a supermarket only to approach and realize that it was a stranger knows this is true. Therefore, familiarity in fact consists of two components: (1) Is the person doing the identifying actually familiar with the target and (2) if so, how much does that familiarity help the accuracy of the identification? We begin with the second question first.

In one study, the advantage given by familiarity was assessed in a matching task in which people viewed a three-second video clip of a person and judged whether a simultaneously presented photograph was that same person. This is a relatively easy task because subjects only had to compare the person in the video to one photograph, so the guessing rate was 50%. With familiar people, subjects performed this matching task well, averaging 90% correct. However, matching was far less accurate, averaging about 75% correct, when the person in the video was unfamiliar.

Another study assessed what types of information participants relied on to identify familiar people in surveillance videos. People viewed people they were familiar with in unedited videos or videos with the gait obscured, the body obscured, or the face obscured. Their task was to indicate by name or other distinguishing information who the person in the video was. Only in the condition in which the face was obscured was identification of familiar people in the video impaired. This finding suggests that recognizing familiar people relies on facial information, with little additional help from information about the body or gait.

In a task more akin to real world conditions, the familiarity of a perpetrator was manipulated by having participants interact with a confederate directly, indirectly, or not at all before viewing the

148 See infra note 161 and accompanying text.
149 See infra notes 162–74 and accompanying text.
150 Vicki Bruce et al., Matching Identities of Familiar and Unfamiliar Faces Caught on CCTV Images, 7 J. EXPERIMENTAL PSYCH. 207 (2001). Note that this was a matching task and thus did not involve memory.
151 Bruce et al., supra note 150, at 214.
152 Bruce et al., supra note 150, at 211. For similar results, see also Bruce et al., supra note 113, at 357.
154 Burton et al., supra note 153, at 247.
155 Burton et al., supra note 153, at 244.
156 Burton et al., supra note 153, at 247.
confederate commit a mock crime. Familiarity increased the likelihood of a correct identification in target-present lineups with a correct identification rate of 88% in the high-familiarity condition, 68% in the less-familiar condition, and 58% in the stranger condition.

These studies assessed the effect of actual familiarity on accuracy—that is, the subjects in each study are confirmed to know the targets. But how good are people at determining whether they have seen a person before, that is, whether the person is familiar to them? This is important because familiarity is only helpful to accuracy if it is actual familiarity. A person who incorrectly believes they know a person might be convinced that she identified that person correctly, and she might be quite convincing to a jury as well, and still, she might be incorrect about that familiarity and identification.

The question of how accurate people’s familiarity judgments are was assessed by researchers who had students at two small private high schools view yearbook pictures of graduated students from their school who were seniors when participants were freshman (familiar) or students from a different high school (unfamiliar). Each high school had a small campus where all students came in contact with each other on a daily basis. The task of participants was to decide whether the person in each photograph was familiar to them or not. Although familiar students were more likely to be judged familiar than unfamiliar students, the accuracy rate judging who they had seen before was low, with a mean hit rate of 0.42 (i.e., probability of correctly judging familiar faces to be familiar) and a mean false alarm rate of 0.23 (i.e., probability of incorrectly judging unfamiliar faces to be familiar).

In a related study using a different task, researchers had participants view 209 photographs of yearbook pictures from an unknown yearbook and rate whether each had appeared previously in this sequence. All of the people presented were unfamiliar; they had never been seen by the participants and none were repeated in

---

158 Sheahan et al., supra note 157, at 332.
159 Cf. Sheahan et al., supra note 157.
161 Pezdek & Stolzenberg, supra note 160, at 305.
162 Pezdek & Stolzenberg, supra note 160, at 306.
the sequence. The overall false positive rate was 16%.\footnote{Vokey & Read, supra note 163, at 492.} That is, even with the minimal delay between viewing each photo, individuals erroneously recognized as familiar 16% of the faces they had never seen previously.\footnote{Vokey & Read, supra note 163, at 492.} Together, these results suggest that an eyewitness’s report of having seen a perpetrator previously may be of limited forensic value. This includes the report of an officer who says that he recognizes someone from a video because he has seen him before.

Another memory factor that relates to the degree of familiarity with the person observed is the duration of the initial exposure to the “recognized” person, that is, whether prior to the identification test, they were initially seen for seconds versus minutes or more.\footnote{See, e.g., Kenneth R. Laughery et al., Recognition of Human Faces: Effects of Target Exposure Time, Target Position, Pose Position, and Type of Photograph, 55 J. APPLIED PSYCH. 477, 483 (1971). For a review of research on the effects of exposure time on face recognition memory, see also Brian H. Bornstein et al., Effects of Exposure Time and Cognitive Operations on Facial Identification Accuracy: A Meta-analysis of Two Variables Associated with Initial Memory Strength, 18 PSYCH. CRIME & L. 473 (2012).} Studies dating back to the early 1970s have demonstrated that longer exposure times produce higher rates of accurate identifications and lower rates of misidentifications.\footnote{See, e.g., Laughery et al., supra note 166, at 483; Bornstein et al., supra note 166 (offering a review of research).} Faces viewed for seconds, even with multiple brief glances, are less likely to be correctly recognized than faces viewed for longer durations, and longer durations without interruption.\footnote{See, e.g., Amina Memon et al., Exposure Duration: Effects on Eyewitness Accuracy and Confidence, 94 BRITISH J. PSYCH. 339, 348 (2003). For a review of this research, see also Peter N. Shapiro & Steven Penrod, Meta-analysis of Facial Identification Studies, 100 PSYCH. BULL. 139 (1986).} These findings are likely to apply to non-eyewitness identifications as well. For example, based on these findings, an officer who “recognizes” a person from a video is more likely to be correct and have a detailed memory of the person if they had spent more time face-to-face with that person than if they had just seen them briefly, for example, hanging out in a park when the officer drove by.

In sum, familiarity is not an all-or-none dimension; familiarity varies along a continuum. As described by Professor Jonathan P. Vallano and co-authors, this continuum ranges from strangers to those “who have been seen a few times (minimal familiarity—most closely aligned with ‘casual’ familiarity, or individuals seen around the neighborhood), to those who have been seen fairly regularly (moderate familiarity—a regular customer), to those who have been
extensively encountered and/or well known (extensive familiarity—coworkers; family and friends)." 169 The research suggests that all things being equal, when familiarity declines, the accuracy of an identification declines as well. 170

This continuum of familiarity is also likely to apply to the accuracy of non-eyewitness identifications. For example, although an officer is likely to be correct identifying a person he had extensively interviewed only a short time prior, he is not likely to be able to identify every person who he apprehended in the previous year or the year before that. When an officer looks at a still from a surveillance video and says, “this is a person I am familiar with, and his name is X,” his judgment of familiarity is not necessarily diagnostic of identification accuracy. This is especially dangerous given findings that mock jurors believe that identifications are more likely to be accurate if the person identified is familiar to the observer. 171

**Time Delay.** A non-eyewitness identification is not a matching task, but relies in part on memory. Recall that a matching task does not require memory (for instance, a jury might independently match the defendant’s face to a surveillance video when both are available in front of them). 172 In contrast, a non-eyewitness identification comes from an individual remembering a previously seen person. As such, many factors known to affect the accuracy of eyewitness memory would also be relevant to non-eyewitness identifications. One such factor is the time delay between when the person was “recognized” and when he was last observed. 173 One of the best-established principles of memory is that *memory tends to fade with the passage of time*; memories are generally more accurate when tested immediately than after a delay. 174 Thus, for example, an officer’s report of recognizing a person in a video still is more likely to be correct if he is recognizing a person he saw within the past week than “last summer” or “a year ago.”

**Cross-Race Effect.** It is well-known that same-race faces are identified more accurately than cross-race faces, and this finding has been investigated and supported across a wide range of clas-

---


170 Vallano et al., *supra* note 169, at 134.

171 Vallano et al., *supra* note 169 at 128.

172 *See supra* notes 110–114 and accompanying text.


sifications of race and ethnicity. However, it is not as obvious and not as well-known that the cross-race effect applies as well to face matching, where no memory for the initially seen face is involved.

This effect was demonstrated in a study in which Egyptian and Caucasian participants simultaneously viewed a photograph of one target person and a ten-person photographic lineup (that either included the target person or not). The task of the participants was to select the person in the photographic lineup who matched the target person in the photograph, with both in front of them. In some conditions, faces were members of their own race and in some they were members of the other race. For both cohorts, matching accuracy was higher for same-race than for other-race faces. When the target face was included in the photographic lineup, the correct recognition rate averaged 70% with own-race faces and 64% with other-race faces. When the target face was not included in the photographic lineup, nonetheless, another face was picked 34% of the time for own-race faces and 47% of the time for other-race faces. These error rates are surprisingly high and the accuracy rates surprisingly low even when the to-be-matched faces were both right in front of the observers performing the task. This finding suggests that officers matching a previously seen face to a still from a video, and jurors matching the defendant in court to a video they are watching, will be less accurate when the observers—the officers or the jurors—are of a different race than the person in the video.

Prim ing. In identification procedures, priming can introduce bias into an identification by suggesting that a particular person is the target in question. Previously, we discussed the typical procedure by which an officer is asked to make an identification from a surveil-

---

175 For a review of the research on the cross-race effect, see Christian Meissner & John Brigham, Thirty Years of Investigating the Own-race Bias in Memory for Faces: A Meta-analytic Review, 7 PSYCH. PUB. POL’Y. & L. 3 (2001); see also Jungwon Lee & Steven D. Penrod, Three-Level Meta-Analysis of the Other-Race Bias in Facial Identification, APPLIED COGNITIVE PSYCH. (forthcoming 2022), https://doi.org/10.1002/acp.3997.

176 Ahmed M. Megreya et al., The Other-Race Effect Does Not Rely on Memory: Evidence from a Matching Task, 64 Q.J. EXPERIMENTAL PSYCH. 1473 (2011).

177 Megreya et al., supra, note 176, at 1476.

178 Without providing a justification for their claim, these authors differentiated between Egyptians and Caucasians by referring to them as members of different races. Megreya, supra note 176, at 1476.

179 Megreya et al., supra note 176, at 1478.

180 Megreya et al., supra note 176, at 1478.

181 Megreya et al., supra note 176, at 1478.

182 See La Vigne et al., supra note 104.
lance video. In this procedure, stills from the surveillance video are circulated to officers, and they are asked if they can identify the perpetrator on the still. Frequently though, a statement is circulated along with the still that summarizes the crime and the location where it occurred. This statement is likely to bias the identification by providing constraints on officers’ memory search for a possible perpetrator. There is a wealth of research showing that human perceptions are shaped by our expectations. As one example, in a grainy photograph, a red circle is likely to be perceived as a ball in a photograph of a playground and is likely to be perceived as a tomato in a photograph of a vegetable garden. Our expectations bias what we see, especially when sensory input is weak or ambiguous.

In the example above, if we expect to see a specific person purse-snatching at the Powell Street BART station, even if the appearance of the individual in the video still is noisy and of poor quality, we are more likely to report seeing that person than when we simply look at the video still with no expectations. Using other terminology, the description summarizing the crime and the location where it occurred “primes memory” for who the perpetrator is likely to be, and that person is then likely to be “recognized” as long as they generally match the person in the video still. Identifications that occur in primed situations are thus biased. The question of whether the same identification would have occurred without the crime summary is not considered.

A Note on Judgments of Confidence. Another factor that should be considered in assessing the reliability of an identification is the confidence expressed by the eyewitness. Research suggests that, in judging whether an identification is likely to be correct, factfinders tend to rely on the confidence expressed by the eyewitness in

183 See La Vigne et al., supra note 104, as well as the cases discussed in note 104, supra.
184 See La Vigne et al., supra note 104, as well as the cases discussed in note 104, supra.
185 De Lange et al., supra note 108 at 765.
186 For a review of this research, see de Lange et al., supra note 108.
187 De Lange et al., supra note 108 at 765.
188 De Lange et al., supra note 108 at 765 (describing the impact of expectations on perception).
189 See e.g., State v. Sanchez, 247 N.J. 450, 255 A.3d 1118, 1122–33 (2021) (in holding that a non-eyewitness identification is admissible, not addressing that influence of contextual information provided in the alert circulated to officers, which included the suspect’s race, height, and the crime he was suspected of committing).
and high-confidence identifications are more likely to persuade a jury. In fact, high ratings of confidence at the time of the initial identification are typically predictive of high accuracy. Notably, in an analysis of the wrongful conviction cases overturned by DNA evidence, the majority were cases where the initial identification was made with low confidence, even though the subsequent identification in court was made with high confidence.

Until recently, research on the relationship between confidence and accuracy has been plagued by two problems. First, researchers have only recently focused their analysis of the confidence/accuracy relationship on the eyewitnesses who actually make a selection from a lineup, the “choosers.” When the analysis includes only the “choosers,” and if the identification process is not contaminated, the correlation between confidence and accuracy is a strong positive one; high confidence is highly predictive of high accuracy. But when research includes eyewitnesses who do not make a selection from a lineup, the “non-choosers,” the correlation between confidence and accuracy is modest; high confidence does not strongly predict high accuracy. This distinction is important to note.

The second problem with using confidence to predict accuracy pertains to the fact that when an eyewitness makes a misidentification in the courtroom, they almost always do so with high confidence. This is because the strong positive relationship between confidence and accuracy is disrupted when the eyewitness evidence is suggestively contaminated, and this commonly occurs by the time a case gets to court. For example, as discussed above, post-event suggestions can distort eyewitness memory, and confirmatory feedback can inflate eyewitness confidence. Also, seeing the defendant multiple times in multiple hearings and in

---

190 Gary L. Wells et al., Confidence, Accuracy, and Juror Perceptions in Eyewitness Identification, 64 J. APPLIED PSYCH. 440, 446 (1979).
193 GARRETT, supra note 2, at 63.
194 Wixted & Wells, supra note 192, at 22.
195 Wixted & Wells, supra note 192, at 22.
197 Wells & Bradfield, supra note 196, at 361.
198 Wells & Bradfield, supra note 196, at 374.
multiple tests of identification (even if the defendant is not initially identified) renders the defendant “familiar” if only because he is viewed so many times after the incident (but not necessarily at the incident). Moreover, if an officer elicits confidence in a leading fashion, perhaps by supplying a degree of confidence that the witness needs only accede to, for example, “and you’re 100% sure that’s him?” that statement of confidence is likewise tainted.\textsuperscript{199} In these situations, when an identification is compromised, high confidence is not predictive of high accuracy.\textsuperscript{200} This is the basis for the claim\textsuperscript{201} that only the first identification by an eyewitness should be considered by a jury, and this is rarely if ever the identification in court.\textsuperscript{202}

Interestingly, confidence in face-matching accuracy is also a better predictor of accuracy for high performers than for low performers, an effect generally referred to at the Dunning-Kruger Effect.\textsuperscript{203} This was reported in a face-matching task using photographs of both familiar and unfamiliar faces.\textsuperscript{204} Although high performers on this task tended to underestimate their face-matching accuracy, low performers overestimated their accuracy by a significant amount.\textsuperscript{205} This finding raises concerns about relying on self-reported measures of face identification ability.

Taken together, these findings suggest that the confidence expressed in the initial identification is likely to be the best indicator of eyewitness accuracy, as long as confidence ratings are obtained shortly after the initial identification and under uncontaminated conditions, two very important caveats that are not always present in

\begin{itemize}
  \item \textsuperscript{199} Gary L. Wells et al., Policy and Procedure Recommendations for the Collection and Preservation of Eyewitness Identification Evidence, 44 L. & HUM. BEHAV. 21 (2020).
  \item \textsuperscript{200} Wells et al., supra note 199, at 15S
  \item \textsuperscript{201} Wells et al., supra note 199, at 15S.
  \item \textsuperscript{202} It is also important that eyewitness confidence be assessed soon after the first identification rather than some time afterward. James Sauer et al., The Effect of Retention Interval on the Confidence-Accuracy Relationship for Eyewitness Identification, 34 L. & HUM. BEHAV. 337 (2010). However, it does not seem to matter whether confidence is assessed using a verbal or a numerical confidence scale; a similar confidence/accuracy relationship results for most confidence assessment methods. Chad S. Dodson & David G. Dobolyi, Confidence and Eyewitness Identifications: The Cross-race Effect, Decision Time and Accuracy, 30 APPLIED COGNITIVE PSYCH. 113 (2016).
  \item \textsuperscript{203} Justin Kruger & David Dunning, Unskilled and Unaware of It: How Difficulties in Recognizing One’s Own Incompetence Lead to Inflated Self-Assessments, 77 J. PERSONALITY & SOC. PSYCH. 1121, 1121 (1999).
  \item \textsuperscript{204} Xingchen Zhou & Rob Jenkins, Dunning-Kruger Effects in Face Perception, 203 COGNITION 1, 7 (2020).
  \item \textsuperscript{205} Zhou & Jenkins, supra, note 204.
\end{itemize}
identifications made in real cases. Particularly given the heavy weight that jurors are likely to assign witnesses’ confidence when assessing whether the witness is credible, jurors should be warned that confidence expressed by an eyewitness in court is not likely to be predictive of accuracy, regardless of how the eyewitness’s initial confidence level was recorded.

Police Officers as Eyewitnesses and Non-eyewitnesses. Jurors and other laypeople believe that law enforcement personnel are more credible than other witnesses when they testify in court and, moreover, that officers are more accurate eyewitnesses than civilians. However, it has been substantially documented elsewhere that officers are not more accurate eyewitnesses than civilians. As reported above, when recognizing whether the person in a photograph had been presented in one of ten video clips just seen, officers (with an average of thirteen-and-a-half years of service) rated seen faces and unseen faces as similarly likely to have been seen; that is, they were not able to discriminate between the faces seen and those not seen in the videos. Further, officers’ identification accuracy was similar to that of students who were also unfamiliar with the people in the video.

This pattern of results was also reported in several studies using an eyewitness identification task. In one study, officers (with up to thirty years of professional experience) and civilians viewed a film of a simulated violent robbery. When tested with a photographic lineup, there was no significant difference between these groups in

---

206 See John T. Wixted & Laura Mickes, *Eyewitness Memory Is Reliable, But the Criminal Justice System Is Not*, 30 Memory 67 (2022) (noting that the criminal justice system uses contaminated memory evidence or improper testing procedures, rather than uncontaminated first identification tests).

207 See supra notes 195–96 and accompanying text.


211 Burton et al., supra note 121, at 245.

212 Burton et al., supra note 121, at 245.


214 Lindholm et al., supra note 213, at 439.
the proportion who identified the correct person nor in the frequency of misidentification.\textsuperscript{215} In a related study, participants viewed a sequence of slides depicting an assault.\textsuperscript{216} Subsequent identification accuracy was compared among four groups: university students, high school teachers, recruits in police training, and police officers with up to thirty-five years of professional experience.\textsuperscript{217} No statistically significant differences were reported among groups in the proportion of participants who correctly identified the perpetrator or the proportion who made misidentifications; police officers were not more accurate than civilians.\textsuperscript{218}

Similar results were reported in a study comparing civilians with uniformed police officers (with an average of nine years on the force).\textsuperscript{219} After viewing a fifteen-minute video of a drug transaction, the civilians and uniformed officers did not differ in their accuracy identifying the perpetrator from a photographic lineup.\textsuperscript{220} In that study, a group of more experienced detectives was more accurate than either the civilians or the officers.\textsuperscript{221} However, the largest difference between the civilians (who had a correct identification rate of 20\%) and the detectives (who had a correct identification rate of 43\%) was in their use of the “don’t know” response option when the target was present, inviting the concern that the groups differed substantially only in their willingness to make a response and not true memory.\textsuperscript{222}

In the face of research that suggests that officers are not more reliable eyewitnesses than civilians, it is especially troublesome that officers are less careful making self-reported ratings of their confidence than are civilians, given that factfinders tend to rely on confidence as a gauge of reliability.\textsuperscript{223} In one example, no difference was reported between civilians and officers (with a mean of 8.7 years of law enforcement experience) in the frequency of detecting change-blindness, a phenomenon in which observers fail to notice seemingly salient alterations in visual input, again indicating that

\begin{flushleft}
\textsuperscript{215} Lindholm et al., supra note 213, at 439.
\textsuperscript{216} Sven-Åke Christianson et al., Police Personnel as Eyewitnesses to a Violent Crime, 3 Legal & Criminological Psych. 59 (1998).
\textsuperscript{217} Christianson et al., supra note 216, at 62.
\textsuperscript{218} Christianson et al., supra note 216, at 66.
\textsuperscript{219} Annelies Vredeveldt et al., Observing Offenders: Incident Reports by Surveillance Detectives, Uniformed Police, and Civilians, 22 Legal & Criminological Psych. 150 (2017).
\textsuperscript{220} Vredeveldt et al., supra note 219, at 158.
\textsuperscript{221} Vredeveldt et al., supra note 219, at 158.
\textsuperscript{222} Vredeveldt et al., supra note 219, at 158.
\textsuperscript{223} Wells et al., supra note 190, at 446.
\end{flushleft}
police officers are not more observant overall.\textsuperscript{224} In a separate lineup-identification task in this study, identification accuracy was actually more accurate for students than officers.\textsuperscript{225} Regarding the expressed confidence in an identification, although high ratings of confidence are typically predictive of high accuracy,\textsuperscript{226} in this study confidence was positively correlated with identification accuracy in most conditions for students but was either uncorrelated or negatively correlated with accuracy for officers.\textsuperscript{227} Thus, although confidence ratings by students were indicative of recognition accuracy, confidence ratings by officers were not indicative of recognition accuracy.

Together, the available research suggests that although officers are often considered to be more reliable eyewitnesses than civilians, in fact, they are not. Officers’ self-reported confidence in their identifications tends to be inflated and not actually predictive of recognition accuracy.\textsuperscript{228} And this is particularly problematic, because higher confidence identifications are more persuasive to jurors.\textsuperscript{229} Thus, legal guidelines in place to protect the admissibility of unreliable evidence by eyewitnesses in general should be applied as well to evidence presented by police officers, whether they are actual eyewitnesses or non-eyewitnesses.

The Special Case of Identifications by Jurors. As we mentioned earlier, the jury is positioned differently from a non-eyewitness, having no prior familiarity with a defendant. In the course of a trial, however, with the defendant sitting in front of them at counsel table, jurors are often shown a surveillance video and asked to determine if the perpetrator in the video is the defendant. As explained above, because significant familiarity can give a non-eyewitness an advantage in making an accurate identification, such an identification can be helpful to the jury, assuming the quality of the image is sufficiently high.\textsuperscript{230} But because the ultimate issue of identification is the jury’s to determine, and because sometimes there will be no non-eyewitness providing an identification, it is helpful to think about how the jury should be guided in this task.

Because there is no issue of memory or prior exposure to the perpetrator in this situation involving a jury, determination of a match

\textsuperscript{224}Shannon M. Smart et al., \textit{Skilled Observation and Change Blindness: A Comparison of Law Enforcement and Student Samples}, 28 \textit{Applied Cognitive Psych.} 590, 590 (2014).
\textsuperscript{225}Smart et al., supra note 224, at 593.
\textsuperscript{226}Wixted & Wells (2017), supra note 192, at 55.
\textsuperscript{227}Smart et al., supra note 224, at 593.
\textsuperscript{228}See note 214–32, supra, and accompanying text.
\textsuperscript{229}Wells et al., supra note 190, at 446.
\textsuperscript{230}See supra notes 121–74 and accompanying text.
between the defendant and the perpetrator would rely first and foremost on the quality of the video image, although other factors are also relevant, which we discuss below. As pointed out earlier, even in a matching task such as that performed by a jury matching the defendant in front of them to the person they observe in a surveillance video, people are more accurate recognizing same-race than other-race faces.\(^\text{231}\) In addition, the jury is likely to be biased by other trial testimony presenting contextual information insinuating that the defendant is the perpetrator, which primes the jury just as it would prime police officers.\(^\text{232}\) This contextual information would include, for example, whether the defendant lived near the scene of the crime, was a member of a specific gang, and whether he had a prior history of similar offenses, information that may be presented to the jury under many circumstances.\(^\text{233}\) In the presence of biasing information that jurors are likely to be aware of regarding who the perpetrator was, their own recognition of the defendant as the perpetrator in the video would not be an independent judgment, it would in fact be confounded by this contextual information.

Additionally, with in-court identifications by the jury, there is the problem that this is a single-suspect identification.\(^\text{234}\) When only a single-suspect is presented to be identified, this presents a binary choice to the eyewitness; consequently, an innocent suspect has a 50\% chance of being identified just by chance, a biased condition that undermines the reliability of the identification.\(^\text{235}\) Although our judicial system’s faith in the importance and objectivity of video evidence\(^\text{236}\) means that this evidence will likely be played in court even when captured under less-than-ideal circumstances, giving the jury the critical information that single-suspect identifications are biased and outlining factors that impact the accuracy of an identification in this context would help guide their assessment of the evidence.

**Summary of the State of the Science.** In sum, although eyewitness and non-eyewitness identifications differ in key ways, the bottom line is that many of the factors that may introduce bias, error, or inaccuracy into eyewitness identifications can pervade non-

\[^{231}\text{Megreya et al., supra note 176.}\]
\[^{232}\text{See supra notes 188–94 and accompanying text.}\]
\[^{233}\text{See Thomas J. Reed, Admitting the Accused’s Criminal History: The Trouble with Rule 404(b), 78 TEMP. L. REV. 201, 201–50 (2005) (overviewing the circumstances under which this kind of history may be admitted).}\]
\[^{234}\text{Wells, et al., supra note 113, at 630.}\]
\[^{235}\text{Gary Wells et al., Policy and Procedure Recommendations for the Collection and Preservation of Eyewitness Identification Evidence, 44 L. & HUM. BEHAV. 3, 3 (2020).}\]
\[^{236}\text{Discussed supra in Section II.A.}\]
eyewitness identifications as well. Moreover, jurors are likely to believe and rely on this evidence and can be convinced by evidence that is less likely to be accurate (as in the case of the weak correlation between police officer confidence and accuracy in certain circumstances). Therefore, care should be taken before exposing jurors to this highly persuasive and possibly unreliable evidence—as much, or greater care than when introducing eyewitness identification evidence.

III. **Embracing the Science: A Proposal for Assessing Non-Eyewitness Identifications from Video**

The research above demonstrates the key factors that impact the accuracy of non-eyewitness identifications: image quality, familiarity, time delay, cross-race effect, and priming. How does the case law correspond to the science? In Section III.A, we review the case law governing the admissibility of non-eyewitness identifications. This review reveals that the law does not correspond with the science almost anywhere, and nowhere does the law and science completely correspond. As we see, although a robust set of case law around eyewitness identifications (some of which is informed by scientific research and some of which is not) has been developed over the last fifty years, these non-eyewitness identifications have proceeded on a totally separate track from eyewitness identifications.

In Section III.B, we propose a new two-prong test to replace the inadequate standards currently being used to assess the admissibility and accuracy of non-eyewitness identifications. This test would represent a substantial improvement over the current, scientifically unfounded standards used.

A. **The State of the Law Governing Non-Eyewitness Identifications**

The standard almost all courts have come to when dealing with these non-eyewitness identifications is that they are admissible as long as there is “some basis” for concluding that the witness is more likely to correctly identify the person in the video or photograph than the jury is.\(^{237}\) That standard evolved from the standard for lay-opinion testimony. Other factors that are also considered are whether the witness is a law enforcement officer, the degree of familiarity, and

the quality of footage. Familiarity is the most important factor. A review of the case law reveals, in the words of the Connecticut Supreme Court—in the only decision to avoid some of these pitfalls, discussed infra—that these identifications are generally found to be admissible “unless the witness has had virtually zero prior contacts with the defendant.”

1. Non-Eyewitness Identifications as Merely Lay Opinions

Both eyewitness and non-eyewitness identifications are identifications; in both cases, a person judges that their memory for a person seen in one context is the same as their memory for a specific person seen in another context. However, as we describe below, non-eyewitness identifications have been treated as a separate domain, a lay opinion, since the first decisions to reckon with their admissibility.

It seems that the first published appellate case to deal with the issue is People v. Perry, decided in 1976 by the California Court of Appeals. In Perry, a robbery was captured on film. Multiple people opined on whether the person in the film was the defendant: A manager of the apartment in which the defendant lived said it was him, the defendant’s parole officer said it was him, two police officers testified that it was him, and the defendant’s brother testified that it was not. Rather than looking to any identification jurisprudence, the court framed the issue as one of the propriety of lay opinion testimony, a framing that persists to this day: “The identification testimony of the witness viewing the film of the robbery may be considered lay opinion on the question of the identity of the person.” Thus, like all lay opinion, it is admissible if it is “rationally based on the perception of the witness” and “helpful” to the jury.

The defendant argued that the identifications were inadmissible because they were not based on the witness’s perception of the crime. The court disagreed, holding that the perceptions underlying the identifications were sufficient: “The witnesses each predicated their identification opinion upon their prior contacts with defendant, their awareness of his physical characteristics on the day of the rob-

240 Perry, 131 Cal. Rptr. at 631.
241 Perry, 131 Cal. Rptr. at 631.
242 Perry, 131 Cal. Rptr. at 631. Most evidence codes have similar standards for the admissibility of lay opinion testimony. See 29 Charles Alan Wright & Arthur R. Miller, Federal Practice and Procedure § 6251 (2d ed. 2022) (collecting state rules); F.R.E. 702.
243 Perry, 131 Cal. Rptr. at 632.
bery, and their perception of the film taken of the events.”

Moreover, because evidence was admitted that the defendant’s appearance had changed between the crime and the trial, “[t]he witnesses were able to apply their knowledge of his prior appearance to the subject in the film.” Critically, according to the court, “[s]uch perception and knowledge was not available directly to the jury.” In other words, the non-eyewitnesses had information that the jury lacked and that information was deemed to be helpful to the jury. Although this case comports with what the science reveals, as discussed above—that familiarity can be a helpful advantage in making an accurate identification—as we will see below, this principle erodes into one in which any degree of claimed familiarity is used to justify the admission of non-eyewitnesses.

2. Law Enforcement Non-Eyewitness Identifications

The next significant case to deal with the issue addressed a common wrinkle in these kinds of cases: What about the prejudice a defendant suffers from having a law enforcement officer identify him as someone previously known to the officer? In United States v. Calhoun, the two eyewitnesses to the crime were unable to make an identification of the defendant as the bank robber. In that case, the defendant’s parole officer testified that the person in the surveillance footage of the robbery was the defendant. The trial court ordered that his relationship with the defendant be sanitized to that of “business acquaintances.”

The Sixth Circuit reversed the conviction. The court also adopted the general premise that this sort of identification testimony is governed by the lay-opinion rule. The court did note two problems with the identification. First, there was no evidence that the defendant’s appearance changed between the offense and the trial, rendering the opinion less helpful to the jury. The “main defect” however, was that the defendant was rendered unable to cross-examine the parole officer as to “the possible motives his parole officer might harbor in positively identifying him as the robber.” Such an impairment violated Federal Rule of Evidence 403—the defendant

---

244 Perry, 131 Cal. Rptr. at 632.
245 Perry, 131 Cal. Rptr. at 632.
246 Perry, 131 Cal. Rptr. at 632.
248 Calhoun, 544 F.2d at 293 n.1.
249 Calhoun, 544 F.2d at 293.
250 Calhoun, 544 F.2d at 294.
251 Calhoun, 544 F.2d at 294.
252 Calhoun, 544 F.2d at 294.
had to choose between a “complete and uninhibited examination” and revealing to the jury that he was on parole, an untenable choice.\footnote{Calhoun, 544 F.2d at 296.} While courts addressing the issue after \textit{Calhoun} have acknowledged this prejudice, they have almost uniformly rejected the premise that it could possibly deprive a defendant of a fair trial.\footnote{See, e.g., \textit{U.S. v. Contreras}, 536 F.3d 1167, 1170–73 (10th Cir. 2008) (disagreeing with Calhoun, stating that defendant could have freely cross-examined the parole officer by limiting the scope of his cross to exclude the nature of their relationship); \textit{U.S. v. Pierce}, 136 F.3d 770, 775, 48 Fed. R. Evid. Serv. 1286 (11th Cir. 1998) (recognizing “the danger of unfair prejudice that arises when the source of [lay opinion identification] testimony is a police, probation, or parole officer” but nevertheless finding no abuse of discretion in allowing identification witness to testify she knew the defendant solely in her capacity as a probation officer); \textit{see also U.S. v. Pace}, 10 F.3d 1106, 1115, 38 Fed. R. Evid. Serv. 1532 (5th Cir. 1993) (collecting cases).}

The non-eyewitness cases have not addressed the oft-asserted special competence police officers have at identification, but that special competence is asserted, and accepted, by courts with regularity in the context of eyewitness identifications.\footnote{As a district court in the Second Circuit put it, “[r]ecognizing that police officers are trained observers, courts have repeatedly upheld the admissibility of identifications by law enforcement officers, finding them sufficiently reliable.” \textit{U.S. v. Travis}, 2013 WL 5962955, at *5 (W.D. N.Y. 2013), report and recommendation adopted, 2013 WL 6191486 (W.D. N.Y. 2013) (collecting cases).} Given how readily courts admit law enforcement identifications, as seen since \textit{Calhoun}, it might well be that this assumption is implicit in the rules. Yet in light of the scientific findings discussed above, the presumed special competence of police officers is not scientifically sound and should be rejected.

3. \textit{Change of Appearance and “Familiarity”}

Many cases have addressed the issue of admissibility of non-eyewitness identifications in the years after \textit{Calhoun},\footnote{\textit{See, e.g., U.S. v. Ingram}, 600 F.2d 260, 262, 4 Fed. R. Evid. Serv. 679 (10th Cir. 1979) (non-eyewitness testimony of “close acquaintances” of defendant properly admitted under the lay opinion rule); \textit{U.S. v. Butcher}, 557 F.2d 666, 670, 2 Fed. R. Evid. Serv. 143 (9th Cir. 1977) (finding no abuse of discretion in probation officer’s non-eyewitness identification testimony but noting that “use of lay opinion identification by policemen or parole officers is not to be encouraged, and should be used only if no other adequate identification testimony is available to the prosecution”); \textit{U.S. v. Farnsworth}, 729 F.2d 1158, 15 Fed. R. Evid. Serv. 869 (8th Cir. 1984).} most often relying on the standard articulated by the Eighth Circuit in 1984 in \textit{United States v. Farnsworth}.\footnote{\textit{U.S. v. Farnsworth}, 729 F.2d 1158, 15 Fed. R. Evid. Serv. 869 (8th Cir. 1984).} \textit{Farnsworth} involved a bank robbery with a plethora of eyewitness evidence: Two employees picked the
defendant out of a lineup after the robbery.\footnote{258}{729 F.2d at 1160.} “To buttress this identification evidence,” three witnesses opined that the man in surveillance photographs of the robbery was the defendant: two parole officers, who testified with their professions sanitized, and a separate identification by a car salesman.\footnote{259}{The court enunciated a standard often cited since: “A witness's opinion concerning the identity of a person depicted in a surveillance photograph is admissible if there is some basis for concluding that the witness is more likely to correctly identify the defendant from the photograph than is the jury.”\footnote{260}{Farnsworth explained that a witness is more likely to identify a defendant correctly than the jury is, “where the witness is familiar with the defendant’s appearance around the time the surveillance photograph was taken and the defendant’s appearance has changed prior to trial.”\footnote{261}{The conjunctive has given way to the disjunctive, with subsequent courts explicitly holding that familiarity is sufficient for a non-eyewitness identification to be helpful despite any change of appearance, because a witness familiar with a defendant has the “opportunity to compare the person in the . . . surveillance photograph with every person she had ever met, whereas the jury could only compare the person in the surveillance photographs to the defendant.”\footnote{262}{The idea that significant familiarity breeds special expertise has other cases adopting the same standard include \textit{U.S. v. Jackman}, 48 F.3d 1, 5, 41 Fed. R. Evid. Serv. 361 (1st Cir. 1995); \textit{United States v. Fulton}, 837 F.3d 281, 299 n.151, 101 Fed. R. Evid. Serv. 551 (3d Cir. 2016); \textit{U.S. v. Ellis}, 121 F.3d 908, 926, 47 Fed. R. Evid. Serv. 729 (4th Cir. 1997); \textit{U.S. v. Dixon}, 413 F.3d 540, 545, 67 Fed. R. Evid. Serv. 694 (6th Cir. 2005); \textit{U.S. v. Towns}, 913 F.2d 434, 445, 31 Fed. R. Evid. Serv. 378 (7th Cir. 1990); \textit{U.S. v. Sanchez}, 789 F.3d 827, 837, 97 Fed. R. Evid. Serv. 1151 (8th Cir. 2015); \textit{United States v. Clotaire}, 963 F.3d 1288, 1299, 112 Fed. R. Evid. Serv. 1611 (11th Cir. 2020), cert. denied, 141 S. Ct. 1743, 209 L. Ed. 2d 508 (2021); \textit{Robinson v. People}, 927 P.2d 381, 382, 74 A.L.R.5th 807 (Colo. 1996); \textit{State v. Gore}, 342 Conn. 129, 269 A.3d 1 (2022); \textit{Sanders v. U.S.}, 809 A.2d 584, 595 (D.C. 2002); \textit{People v. Thompson}, 2016 IL 118667, 401 Ill. Dec. 5, 49 N.E.3d 393, 405 (Ill. 2016), as modified on denial of reh’g, (Mar. 28, 2016); \textit{Com. v. Vacher}, 469 Mass. 425, 14 N.E.3d 264, 279 (2014); \textit{State v. Peaslee}, 2020 ME 105, 237 A.3d 861, 865 (Me. 2020).}}

\textit{Farnsworth} explained that a witness is more likely to identify a defendant correctly than the jury is, “where the witness is familiar with the defendant’s appearance around the time the surveillance photograph was taken and the defendant’s appearance has changed prior to trial.” The conjunctive has given way to the disjunctive, with subsequent courts explicitly holding that familiarity is sufficient for a non-eyewitness identification to be helpful despite any change of appearance, because a witness familiar with a defendant has the “opportunity to compare the person in the . . . surveillance photograph with every person she had ever met, whereas the jury could only compare the person in the surveillance photographs to the defendant.”

The idea that significant familiarity breeds special expertise has...
likewise been diluted. Now, it is common for any degree of familiarity
to satisfy the condition that a witness be more likely to correctly
identify the defendant than the jury, with courts admitting non-
eyewitness identifications made by those who have, at most, only a
passing familiarity with a defendant. 263 For instance, in a 1982 case,
United States v. Jackson, 264 the Seventh Circuit concluded that a wit-
ness who had met the defendant only once, at a holiday party a
year before the identification, was properly permitted to identify the
defendant in a surveillance photograph. 265 The court “recognize[d]
the difference between identification testimony which is based on a
witness’s one social encounter with the defendant and identification
testimony which is based upon a witness’s close and on-going
relationship with the defendant,” but that difference “goes to the
weight to be accorded to the testimony rather than to its
admissibility.” 266 As the Connecticut Supreme Court explained, a
review of the “relevant case law reveals that courts regularly find
that this prong of the totality of the circumstances inquiry favors
admissibility unless the witness has had virtually zero prior contacts
with the defendant.” 267 Courts’ treatment of familiarity renders it
“close to meaningless, a mere rubber stamp on the road to admis-
sibility . . . [T]he general familiarity prong, as applied in federal and
state courts, merely asks whether the witness has ever, even once,

263 See, e.g., People v. Leon, 61 Cal. 4th 569, 189 Cal. Rptr. 3d 703, 352 P.3d
289, 312–13 (2015) (allowing identification testimony of detective who had never
seen defendant prior to the crimes or his arrest but had spent approximately two
hours with him since); U.S. v. Beck, 418 F.3d 1008, 1015 (9th Cir. 2005) (probation
officer’s four contacts with defendant, each for thirty minutes or less, was sufficient
for admissibility of testimony identifying defendant in surveillance photograph, as
degree of familiarity goes to weight rather than to admissibility); Gibson v. State,
709 N.E.2d 11, 15–16 (Ind. Ct. App. 1999) (allowing non-eyewitness identification
by an investigator for police department who was also a friend of the defendant’s
older brother and had known defendant since middle school and had seen him “a
few times” since then); Robinson, 927 P.2d at 384 (rejecting defendant’s challenge
to testimony of detective, who had seen defendant once, that defendant was
depicted in surveillance photograph, as degree of familiarity goes to weight rather
than to admissibility); Thompson, 49 N.E.3d at 408.

264 Jackson, 688 F.2d at 1121.

265 688 F.2d at 1125.

266 688 F.2d at 1125.

267 State v. Gore, 342 Conn. 129, 269 A.3d 1, 17–18 (2022) (summarizing and
1982); U.S. v. Beck, 418 F.3d 1008 (9th Cir. 2005); Robinson v. People, 927 P.2d
381, 74 A.L.R.5th 807 (Colo. 1996); and U.S. v. Calhoun, 544 F.2d 291, 1 Fed. R.
Evid. Serv. 1226 (6th Cir. 1976).
seen the defendant prior to identifying him in surveillance video or photographs.”

This treatment of familiarity is contrary to the scientific understanding of identifications discussed earlier in Part II, particularly in its failure to recognize that familiarity varies along a continuum and is not an all-or-none phenomenon. While courts have nominally recognized that degrees of familiarity sit along a continuum, they have accepted any level of familiarity on that continuum as sufficient to yield a reliable, admissible identification. But as explained above, minimal casual familiarity does not significantly enhance the accuracy of an identification. Courts accepting the bare minimum of “familiarity” with a defendant are acting in direct contradiction to the scientific research.

4. Image Quality

In addition to a change of appearance, familiarity, and whether the witness is a law enforcement officer, the other factor courts consider is the quality of the footage. Their consideration, however, is often directly contrary to the identification science. Many courts have held that the lower the quality the footage, the more helpful the non-eyewitness identification is. In those cases, courts seem to reason that familiarity can fill in the gap left by poor video quality. Yet these courts do not require a commensurate increase in familiarity in these cases.

The Georgia Supreme Court’s decision in *Glenn v. Georgia* displays this principle. In that case, video surveillance captured an assault. The defendant’s ex-girlfriend identified him from the footage despite acknowledging that “she could not see his face well.” She testified that she “could just tell” that the man in the video was her ex. In affirming the admission of the identification on appeal, the state supreme court wrote that the “video recording was of such

268 Gore, 269 A.3d 17–18.
269 See supra Section I.C.2.
270 See supra notes 274–76 and accompanying text.
271 See supra notes 149–74 and accompanying text.
272 See, e.g., Glenn v. State, 302 Ga. 276, 806 S.E.2d 564, 568–69 (2017), see also infra notes 288–89 and accompanying text.
273 Glenn, 806 S.E.2d 564, at 569.
274 Glenn, 806 S.E.2d 564, at 568–69.
275 Glenn, 806 S.E.2d 564, at 567.
276 Glenn, 806 S.E.2d 564, at 568.
277 Glenn, 806 S.E.2d 564, at 568.
poor quality that the average juror would not be able to distinguish the faces by themselves.\textsuperscript{278}

Courts have similarly held that obstruction of the face of a person in a video is a reason to admit a non-eyewitness identification.\textsuperscript{279} Some acknowledge that the content and quality of an image is important to making a reliable identification from that image, holding that in order for a non-eyewitness identification to be admissible, the images must not be either “unmistakably clear” nor “hopelessly obscured.”\textsuperscript{280} Nonetheless, in no reported appellate case to date has an image been deemed so hopelessly obscured to render an identification inadmissible.

This treatment of non-eyewitness identifications is utterly incompatible with the scientific research reviewed above. The research makes it clear that the face is the most important cue for accurate identifications, even for familiar people, and thus, faces that are obscured cannot be accurately recognized.\textsuperscript{281} In other words, the quality of the footage is essential to an identification. Low-quality images cannot be miraculously deciphered, not even by someone who has seen the defendant before.\textsuperscript{282}

One critical reason why the standards of admissibility must correspond to scientific standards is that the damage of admitting an inaccurate identification cannot be fixed merely through cross-examination. The reliability of an identification cannot be merely dismissed as going to the “weight not the admissibility” of that identification, a line of thinking rejected in the 1967 trilogy of identification cases in which the Supreme Court determined that the trial court’s gatekeeping role necessitated the exclusion of sufficiently

\textsuperscript{278} Glenn, 806 S.E.2d 564, at 569.

\textsuperscript{279} See, e.g., State v. Gardner, 955 S.W.2d 819, 823–25 (Mo. Ct. App. E.D. 1997) (non-eyewitness identification helpful to the jury because the tape was poor quality and defendant’s face was obscured by his own arm); U.S. v. Allen, 787 F.2d 933, 936, 20 Fed. R. Evid. Serv. 772 (4th Cir. 1986), cert. granted, judgment vacated on other grounds, 479 U.S. 1077, 107 S. Ct. 1271, 94 L. Ed. 2d 132 (1987) (“less than clear” quality of photographs, which provided only “limited glimpses” of individual depicted, rendered testimony of witnesses familiar with defendant more helpful to jury).


\textsuperscript{281} See supra Section C.1.

\textsuperscript{282} It is important to note that even though the term “low quality” has been used to describe much of the surveillance video used in research studies, the quality of these videos is actually similar to that of current surveillance video systems used in, for example, convenience stores and street fronts.
unreliable identification evidence. Not only is such thinking inconsistent with that gatekeeping role, but it is contrary to the scientific evidence that demonstrates that jurors find eyewitness identifications especially compelling, particularly those made with a high level of confidence. Of critical concern, eyewitnesses who make a misidentification are no less likely to persuade a mock-juror than those who make an accurate identification. Because of how compelling identification testimony is, we cannot simply rely on cross-examination to "cure" an unreliable identification.

Nor can a retrospective judgment that a defendant was guilty fix the issue of incorrect and unscientific standards of admissibility. Although corroborating evidence of guilt might be produced at trial—such that the incorrect admission of identification may be considered harmless by an appellate court—standards for the admissibility of an identification do not and cannot consider information extraneous to the reliability of that identification. In other words, the reliability of an identification must be assessed on its own terms, independently of other lines of evidence and not bolstered through other informa-


286Of note, in every DNA exoneration with an identification, it is safe to assume that there was cross-examination of the witness. Yet that did not dispel the power of the misidentification, which lead to the wrongful conviction.

287U.S. v. Greene, 704 F.3d 298, 310 (4th Cir. 2013) (“[E]vidence extrinsic to an identification cannot be considered in evaluating the reliability of the identification.” (emphasis omitted)); Raheem v. Kelly, 257 F.3d 122, 141 (2d Cir. 2001) (concluding “that evidence of record that is unrelated to an identification but that is supportive of a finding of guilt is properly considered in harmless-error analysis, not in the due process inquiry of whether the identification has reliability”); U.S. v. Rogers, 126 F.3d 655, 659 (5th Cir. 1997) (“[A]dmissibility rests on the reliability of the identification judged solely by the circumstances indicating whether it was likely to be a well-grounded identification, not whether it seems likely to have been correct in light of other available evidence.” (citation omitted)); Graham v. Solem, 728 F.2d 1533, 1546 (8th Cir. 1984) (“[O]ther evidence of guilt does not play a formal role in the analysis” of admissibility of eyewitness identification); see also Wise v. Commonwealth, 6 Va. App. 178, 367 S.E.2d 197, 201 (1988) (“[O]ther evidence of a defendant’s guilt, not dealing with the individual eyewitness’s personal observation and memory, plays no part in the analysis of the reliability of that eyewitness’s identification.”); Richards v. People, 53 V.I. 379, 388 n.4 (V.I. 2010) (“Consistent with the majority of jurisdictions, it is evident that corroborating evidence of guilt would be relevant only to a harmless error analysis.”)
tion that suggests a defendant’s guilt. And because standards for admissibility are the same whether the case against a defendant is weak or strong, the standards must be correct as a matter of principle before they are applied to any case.

5. And What of the Henderson Revolution?

As reported above, as courts increasingly accept scientific consensus on the reliability and admissibility of eyewitness identifications, non-eyewitness identifications are persistently treated as a separate category: lay opinions. This treatment is exemplified by a recent decision of the New Jersey Supreme Court, the same court that decided Henderson.288 Asked to pass on the admissibility of an identification of a defendant by his parole officer from a still frame in a be-on-the-lookout flyer, the court did not look to its identification jurisprudence, declining to consider the suggestiveness of the information on the flyer or to consider the risk of misidentification. Instead, in State v. Sanchez, the court went the way of Farnsworth, holding that such an opinion is admissible if it meets the requirements of the lay-opinion rule.289 It distilled from the federal and out-of-state case law the four prongs discussed above to determine if such an “opinion” is admissible under the totality of the circumstances: (1) the “nature, duration, and timing of the witness’s contacts with the defendant”; (2) “if there has been a change in the defendant’s appearance since the offense at issue”; (3) in the case of a law enforcement witness, whether there are “additional witness” who do not carry the prejudice of being a law enforcement officer to identify the defendant; and (4) “the quality of the photograph or video recording at issue,” adopting the “not so unmistakably clear or so hopelessly obscure” standard.290 In Sanchez, despite the trial court’s ruling excluding the identification and the supposedly deferential standard of review, the state supreme court determined that the identification should have been admitted.291 The “social science framework” is entirely absent from the decision.

Only one court has carried forward its embrace of scientific research in the eyewitness identification sphere into the non-eyewitness identification sphere. In State v. Gore, a case about a non-law-enforcement witness, the Connecticut Supreme Court delineated the following four factors from its review of the case law: (1) “the witness’ general level of familiarity with the defendant’s appearance”; (2) “the witness’ familiarity with the defendant’s appear-

291 Sanchez, 255 A.3d at 1132–33.
ance, including items of clothing worn, at the time that the surveillance video or photographs were taken"; (3) "a change in the defendant's appearance between the time the surveillance video or photographs were taken and trial, or the subject's use of a disguise in the surveillance footage"; and (4) "the quality of the video or photographs, as well as the extent to which the subject is depicted in the surveillance footage." These factors echo those previously discussed in this Section and the Sanchez court's factors.

As discussed supra, the Gore court's review of the case law demonstrated that the familiarity bar is almost always met and that this "low standard for general familiarity tends to favor the prosecution." The court therefore concluded that this low standard "does not afford sufficient protection to criminal defendants against good faith mistaken identifications" and held that a higher standard would be required in Connecticut: The court required that "in order for the witness' general familiarity with the defendant's appearance to weigh in favor of admissibility, that the proponent of the testimony demonstrate that the witness possesses more than a minimal degree of familiarity with the defendant." More importantly, the Gore court recognized that many of the same memory exercises, and the concern over those exercises, apply to both eyewitness and non-eyewitness identifications: "Eyewitness identifications are different from identifications of a defendant in surveillance footage. The two contexts, however, overlap in one significant respect: both involve the witness' claimed recognition of the defendant." That overlap means that "recent scientific developments that 'abundantly demonstrate the many vagaries of memory encoding, storage and retrieval; the malleability of memory; the contaminating effects of extrinsic information; the influence of police interview techniques and identification procedures; and the many other factors that bear on the reliability of eyewitness identifications,' " are relevant in the non-eyewitness identification context as well. The court noted in particular that "although familiarity increases the accuracy of identifications, these identifications are not immune from detracting factors such as expectations (the belief

293 Gore, 269 A.3d at 18.
294 Gore, 269 A.3d at 18. In Gore itself, the non-eyewitness had a "long-standing and intimate association with the defendant." Gore, 269 A.3d at 22. Because of this intimate familiarity and the quality of the photograph, which the trial court described as "not unmistakably clear, [but] the subject was close enough to the camera, and his face was visible enough, to allow for recognition[,]" the court held that the admission of the identification was not an abuse of discretion. Gore, 269 A.3d at 22.
295 Gore, 269 A.3d 19.
296 Gore, 269 A.3d at 19 (alterations omitted) (quoting State v. Guilbert, 306 Conn. 218, 49 A.3d 705 (2012)).
that one will come across a familiar face), the presence of a disguise, cross-racial identifications, and an increased distance between the witness and the target individual.\footnote{Gore, 269 A.3d at 21.}

Although this recognition of the application of identification science in this context is heartening, it is not without its limitations. The \textit{Gore} court also adopted the “not unmistakably clear or so hopelessly obscured” standard for the quality of the video.\footnote{\textit{Gore}, 269 A.3d at 21–22.} The court also declined to increase the procedural safeguards for non-eyewitness identifications as it has for eyewitness identifications over the last decade, reasoning that its slightly elevated familiarity bar suffices to protect against the risk of misidentification.\footnote{\textit{Gore}, 269 A.3d at 19–20.}

Neither the \textit{Gore} court nor the \textit{Sanchez} court addressed the biasing impact of prior information that is amply demonstrated in the scientific research;\footnote{See supra notes 187–194 and accompanying text.} courts instead have considered such information solely in the eyewitness identification context. This is of particular concern because, as in \textit{Sanchez}, and as discussed above regarding how expectations shape perceptions, people are often given contextual information about the crime or the suspected perpetrator before being asked to make an identification from a video or photograph.\footnote{See supra Section II.C.2.} Similarly, the courts did not consider the stated confidence of the non-eyewitness or whether that confidence had an appropriate basis. Nor did either court mention the relevance of a non-eyewitness identification being cross-racial, despite the recognition in the eyewitness context—as well as in the non-eyewitness context\footnote{Megreya et al., supra note 176, at 1478.}—that cross-racial identifications are less reliable.

In sum, the standards courts have created to address the admissibility of non-eyewitness identifications are not grounded in any scientific research. The “any degree of familiarity above all” approach ignores critical scientific findings, including: (1) that the quality of the image, in particular the image of the face, is the most important determinant of reliability; (2) that familiarity varies along a continuum and on the lower ends of that continuum identifications are not significantly more accurate than stranger identifications; (3) that expectations and outside information can contaminate non-eyewitness identifications just as they can contaminate eyewitness identifications; and (4) that cross-racial non-eyewitness identifications are less accurate, just as cross-racial eyewitness identifications are. The next Section presents a science-based framework for
assessing the admissibility of non-eyewitness identifications that takes this social science research into account.

B. A Two-Prong Framework for Assessing Non-Eyewitness Identifications

In light of the findings laid out in Section II.C, that the correct identification of a face from a video is determined by (a) the quality of the available video and (b) situational characteristics that affect cognitive processing of a person in a video, we propose a two-prong framework for assessing the reliability of a non-eyewitness identification from video or image. This framework should guide the admissibility of such identifications either under the lay-opinion rule or under eyewitness identification standards. As to the lay-opinion rule, if an identification is unlikely to be accurate, it is not helpful to the jury, as required by that rule. As to identification standards, if an identification is unlikely to be accurate, there is a substantial risk of misidentification, which is the standard for exclusion. Through either admissibility lens, a non-eyewitness identification that is unlikely to be accurate is not probative, but highly prejudicial, and thus must be excluded under Federal Rule of Evidence 403 or its state counterparts. While we urge that non-eyewitness identifications should be assessed as identifications, instead of under the separate lay-opinion track discussed above in Section II.A, what is important is that science be used to inform the standards of accuracy and reliability, regardless of which evidentiary rule guides the inquiry.

The proposed two-prong framework is grounded in scientific research. In the first prong, we consider first and foremost the quality of the available video. Only if the available video is of adequate quality should the assessment advance to the second prong. In the second prong, we consider the plethora of situational characteristics that affect the accuracy of identifications by non-eyewitnesses.

Prong One: The Quality of the Video. The quality of the video should be held to a higher standard and assessed in light of the factors specified earlier in this Article—factors that, based on scientific research, are known to affect the accuracy of face identifications from videos. As described above, the current standard, which allows identifications based on video that is unclear but “not unmistakably clear or so hopelessly obscured” allows too great an opportunity for

---

303 See supra notes 250–53.
304 See supra Part I.
misidentifications, especially in light of the heightened weight given to identification evidence and the likelihood that juries will credit inaccurate identifications.

The factors included here in our proposed prong one for non-eyewitness identifications correspond to the factors that determine the adequacy of the circumstances in the perception phase for a direct eyewitness who saw the event happen. Consideration of these aspects of video quality would ensure that no identification is admitted that is based on an image of such low quality that the probability of an accurate identification is unacceptably low. Rather than the “not unmistakably clear or so hopelessly obscured” standard discussed above, that allows into evidence identifications made from images of a quality too low to allow for accurate identifications, the factors below provide a more nuanced framework for assessment. These factors include:

- Image resolution and distance of the target from the camera;
- Whether the image of the target person is moving or still;
- Lighting on the face of the target person in the video;
- Viewpoint and camera angle of the target person in the video;
- Presence of a hat or other disguise on the target person;
- Obstructions between the camera and the target person.

As a threshold matter, an identification made from an image that is of such low quality that the probability of an accurate identification is unacceptably low must be excluded without consideration of any other factors. This prong requires courts to assess whether there is a reasonable probability of an accurate identification, given the quality of the image.

The reason that image quality is a threshold matter is because, as reported earlier in this review, video quality affects face recognition accuracy for both familiar and unfamiliar faces. We do acknowledge that familiarity can reduce the impact of low image quality—you are more likely to be able to recognize your wife from a low-quality image than a stranger is—but at a certain point of lack of clarity, familiarity cannot overcome poor image quality. Thus, given the risk of a mistaken identification from even a subject who claims to be familiar with the person, the exercise should not be attempted without an image of sufficient clarity that there is a reasonable probability of an accurate identification.

The other reason video quality is a threshold issue is because of the effect of cognitive bias. As we discussed earlier, our expectations shape our perceptions. Moreover, it has been demonstrated that once you know (or think you know) what a picture shows, that

---

306 Lander, supra note 129.
307 De Lange, supra note 108.
knowledge creates the illusion that the picture is clearer than it actually is. Researchers recently demonstrated this by having participants view two blurred images of the same object or scene and adjust the level of blur of one image to match the other. Sometimes one of the images contained predictable information and sometimes the information was unpredictable. At equal levels of blur, predictable objects and scenes were perceived as less blurry than unpredictable ones. This suggests that if familiarity was allowed to compensate for low-quality images, the people who are convinced they can see their close friend in the image will believe the image to be clearer than a person who is less convinced of this. However, unlike in a study, where the person who believes a low-quality image to be of their husband is demonstrably either right or wrong, at trial we do not know if the person making the identification is actually correct. Thus, using their asserted degree of familiarity—which is incorrect if the image of the robber is not actually an image of their husband, but of a stranger—to overcome image-quality issues impermissibly increases the risk of a false positive identification.

As with most evidentiary determinations, and specifically as with the admissibility of identifications, the question of whether the video is of sufficiently high quality to pass muster under this first prong will be assessed under the totality of the circumstances. Of course, one difficulty here is that bright-line operational measures of whether a video image is sufficiently clear are not available. Within the field of vision science, image quality indices have been developed that measure facial image quality on the basis of physical factors such as contrast, brightness, sharpness, focus, and illumination. The development and utilization of image quality indices—and having these applied in the forensic context by relevant expert witnesses—may be a fruitful future pursuit. Perhaps in the years to come they could provide a basis for an objective criterion for determining if an image is adequately clear for an accurate identification to be made. Even so, an index of image quality defined in this limited way does not include the wide range of other factors that are related to image quality, many of which we enumerated in our discussion above under prong one.

However, the factors listed above are a significant improvement


309 Rossel et al., supra, note 308 at 334; Lupyan, supra note 308, at 794.

310 Rossel et al., supra note 308, at 337, 340.

upon the “hopelessly obscured” standard, which is not only a very low bar, but gives no concrete information as to how it can be adjudicated. Moreover, by putting the quality of the image as a threshold consideration, the standard we propose is a significant improvement by not allowing any identification when an image is determined to be of low quality. As opposed to the standard in operation, which balances quality against familiarity and evidentiary need, our proposed standard puts image quality in a position of primacy, in keeping with scientific research.

In addition, the above discussion of judgment bias suggests that judges are not clean slates when making the determination of whether the quality of the video is too low for an accurate identification to be made. However, given the roles of judges as finders of fact, this bias is baked in. While simply educating people about their cognitive biases does little to mitigate these biases, there are interventions that can be taken to mitigate the effect of these biases. We suggest that, to combat this bias, judges should make the decision about video quality, and they should do so before they learn any information about the person attempting to make the identification or any other contextual information about the identification. This would reduce the bias of contextual information on their decision regarding the image quality. For instance, a judge who knows that the person making the identification is a member of an elite FBI task force who has known the defendant for three years might be more inclined to agree with the officer’s identification, and therefore perceive the image as higher quality. The judge should therefore not be given this information prior to making the threshold determination of quality.

Nonetheless, if, taking all these factors into account, the image is found to be of low quality, no identification based on that image should come in. An image can be low quality even if it is not “hopelessly obscured.” As the science discussed above shows, identifications are more likely to be accurate when a clear face image is viewed. Without that clear face image, none of the other factors matter. In other words, a face that cannot be clearly seen is not likely to be accurately identified. Only if the first prong of this framework is satisfied should the admissibility inquiry advance to the second prong.

**Prong Two: Relevant Situational Factors.** The relevant situational

---

312 For a discussion of bias education, see, e.g., Dan Kahneman, Thinking, Fast and Slow 189 (2011).

313 This is akin to sequential unmasking, which has been proposed as a general approach for minimizing cognitive bias in the forensic context. For a discussion of this approach, see Itiel E. Dror & Jeff Kukucka, Linear Sequential Unmasking—Expanded (LSU-E): A General Approach for Improving Decision Making as well as Minimizing Noise and Bias, 3 Forensic Sci. Int’l: Synergy (2021).
factors presented earlier in this article are considered in this prong. Again, these are factors that are known to affect the accuracy of face identification from videos. The factors included here for non-eyewitness identifications correspond to the factors that determine the adequacy of the circumstances for memory and identification for a direct eyewitness who saw the event happen. These factors, which have both independent and interactive effects on identification accuracy, include:

- The degree of familiarity that the non-eyewitness has with the target;
- The exposure duration of the non-eyewitness’s prior encounter with the target person;
- The time delay between when the target person was last seen and the time of the identification;
- Whether the non-eyewitness and the target person are of the same race/ethnicity;
- The crime details and description of the perpetrator that the non-eyewitness was told prior to viewing the video;
- The level of confidence expressed by the non-eyewitness at the time of their first identification;
- Whether the identification confidence was collected in the non-eyewitness’s own words without any suggestive questioning by the officer.

With respect to the first factor, familiarity, it is important to consider that familiarity varies along a continuum; it is not an all-or-none phenomenon. This framework therefore replaces the principle that “any familiarity is sufficient for admissibility” with a nuanced framework that recognizes that not all familiarity is equal. In determining the degree of familiarity that the non-eyewitness has with the target, a list of factors should be assessed, including:

- How many times has the non-eyewitness seen the target person previously?
- When did the non-eyewitness most recently encounter the target person?
- What was the nature and the context of this encounter?
- What was the duration of this encounter?
- What additional details can the non-eyewitness recall about this encounter including who else was present?
- Prior to this most recent encounter, what was their previous encounter?

---

314 See supra Section II.C.2.
315 See supra Section II.C.2.
316 See supra notes 149–50, 170–71 and accompanying text.
• Repeat these questions for each encounter claimed between the non-eyewitness and the target person.

In sum, this two-prong framework would assist in the assessment of whether an identification by a non-eyewitness from evidence obtained from a video is likely to be accurate. Critically, this two-prong approach would also require courts to consider factors that are currently being ignored, including the impact of cross-race effects and the relevance of suggestibility in non-eyewitness identifications.

Scientific research has supported the role of each of these factors in affecting memory for an identification of people by both eyewitnesses and non-eyewitnesses. This Article goes one step further and proposes that this research be applied to non-eyewitness identifications as well. Likewise, the legal safeguards in place to determine the admissibility of and weight to be given to eyewitness evidence should also be applied to non-eyewitness evidence as well. And rather than allowing all of the relevant scientific knowledge to be brushed aside as going to “weight rather than admissibility,” the framework takes seriously that many of these identifications should never make it to a jury.

IV. PUTTING IT TOGETHER: APPLYING THE FRAMEWORK

The two-prong framework we propose would be a significant improvement to govern both the judge’s and the jury’s assessments of the accuracy of non-eyewitness identifications. Judges should use the framework when determining admissibility, and jurors should be informed of the framework when deciding whether to credit a non-eyewitness identification that has been admitted. Below, we show how the framework should be applied in two different scenarios.

Scenario One. Consider first the most common scenario in which a non-eyewitness identification occurs—when a surveillance camera captures a crime. Assume that a burglary occurs in a residential complex. There is a surveillance camera at the front door. Residents are shown the video footage of a man entering the building and are asked to identify him. None of the residents directly witnessed the burglary.

First, the quality of the video footage has to be assessed. What is the resolution of the facial image? How high up was the camera stationed relative to the face of the perpetrator? Is the person’s face visible? If so, for how long? Is the person wearing a cap or sunglasses? If, considering these facts, under the totality of circumstances, the judge determines that the image is too low quality—blurry, grainy, far away, or with an obscured face—for there to be a reasonable probability that an accurate identification could be made, no resident’s identification should be admitted.

If the footage depicts a person with a discernable face, then the
judge must ask other questions to determine the admissibility of the video. Were the residents told that a burglary had occurred? Were they told what was stolen? If so, they might approach the identification expecting a certain person, perhaps with a history of stealing, or someone having an interest in the specific items stolen. Were they told that officers believed the perpetrator to be a visitor of a specific apartment? Worse, were they told which neighbor officers suspected and merely asked to “confirm” the identification? All this information would be suggestive, undermining the reliability of any identification. Did the officers ask for the non-eyewitnesses’ confidence in their own words, or prompt them by saying, “and you’re 100% sure?” The latter would suggestively constrain the non-eyewitness into making a binary choice, yes or no, with a bias on the stated affirmative insinuated by the officer. This would thus undermine any asserted confidence of the witness.

The judge must also consider any degree of asserted familiarity. Vague assertions of “I’ve seen him around the building” should not be sufficient to ensure admissibility, especially in a large apartment complex. What about, “I saw him at a picnic in the park across the street”? To that, a judge should consider how many people were at the event, how long ago the event was, and how long the non-eyewitness directly interacted with the suspect. On the other hand, an assertion that the non-eyewitness has had weekly dinners with the suspect would, of course, indicate a strong degree of familiarity. The judge must also consider whether the identification is cross-racial.

In this scenario, given a high-resolution video camera that was placed close to the suspect whose face can be seen, some non-eyewitness identifications may be admissible, and some may not be admissible. The cross-race non-eyewitness identification of someone who claimed to have met the suspect once visiting the resident of apartment two years ago should not be admitted. The same-race non-eyewitness identification of someone who claims to see the suspect every Tuesday and Thursday at the dog park across the street for the last two years should be admitted. Still, the jury should be instructed to consider the two-prong framework when answering the ultimate question: Has the State proven beyond a reasonable doubt that the defendant was correctly identified?

Scenario Two. In the next permutation, imagine that instead of a video shown to residents, a high-quality still of the person entering a building is released to all police officers. Below the image it says, “Wanted for Stealing Jewelry in Chinatown.” Based on the description by an eyewitness, the flyer also says, “White male, aged 25–35, around 6 feet tall.” When assessing any police officer’s identification that comes from this, after considering the threshold issue of the image quality, the court should be made aware of the suggestive effect
of this priming information. With this suggestive information provided, instead of considering all the familiar people known to the officer, the officer is likely to consider only people who he thinks fit this profile. Considering the other people he has arrested for stealing jewelry, and having done so in Chinatown, an officer might be convinced that the suspect is one of those people. Even though the eyewitness might be wrong about the height or race, the officer will likely confine his identification to people who meet these contextual parameters. Thus, this should be considered a suggestive identification and likely should not be admitted. Judges considering the admissibility of this identification should also be aware that officers are not more accurate at identifications than laypeople and therefore should not use that misconception to bolster the admissibility of the non-eyewitness identification from a video still by an officer. If the identification is admitted, the jury should be given appropriate instructions about the risk of misidentification and the factors relevant to assess that risk.

**CONCLUSION**

As we noted at the outset, eyewitness misidentifications are a leading cause of wrongful convictions in the United States. But how many wrongful convictions are being caused by non-eyewitness misidentifications? Although we do not have the answer to this question, there is cause for concern due to the scientific research documenting inaccuracies with the memory exercise required for non-eyewitness identifications. Yet, non-eyewitness identifications have proceeded on a completely separate jurisprudential track. Untouched by advances in scientific research, these identifications are becoming increasingly prevalent in our surveillance world. From BWCs to CCTVs, from Nest doorbells to smartphones ready at a moment’s notice, more and more crimes are being captured on film. And under conditions of low-quality footage and minimal familiarity, witnesses are being brought to court to identify the defendants as the perpetrators. The accuracy of many of these identifications are dubious and the current standards are doing nothing to acknowledge, let alone meet, this problem.

The two-prong admissibility test that we propose will prevent judges from admitting into evidence what are likely to be the less reliable non-eyewitness identifications, instead admitting only those with sufficient indications of accuracy. For identifications that are admitted, it will serve as a guide to jurors, helping them focus on the key factors that govern the accuracy of non-eyewitness identifications. A more stringent, scientifically sound standard is necessary to protect criminal defendants and to give us all more faith in convictions based on evidence from non-eyewitnesses.

---

317 See supra note 1.
Courts must meet this increase in non-eyewitness identifications with an understanding that they are, in fact, identifications that carry with them the same risks as the eyewitness identifications we have rightfully grown skeptical of. We should not have to wait decades to understand the errors of our ways, as we did before DNA exonerations revealed decades of wrongful incarcerations based on eyewitness misidentifications. We have the scientific understanding to approach non-eyewitness identifications with more rigor now.