On the ontology and epistemology of visual legal evidence: Interview with Jennifer L. Mnookin

Sandra Ristovska: What made you interested in cultures of proof and questions about visual evidence?

Jennifer Mnookin: What most fundamentally drives my interest is a curiosity about proof and persuasion: their cultural meaning, what we think is convincing, what we think is dispositive, and what we don’t believe at all — and why. How do we blend the evidence of our senses, our prior beliefs, our presuppositions, and new information we hear through testimony or otherwise into an aggregation that makes us think we have (or do not have) knowledge and conviction? At the broadest, 30,000-foot level, I am interested in epistemic cultures and their production.

As a legal scholar, I am particularly interested in how questions of proof in legal settings both draw from and influence broader cultural conceptions relating to evidence and persuasion. And as someone trained in both law and science studies, I take as both a starting point and as a matter of great interest that ideas about proof change over time, that they are not fixed; what might seem credible in one historical moment might seem quite unpersuasive in another. To give just one example, in the medieval era, judicial processes made use of “trial by ordeal” — the accused were put to some kind of test, like grabbing a hot iron and seeing whether the resulting wound festered or being dumped into a body of water to see whether they sank or floated (Bartlett, 1986). These certainly do not now seem like accurate methods for determining factual guilt for alleged wrongdoing! For a much more recent example, judges and juries, beginning in the mid-1970s and until very recently, accepted bitemark identification evidence quite unquestioningly as both admissible and highly persuasive, but now the validity of bitemark evidence has been effectively debunked, and we are at last seeing courts begin to reject its use (People v. Marx, 1975; Saks, et al., 2016).

Certainly, there are a great many ways one might explore thinking about changes in the understanding of proof and persuasion. One central focus for me has been the rise of expert and scientific evidence, as well as visual evidence, and how different ways of knowing operate within in a lay adjudicatory system — our jury system — where the ultimate decisionmakers about matters of fact are often not judges or experts but ordinary people from the community.

My interests in visual evidence and expert evidence are partially intersecting. As I explored how experts work to persuade juries and judges who, by definition, don’t have the background, education, or experience of the expert, I came to see that experts use visual evidence for a variety of purposes: to educate, display, persuade, and corroborate, and sometimes even as a form of legerdemain to boost their epistemic authority while also saying to the factfinder, “Look, you can see it for yourself.” Similarly, witnesses of all kinds, expert and otherwise, draw on seemingly authoritative images to enhance their own persuasiveness. One of my earliest articles (which is all these years later still one of my favorites) focused specifically on the history of photographic evidence and how Anglo-American courts received, addressed, and assessed this new form of proof (Mnookin, 1998). Did the photograph deserve a special kind of authority because it was mechanically produced? Or was it better understood as just another kind of human-made visual illustration like a diagram or drawing? Late-nineteenth-century judges wrestled uneasily with that question, revealing a
good deal of sophisticated thinking about both the power and the potential risks of this novel form of evidence.

Ristovska: The law has long struggled with its treatment of images. You have written that photography has uncomfortably oscillated between illustration and proof since its introduction in court. Images in general seem to be treated as either too opaque — so they are not of use — or too transparent — thus we should believe our eyes. Why does the law struggle so much with how to conceptualize and treat images? What it is about images that makes courts default to this kind of binary thinking?

Mnookin: Yes, even some of the earliest legal opinions assessing the photograph’s admissibility as evidence evince an oscillation between treating them as illustration and treating them as proof. Honestly, I think we can still see traces of that oscillation even today. When I began to work on photographic evidence, I was fascinated — and frankly, somewhat surprised — at the late nineteenth-century judges’ deep ambivalence about how these images should be treated and understood as evidence. On the one hand, judges understood the visual and evidentiary power of these machine-made images. On the other hand, courts recognized very early the danger that images might prove too much — that they might seem to be self-interpreting or unequivocally accurate when they might actually be ambiguous, uncertain, distorted, or misleading. Partly in response to these concerns, courts in the 1880s and 1890s sometimes treated images as if they were literally no different from a drawing or a sketch, just another kind of illustration (e.g., Cowley v. People, 1881; Mnookin, 1998).

And yet to treat a photograph as entirely the same as a hand-drawn image did not seem quite right either. As Susan Sontag (1977) said (much later) in her book On photography, “photographs furnish evidence” [1]. Sontag recognized that photographs certainly do not speak for themselves; they both are and require interpretations. But photos do nonetheless have something that is kind of inherently evidentiary about them — or as Roland Barthes (1981) put it, an “evidential force” whose subject is time [2]. The photograph captures an instant of time, showing something that was “out there” in the world, even though we (and even some nineteenth-century judges) also recognize that an image might be not merely distorted but could be staged, manipulated, altered, or faked. In the history of photographic evidence in court, judges wrestled with this tension, recognizing both the allure and the risk of photography’s evidentiary power.

Many courts, as a matter of legal doctrine in the early cases, tried to link the photograph to a human witness who could and would testify, “This photograph represents accurately that which I saw.” The photograph was not viewed as separate, independent evidence in and of itself. It was admissible as an extension of the human witness’s claim, the witness’s testimony rendered visually [3].

Doctrinally, this was a rather clever way to handle this novel form of evidence. In practice, however, there was ongoing and uneasy oscillation between this “human testimony in visual form” and treating the photograph as independent proof. What if the photograph showed a detail that the human “sponsor” of the photograph did not independently remember? Courts would usually still allow attention to be drawn to that detail; similarly, they would frequently allow enlarged images to be introduced into evidence that revealed details unseen or unnoticed by the sponsoring witness. If the image’s admissibility really was tied to the witness — if it was the witness’s testimony rendered visually — they ought not to have permitted such extensions that went beyond the witness’s knowledge.

Similarly, if a witness introduced a posed or staged photograph, like a reconstruction of a crime scene, the formal theory of admissibility ought to have permitted that — it was, after all, the witness’s testimony, rendered visually. But some courts excluded such fabricated images as too powerful, vivid, and misleading. Courts, and even particular judges, were not entirely consistent, but that is partly because they were genuinely wrestling with this tension over whether photographs provided independent and powerful proof or merely demonstrated a witness’s testimony in visual form. These late-nineteenth-century judges understood that there was something particularly powerful about photographs as a form of evidence. But they also recognized that there was a danger that the photograph could too easily be understood as truth incarnate, in ways that might be inaccurate and misleading (Mnookin, 1998).
Over time, the doctrines governing the use of photographs as evidence have shifted. Courts still require a photograph to be “authenticated” in some manner before being introduced in court, but ways to do that have expanded beyond having a human witness say, “This image represents that which I saw.” Beginning in the first decade of the twentieth century, courts began to permit a process-based approach to authenticating the image, based on the reliability of the process by which it had been made. The invention of X-ray evidence was a critical moment for cementing this approach to authentication, because an X-ray showed something that was fundamentally unseeable without the image. No person could say “This represents that which I saw” apart from having seen the X-ray itself. And so courts permitted images of, say, broken bones in tort suits on the basis of the established accuracy of the X-ray process and evidence that this particular X-ray was properly taken. This was a very different theory of authentication than what they had earlier required (Golan, 2004).

These issues of whether machine-produced images seem to speak for themselves, or risk proving too much or too little, are not just of historical interest. We continue to wrestle with them. When we assess a piece of visual evidence, our interpretation may be influenced by aspects of the image that we do not even realize are influencing us. For example, we have seen a significant (and in my view, welcome and overdue) increase in digital video recording of law enforcement’s interrogations of suspects, to ensure the interrogations’ reliability and to provide better documentation of the process. Indeed, in the U.S., slightly more than half of states require law enforcement to record some or all custodial interviews. The underlying intuition here is that videos will furnish important evidence and far greater transparency about matters like whether the interrogators used coercive methods, fed the suspect details about the crime and what occurred, or otherwise behaved in ways casting doubt on the accuracy of a confession. Recording interrogations is thought to protect defendants from law enforcement misconduct and, simultaneously, to protect law enforcement from unjustified claims of misconduct.

This is fair enough; my own view is strongly to favor these rules requiring video recording. And yet these recordings may not be as transparent as they seem. For example, several psychologists have conducted research suggesting that viewers interpret interrogations differently depending on who’s included in the frame. If the questioner is in the frame alongside the person being interrogated, viewers are more likely to think that the interrogation shows some evidence of coercion than if the exact same interrogation does not show the interrogator in the visual frame (Lassiter and Irvine, 1986; Lassiter, et al., 2002). That is not obvious, right? Further, evidence suggests this effect may be even stronger when the person being interrogated is a racial minority (Ratcliff, et al., 2010). So, if you watch an interrogation video, you may think you are seeing “the thing itself” in a powerful and seemingly transparent way. Yet your assessment of the meaning of what you have seen may be influenced by who was in the frame, the camera angles, and the perspective selected, all in ways not at all obvious to the viewer. And of course, it may also be not entirely obvious that the video is actually a complete recording of what occurred. Was the camera ever turned off? Did any questioning precede the recording? What lies beyond the frame? In these ways and others, a video-recorded interrogation is not nearly as transparent as it might seem, though it is nonetheless powerful and important evidence.

I mean this as one example of a broader point: aspects of the visual mode of production might well influence interpretation in ways that are not necessarily themselves transparent. There is no simple solution here; it is a tension surrounding visual evidence that has to be recognized and managed. The answer certainly is not to exclude visual evidence from the courtroom, but it is also important that it not be treated as simply speaking for itself. I think the legal system wrestles with this problem of image transparency and opacity because it is a genuine problem surrounding the interpretation of machine-generated images. The courts have not found great answers to it. But it is not a problem of their making; it is more of a problem linked to broader challenges around visual meaning making, especially for machine-produced images that carry with them a certain claim to indexicality and truth.

Ristovska: You’ve proposed a category for thinking about the complexities of visual meaning making. In your article on semi-legible visual evidence, you argue that “semi-legibility usefully focuses our attention on the ways that much visual evidence neither speaks for itself nor permits unbounded interpretations, but
rather, has a range of plausible — and potentially inconsistent — readings” [4]. Why cannot we think along the lines of semi-legible evidence for most visual evidence? How is this category unique?

Mnookin: Semi-legibility is absolutely a continuum. It is always a matter of degree. That said, there might be some visual images that are so clear and transparent that “semi-legibility” is not a very useful category. If I show you a photograph of an everyday object, say, a refrigerator, and the question is “What is displayed on this photograph?” it might be entirely obvious that the answer is a refrigerator. (But of course, the photograph cannot answer whose refrigerator, or tell us what is inside of it, so legibility is a function of what is shown, yes, but also what information we are seeking to acquire or decipher.) There also might be images that are so impossible for a given viewer to unpack that “opaque” rather than semi-legible would be the better descriptor, unless the viewer invests in acquiring the necessary knowledge for making the image at least partially legible. If I showed random individuals on the street, who were not physicians or medical workers, an image of a transthoracic echocardiogram, most likely they would literally have no idea what they were seeing. Maybe some would recognize that it was a medical image, but most would likely not have any idea that they were looking at a human heart, or at the recording of sound waves converted into images, and fewer still would have any idea of how to assess whether the resulting image revealed a normal heart or the presence of medical abnormalities. For the average layperson, such an image might be entirely opaque — though if an expert provided the viewer with explanation, it might no longer be so; it might then be meaningfully semi-legible.

In introducing the category of semi-legible visual evidence, I wanted to invite a focus on the ways a visual representation may be, at once, partly opaque and partly transparent (Mnookin, 2014). I also wanted to emphasize that it is important to recognize that many forms of visual evidence have this quality, albeit to varying degrees. I think latent fingerprint evidence offers a nice example of semi-legibility. We have all looked at our fingers and know that we have patterns and ridges on them, but most of us would not claim any particular expertise in fingerprint identification. Show laypeople on the street a picture of a latent fingerprint and, unlike with the echocardiogram, I think nearly all would identify that it is an image of a fingerprint. But that does not mean they know how to interpret it. When experts testify about fingerprints in court, they often use blown-up displays of the actual fingerprints in question to accompany their testimony — for example, a latent print from the crime scene and a reference print from the suspect that the expert claims matches. The expert may attempt, through testimony, to show to the factfinder the specific visual similarities between the two images that produced the expert’s conclusion that these prints came from the same source: the defendant.

Factfinders can find this form of visual illustration enormously probative. Indeed, the jury can feel like it sees the match for itself; the similarities in ridge minutiae have been pointed out to them and now, yes, they too “see” the match. And that can be tremendously powerful and persuasive to the viewer. And yet there is so much that is outside the frame of these images. For example, non-experts are not going to know on their own how to define what appropriately counts as a similarity or, for that matter, a difference. The expert selects what to draw their attention to, and unless there is a powerful cross-examination or the introduction of an expert by the opposing party (both of which are fairly rare vis-à-vis fingerprint evidence), there may be no counternarrative offered about the visual evidence. If any differences are even mentioned, they are commonly dismissed as irrelevant artifacts, generated by the process of lifting the latent print. But how can the jury really assess that conclusion for itself?

Furthermore, the jury will not know anything about how often two different individuals might have a given amount of similarity between their prints. With a fingerprint, how many matching minutiae are required to conclude that two prints share a common source? The visual images themselves, with whatever degree of visual similarity is apparent, provide absolutely no answer to this question. Fingerprint examiners do not actually have a clear, scientifically grounded answer to this question either, but that is a different conversation (Cole, 2001; Mnookin, 2008; 2001). For our purposes, the point is that there is a huge amount of deeply relevant knowledge necessary for a meaningful interpretation of the fingerprint evidence that a lay viewer absolutely will not have. Yet there may nonetheless be a powerful, vivid “see it for yourself” effect created through the expert’s visual illustration. For me, this is an archetypal piece of semi-legible
visual evidence. There is a great deal the viewer may not be in an epistemic position to assess or weigh, and yet she may well come away thinking, “Of course it is a match. I have seen it with my own eyes.”

Fingerprint evidence is just one example of a form of visual evidence that may be less transparent than it first appears; furthermore, semi-legibility is not limited to visual evidence wielded by experts. More generally, semi-legibility invites us to focus on which aspects of the visual display can be assessed and understood, and which parts cannot. Of course, all of these questions need to be concretized and particularized: “assessed by whom?” and “for what purpose?” My hope is that semi-legibility as a label invites us to examine ways that an item of visual evidence may be only partly legible even if (perhaps especially if) there are implicit or explicit assertions that it “speaks for itself.” Similarly, I hope it invites us to think about how images may, in fact, be semi-legible even if they might first appear to be incomprehensible or opaque. What would it take to educate a juror to read that echocardiogram I mentioned earlier for itself? To whom is it legible? And if the expert is not going to work to make it semi-legible to the jury, or if we do not believe it can be done effectively, should she even be allowed to show it the image at all?

Ristovska: As video is proliferating in courts, how does the category of semi-legibility help us understand video evidence with more nuance?

Mnookin: There are differences between still images and video, but I think the notion of semi-legibility applies to both. What makes a video more or less legible? There is not a one-size fits all answer. I suppose you could say that semi-legibility is a framing question for visual evidence, a tool for inquiry, rather than a concept that we can answer via checklist. Is a given video more or less comprehensible with or without the sound? What about if it is edited? What footage was never shot? Might there be relevant information outside the frame that would change the video’s meaning, and might a viewer fail to recognize this risk because she is swept along by the immersive aspects of the technology?

And what about when video enhancement tools are used? Do those tools make a video more legible and more accurate, or might these tools mislead or produce distortions? Courts wrestle with whether to permit enhanced video into evidence. They often do permit it, especially when tied to an expert’s testimony, sometimes using the theory originally invented for photographic evidence that asserts, partly-fictionally, that these images are being used illustratively rather than as substantive evidence.

Where is the line between legitimate enhancement techniques and something closer to “doctoring” the video? And can we trust that judges can answer that question? It is an important question, especially because even in this era of Instagram filters and deepfakes, I think a tendency to see images as, in Susan Sontag’s (1977) words, “furnish[ing] evidence” remains strong. We may understand intellectually just how manipulable images are, but there is nonetheless a tendency to give significant credence to an ostensibly credible piece of visual evidence. This is part of why deepfakes and other kinds of distressing visual manipulations cause so much worry. They are concerning, obviously, because they may be presumed true even when they are not, and in addition, because they may be hard to disprove dispositively. But it is even more than that. There is also a risk that they retain some lingering power, even if incontrovertibly shown to be fake, simply because we saw them and, false though we know them to be, now we nonetheless cannot entirely unsee them.

To be sure, some deepfakes, when obviously fictional and basically harmless, can be enjoyable. Season 2 of Amazon’s For all mankind, a fictionalized alternative history of the U.S./Soviet space race, makes extensive and entertaining use of deepfake technology to show Richard Nixon, Johnny Carson, and Ronald Reagan, among others, saying and doing things that never happened. But regulating the use of deepfakes in much more concerning situations—from superficially plausible but fake videos about celebrities and politicians to the highly distressing phenomenon of deepfake pornography — has raised a range of novel legal and ethical questions — from intellectual property (IP) issues to the appropriate scope of criminal liability. Frankly, we do not yet have a wholly adequate set of legal or cultural tools for responding to them (Maras and Alexandrou, 2019).
Ristovska: In your opinion, what are the main challenges with visual evidence that court systems need to grapple with moving forward?

Mnookin: Well, the question of how to regulate and prevent harmful deepfakes is certainly one. Another important set of challenges for the legal system derive from the reality that visual evidence has become so ubiquitous. That is in many ways a good thing. Citizen-created digital evidence of police encounters, as well as police body-cams, have certainly produced greater insight into police misconduct and revealed human rights abuses across the globe. At the same time, the tremendous rise of citizen-shot footage sometimes raises challenging questions about authentication and accuracy. And today, there is just so much more visual surveillance of all of us, from citizen-produced digital evidence and private and public surveillance cameras in all kinds of settings to license-plate readers and facial identification. How do we decide when and whether there ought to be limits on the use of any of these technologies? If police body-cams are, on balance, good because they importantly check the behavior of law enforcement, ought we to be equally comfortable with the prevalence of nanny-cams? How about surveillance cameras in the elementary school classroom, which is common practice in several states? How do we benefit from the greater transparency, accountability, and evidence that these technologies can produce but not lose sight of privacy interests nor forget that video evidence may often be semi-legible, failing to give us the complete context or showing us what is offscreen? And how do we ensure a focus on serious misconduct, keeping in mind that no one will always be their very best self, in a world where so much is captured on video?

Ristovska: Some legal scholars say that we need to figure out better standards for the evaluation of visual evidence in court and that we need visual training for law students because law school curricula tend to sideline the importance of images. What do you think about these calls? And do you see this as an area of concern for law schools?

Mnookin: Well, it would be terrific for more law students to develop skills in visual literacy and to gain some exposure to some of the complexities surrounding visual evidence. The challenge is that we could say the same thing about a variety of other areas, too. Take scientific and expert evidence in general. Most law students do not have science, technology, math, and engineering (STEM) backgrounds, and they often arrive at law school with little interest in science and technology. Yet it is hugely valuable for lawyers to have some basic statistical and scientific literacy, just as it is tremendously valuable for them to be sophisticated about visual evidence.

Over the course of students’ time in law school, we help our students master legal doctrine and develop a feel for thinking like a lawyer, get some practical lawyering skills through experiential and clinical coursework, develop leadership skills and broad-ranging cultural competencies, and engage with a variety of interdisciplinary perspectives on the law, from psychology to economics to critical race theory. Our current approach, after the first year, is largely to give students a very large array of opportunities but let them choose what to prioritize. Largely, I do support that approach. I guess I would say this: law school, legal education, and the legal profession can be very focused on words. We should work harder to ensure that our students gain meaningful exposure to working with and understanding both numbers and images, both the interpretive challenges they raise and how to use them as effective tools for advocacy.

About the interviewee

Jennifer L. Mnookin is a renowned expert on law, forensic science, and evidence whose widely cited publications on visual evidence, fingerprint identification, handwriting expertise, and DNA evidence are easily classics in the field. She is now the 30th Chancellor of the University of Wisconsin–Madison. Prior to joining UW–Madison, Mnookin served as dean of the University of California, Los Angeles School of Law and Ralph and Shirley Shapiro Professor of Law. At UCLA, Mnookin founded and was co-director of PULSE @ UCLA Law (Program on Understanding Law, Science & Evidence). She also served for six years on the National Academy of Sciences’ Committee on Science, Technology, and Law, and co-chaired
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a group of senior advisors for a President’s Council of Advisors on Science and Technology report on the use of forensic science in criminal courts. In 2020, Mnookin was elected to the American Academy of Arts and Sciences. She received her A.B. from Harvard University, her J.D. from Yale Law School, and a Ph.D. in History and Social Study of Science and Technology from the Massachusetts Institute of Technology.

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About the interviewer

Sandra Ristovska is an Assistant Professor of Media Studies at the College of Media, Communication, and Information at the University of Colorado Boulder. Her research examines how, under what circumstances, and to what ends images shape the pursuit of justice and human rights in institutional and legal contexts nationally and internationally. A 2021 Mellon/ACLS Scholars & Society Fellow, Ristovska is the author of the award-winning monograph Seeing human rights: Video activism as a proxy profession (Cambridge, Mass.: MIT Press, 2021) and co-editor of Visual imagery and human rights practice (Palgrave, 2018).

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