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NOTE

Virtually Unheard Of: Why U.S. Courts Need Rules for Virtual Reality Evidence

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"Seeing is believing, but feeling is truth." — Thomas Fuller[1]

There are currently no evidentiary rules that govern the admissibility of virtual reality ("VR") evidence, prompting questions as to what standards should regulate its admissibility. While some may believe VR is simply akin to any other illustrative aid, the immersive and interactive nature of a VR simulation positions it as entirely distinct from any other digital evidence courts have previously addressed. The question is no longer when VR will enter courtrooms; it already has. The pertinent inquiry is how courts should respond.

Considering VR's fast development, the risks of inaccuracy and bias, and the interplay between artificial intelligence and VR, this Note argues the judiciary should amend evidentiary rules to expressly guide courts being thrust into this new age of technology. More specifically, this Note proposes that VR evidence should be treated akin to a forensic simulation, as opposed

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1. *Thomas Fuller: Quotes*, Britannica, https://www.britannica.com/quotes/Thomas-Fuller [https://perma.cc/S4AS-W2BV] (last visited May 12, 2025); *accord* Thomas Fuller, Gnomologia: Adagies and Proverbs; Wise Sentences and Witty Sayings, Ancient and Modern, Foreign and British 174 (1732) ("Seeing's Believing, but Feeling's the Truth.").

to an ordinary computer animation—thereby subjecting it to a higher level of scrutiny.

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I. Introduction

The courtroom is a space for both advocacy and storytelling. It is a lawyer's job to craft a narrative that casts their client in a favorable light and persuades the jury with opening statements, closing remarks, lines of questioning, and the use of evidence. Lawyers have always created narratives to vindicate their clients' rights. However, *how* that narrative is presented is beginning to change—and this change has the potential to revolutionize the entire legal system.

In December of 2024, Judge Andrew Siegel became the first judge to wear a virtual reality ("VR") headset in a criminal hearing.[2] The VR

2. Lars Daniel, *Historic First—Judge Dons Oculus VR Headset to Experience Crime*, Forbes (Jan. 6, 2025, 3:25 PM), https://www.forbes.com/sites/larsdaniel/2025/01/06/historic-first-judge-dons-oculus-vr-headset-to-experience-crime/ [https://perma.cc/C89W-XLQ5]; Kate Rattray, *Virtual Reality Steps into the Courtroom: A Glimpse into the Future of Justice*, Clio, https://www.clio.com/blog/virtual-reality-courtroom/ [https://perma.cc/N593-X5NL] (last visited Feb. 14, 2025); Christina Vazquez, *Broward Judge Dons Virtual Reality Headset in What's Thought to Be a Courtroom First*, WPLG Local 10, https://www.local10.com/news/local/2024/12/17/broward-judge-dons-virtual-reality-headset-in-whats-thought-

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headset allowed Judge Siegel to experience a virtual reenactment of the defendant's point of view during the events that ultimately led to his aggravated assault charge.[3] By employing a unique form of storytelling, defense counsel forced the court to grapple with the challenges posed by a new form of presenting evidence.[4]

Though Judge Siegel ultimately wore the headset, he still possessed various concerns and reservations.[5] He raised inquiries about VR simulations' "accuracy and verification," questioning how to determine whether the VR evidence was "untampered" with and the level of expertise required to establish its authenticity.[6] Beyond Judge Siegel, the legal community at large shares similar concerns regarding VR's use in the courtroom, with many claiming it will present great challenges regarding authenticity, bias, and objectivity.[7]

Though these are legitimate concerns, virtual reality indisputably could alter the entire legal industry. By allowing jurors and judges to visually immerse themselves in a crime scene and witness a party's conduct and legal argument, some contend that VR may lead to more just outcomes.[8] Recent studies have shown that rather than relying on juries to put complicated pieces of evidence together themselves, a VR simulation "allows large amounts of information to be presented in a

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to-be-a-courtroom-first/ [https://perma.cc/89EA-F73C] (last updated Dec. 17, 2024, 8:21 PM).

3. Rattray, *supra* note 2.

4. *Id.*

5. Daniel, *supra* note 2.

6. *Id.*

7. Cassandre Coyer, *VR in Courts Likely to Stay Limited as Expert Point to "Insurmountable" Challenges*, ALM (Oct. 04, 2022, 6:52 PM), https://www.law.com/legaltechnews/2022/10/04/vr-in-courts-likely-to-stay-limited-as-experts-point-to-insurmountable-challenges/ [https://perma.cc/9742-W6UN]; Samuel Greengard, *Virtual Reality Goes to Trial*, COMMC'NS ACM (Nov. 29, 2018), https://cacm.acm.org/news/virtual-reality-goes-on-trial/ [https://perma.cc/M6ZS-KEPP].

8. Rattray, *supra* note 2; *see* Nefra-Ann MacDonald, *Virtual Reality in the Courtroom: The Future of Justice*, JD SUPRA (Jan. 24, 2025), https://www.jdsupra.com/legalnews/virtual-reality-in-the-courtroom-the-3814685/; *see* Amanda Yeo, *Jurors Could use VR to Visit Crime Scenes, and Help Them Reach a Verdict*, MASHABLE (July, 28, 2021), https://mashable.com/article/virtual-reality-jury-trial-courtroom [https://perma.cc/39VN-LDNH].

way that is manageable," resulting in more consistent verdicts and resolutions between jurors.[9]

This Note explores this new era of technology and its applications in the courtroom, through an examination of virtual reality. Part II introduces VR evidence through a case study: *Albisu v. State*.[10] Part III overviews historical uses of technology to present evidence in court. Part IV examines VR and how it has been used in the courtroom, and Part V proceeds with a legal analysis of *Albisu*. Part VI provides the relevant legal doctrine to analyze the admissibility of VR to a jury. Part VII then applies this doctrine to determine how courts should treat VR evidence and what standards should govern its admissibility. Lastly, Part VIII outlines policy implications and proposes changes to the current legal doctrine for the admissibility of virtual reality evidence.

II. Overview of Technology Use in the Courtroom

Forensic animation utilizes "computer graphics" to "recreate and visually depict" a certain event or series of events for the courtroom.[11] This type of evidence was first utilized in *In re Air Crash at Dallas/Fort Worth Airport on August 2*[12] to help illustrate circumstances contributing to the crash of a Delta airplane in Texas in 1985.[13] The

9. Yeo, *supra* note 8; *see* Michelle Taylor, *Study: Crime Scene Virtual Reality Leads Jurors to Give More Consistent Verdicts*, Forensic (July 30, 2021), https://www.forensicmag.com/577987-Study-Crime-Scene-Virtual-Reality-Leads-Jurors-to-Give-More-Consistent-Verdicts/ [https://perma.cc/FV9F-NZ8R]; *see* Carolin Reicherzer et al., *Bringing the Jury to the Scene of the Crime: Memory and Decision-Making in a Simulated Crime Scene*, *in* CHI '21: Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems art. no. 709, at 2, 7 (2021) (discussing the use of VR specifically for crime scene recreation).

10. State v. Albisu, No. 23002405CF10A (Fla. 17th Cir. Ct. Aug. 21, 2024).

11. *Forensic Animation*, Cornell L. Sch.: Legal Info. Inst., https://www.law.cornell.edu/wex/forensic_animation [https://perma.cc/7U32-LH9W] (last visited Feb. 13, 2025).

12. *In re* Air Crash at Dallas/Fort Worth Airport on August 2, 720 F. Supp. 1258 (N.D. Tex. 1989) *aff'd*, 919 F.2d 1079 (5th Cir. 1991).

13. *Id.*; *9 High-Profile Cases Where Evidence Animation Influenced the Outcome*, Courtroom Animation, https://courtroomanimation.com/blog/9-high-profile-cases-where-evidence-animation-influenced-the-outcome/ [https://perma.cc/2LPK-EB53] (last visited Feb. 13, 2025).

animation cost between $210,000 and $310,000.[14] After its first appearance in *In re Air Crash*, computer animation became increasingly implemented in courtrooms.[15] It has been used in criminal trials to allow juries to visualize shootings and various degrees of physical altercations, and it is widely used in civil trials for car accidents, slip and falls, and other incidents.[16]

2001 marked the introduction of 3D laser scanner evidence into a courtroom.[17] 3D laser scanners utilize "laser beams" to "accurately measure distances to surfaces"[18] and generate precise visual maps of crime scenes.[19] This type of evidence was "first admitted" in *State of Hawaii v. Arakawa* [20] to create a visual representation of the car accident, and in turn, "simplify[ ] the development of the reconstruction."[21]

One of the earliest uses of digital 3D modeling in the courtroom was a notable homicide case for the 2014 murder of Ellie Butler in London.[22] While the U.K.'s evidentiary rules differ from the U.S.'s, both legal systems are rooted in common law; therefore, the purpose

14. *The History of Aviation Animation: In & Out of Court*, COURTROOM ANIMATION, https://courtroomanimation.com/blog/the-history-of-aviation-animation-in-out-of-court/ [https://perma.cc/PU6Z-BAPX] (last visited Feb. 13, 2025).

15. Jason Fries & Sean Daly, *The History of Forensic Animation in the Courtroom*, FORENSIC (Nov. 16, 2022), https://www.forensicmag.com/591860-The-History-of-Forensic-Animation-in-the-Courtroom/ [https://perma.cc/MC8G-3ZDU].

16. *9 High-Profile Cases Where Evidence Animation Influenced the Outcome*, *supra* note 13.

17. Fries & Daly, *supra* note 15.

18. *3D Laser Scanning: Unleashing the Power of Precision*, AUTODESK, https://www.autodesk.com/solutions/3d-laser-scanning [https://perma.cc/JM3J-8CMT] (last visited Feb. 13, 2025).

19. Fries & Daly, *supra* note 15.

20. State v. Arakawa, 101 Haw. 26 (Haw. Ct. App. 2002).

21. Fries & Daly, *supra* note 15.

22. C (A Child) [2016] EWCA (Civ) 798 (Eng.); Waltraud Baier et al., *Introducing 3D Printed Models as Demonstrative Evidence at Criminal Trials*, 63, J. FORENSIC SCI. 985, 985 (2017) (discussing when a 3D exhibit of a victim skull was used in a homicide trial in England); Clare Scott, *3D Printed Skulls Presented as Evidence in Murder Trial, in a First for the British Legal System*, 3DPRINT (May 11, 2016), https://3dprint.com/133715/ellie-butler-murder-trial/ [https://perma.cc/2L5V-MCF6].

behind admitting the 3D model was likely similar.[23] In the Butler case, the 3D modeling technology was utilized to produce a model of the victim's skull to help ascertain "the number of assault weapons and perpetrators."[24] The model skull may have assisted the jury in comprehending complicated scientific and medical facts through a visual aid.[25]

The next year, 3D printing was employed in a U.K. courtroom, with the U.S. following shortly thereafter.[26] In the murder trial following the death of Alex Peguero Sosa,[27] the prosecution produced a 3D-printed model of a bottle, the murder weapon, to visually demonstrate how the defendant clutched the bottle "when he struck the victim."[28] Interestingly, the 3D-printed model played a limited role in deciding the verdict; yet, it still aided the prosecution in painting a full picture of the events.[29] Prior cases involving technology that assists attorneys in conveying a complete and compelling narrative suggest that as the complexity of these technological aids increases, so too will their prevalence in the courtroom.

III. A History of Virtual Reality's Development

Put simply, virtual reality is an immersive technology that aims to simulate reality by creating 3D environments one can interact and

23. *Differences between US and UK Legal Systems*, Law Absolute 20 (Sept. 8, 2015), https://www.lawabsolute.com/recruitment-news/article/differences-between-us-and-uk-legal-systems/ [https://perma.cc/WG4M-QNWS].

24. Baier et al., *supra* note 22, at 985.

25. *Id.*

26. David Sher, *3D Printed Bottle Used as Evidence in Plymouth Murder Trial*, 3D Printing Indus. (Apr. 22, 2015), https://3dprintingindustry.com/news/3d-printed-bottle-used-evidence-plymouth-murder-trial-47188/ [https://perma.cc/JB5M-96RA]; *3D Printing and Its Emerging Role in American Courtrooms*, Legal Reader (June 5, 2015), https://www.legalreader.com/3d-printing-and-its-emerging-role-in-american-courtrooms/ [https://perma.cc/JVL4-YGFR]; Kelsey O'Neal, *Exhibit A: Fresh from the 3D Printer*, Wash. J. L & Tech & Arts (Oct. 28, 2015), https://wjlta.com/2015/10/28/exhibit-a-fresh-from-the-3d-printer/ [https://perma.cc/HKT7-WVN5].

27. R v. Dent (Lee) [2015] EWCA (Crim) 2095, 2015 WL 10058287 (Eng.).

28. Sher, *supra* note 26.

29. *Id.*

engage with.[30] "Immersion" refers to "how well technology can simulate the ways we sense and perceive the world in our everyday life."[31] VR is an immersive experience because it integrates human sensations and perceptions.[32] "Sensations" embody what human senses experience—what one sees, feels, hears, and smells.[33] "Perceptions" refer to how humans *experience* these sensations—through visual and auditory information provided by the VR, simulating reality.[34]

These factors distinguish virtual reality from ordinary forensic computer animation. Rather than simply presenting a video or scene, VR creates an immersive experience that allows users to view different perspectives, requiring "animations to use multiple points of view rather than fixed camera angles."[35] Every scene is crafted by a simulation animator implementing their own interpretations and perceptions of the world around them—in a way far more intimate than in an ordinary animation. VR creates a physical experience intended to replicate how a person moves and sees—not simply from a single viewpoint, but from multiple.[36]

Virtual reality was first introduced in the 1950s via a VR machine that would transport people into a film, as if they were in the movie

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30. Rebecca Penn & Michael Hout, *Making Reality Virtual: How VR "Tricks" Your Brain*, FRONTIERS (Nov. 28, 2018), https://kids.frontiersin.org/articles/10.3389/frym.2018.00062 [https://perma.cc/B6DS-JNV9]; *What Is Virtual Reality?*, VIRTUAL REALITY SOC'Y, https://www.vrs.org.uk/virtual-reality/what-is-virtual-reality.html [https://perma.cc/YV4A-TCS6] (last visited Mar. 22, 2025).

31. Penn & Hout, *supra* note 30.

32. *See id.*

33. *Id.*

34. *Id.*; *How Are Virtual Reality and Human Perception Connected?*, ANIMOST (May 21, 2023), https://animost.com/ideas-inspirations/how-are-virtual-reality-and-human-perception-connected/ [https://perma.cc/W6RP-U94U].

35. *Virtual Reality and Animation: The Next Frontier*, RMCAD (Jan. 7, 2025), https://www.rmcad.edu/blog/virtual-reality-and-animation-the-next-frontier/ [https://perma.cc/F7TZ-9Y3U]; David Silverberg, *How VR Could Change Courtrooms (and Why There Might Be Resistance)*, UPLOAD (Nov. 21, 2016), https://www.uploadvr.com/courtroom-vr/ [https://perma.cc/PXN5-7T3J] (discussing the difference between 2D animation and VR by describing how VR allows viewers to "look at the scene from different angles").

36. *See Virtual Reality and Animation: The Next Frontier*, *supra* note 35.

by "stimulating all senses."[37] This was known as the "Sensorama."[38] Not long after the production of this VR machine, the first VR head-mounted display was invented.[39] While undoubtedly a big step for VR technology, these devices were far less immersive than VR technology available today.[40] Rather, during early stages of VR development, headsets were uncomfortable to wear, displays were narrow, frame rates were low, and visual experiences moved slowly and sporadically because of "suboptimal latencies."[41]

While VR technology introduced the idea of immersion through 3D tools and sense stimulation, the VR experience at this point was not truly interactive.[42] This led to the development of the Aspen Movie Map in 1977, which introduced the innovative idea that VR technology could serve as a tool to "transport people to other places."[43] The technology allowed users to explore Aspen, Colorado, through "first person interactivity," creating a VR experience that enabled users to directly engage with the real world by moving them through different streets in Aspen.[44]

Between the early 1990s and early 2000s, there was a substantial gap in VR research and development.[45] Then, in 2007, Google launched Google Street View, which allows users to step into different parts of

37. Dom Barnard, *History of VR-Timeline of Events and Tech Development*, VIRTUAL SPEECH (Oct. 17, 2024), https://virtualspeech.com/blog/history-of-vr [https://perma.cc/9B8X-4655]; *see also History of Virtual Reality*, VIRTUAL REALITY SOC'Y, https://www.vrs.org.uk/virtual-reality/history.html [https://perma.cc/UT4P-3XZY] (describing the "Sensorama") (last visited Feb. 13, 2025).

38. Barnard, *supra* note 37.

39. *Id.*

40. *See* Navid Farhani et al., *Exploring Virtual Reality Technology and the Oculus Rift for the Examination of Digital Pathology Slides*, 7 J. PATHOL. INFO. art no. 1:22, at 2 (2016); Barnard, *supra* note 37.

41. *See* Farhani, *supra* note 40, at 1, 2.

42. *See* Barnard, *supra* note 37.

43. *Id.*

44. *Id.*

45. *Id.*; *see also A Brief History of Virtual Reality: Major Events & Ideas*, COURSERA, https://www.coursera.org/articles/history-of-virtual-reality [https://perma.cc/9G8K-LHSM] (last updated Nov. 5, 2024).

the world through panoramic imagery.[46] Interest in VR was finally reignited in the 2010s when entrepreneur Palmer Luckey designed the Oculus Rift headset—a portable headset that can immerse users into a VR experience.[47] In pursuit of this, Facebook ultimately purchased Oculus company in 2014, spearheading the development of VR technology.[48] The move prompted numerous companies, like Sony, Google, and Apple, to begin developing their own versions of VR headsets.[49]

When wearing a VR headset, the user's view is restricted *solely* to virtual reality; the outside world is hidden entirely.[50] The first true "high-quality" and accessible VR headset was the Oculus Rift,[51] which has been described as "true virtual reality" because of its immersive capabilities.[52] Notably, the Oculus Rift reflects human eyesight by employing stereoscopic 3D technology and a 110-degree field of view.[53] Specifically, it "replaces an individual's field of vision with a digital image, where each eye looks through a different lens to create a

46. Barnard, *supra* note 37; *see also How Google Street View and Virtual Tours Are Redefining Visual Exploration*, VIRTUALLY ANYWHERE (May 22, 2024), https://virtually-anywhere.com/360-virtual-tours/how-google-street-view-and-virtual-tours-are-redefining-visual-exploration/ [http://perma.cc/K4E4-GW2V] (advertising for virtual tour services by explaining how the technology works).

47. Barnard, *supra* note 37.

48. *Id.*

49. *Id.*

50. *VR Headsets*, INTERACTION DESIGN FOUND., https://www.interaction-design.org/literature/topics/vr-headsets [https://perma.cc/SPM9-Q8C4] (last visited Mar. 21, 2025).

51. Steven John, *Oculus Rift Was the Cornerstone of the Future of VR*, BUS. INSIDER (Sept. 16, 2023), https://www.businessinsider.com/oculus-rift [https://perma.cc/5VPH-R55Q (staff-uploaded, dark archive)]; Hayden Dingman, *Five Years of VR: A Look at the Greatest Moments from Oculus Rift to Quest 2*, META (Mar. 29, 2021), https://www.meta.com/blog/five-years-of-vr-a-look-at-the-greatest-moments-from-oculus-rift-to-quest-2/ [https://perma.cc/SQH2-HK98 (staff-uploaded)]; *see* Peter Rubin, *The Inside Story of Oculus Rift and How Virtual Reality Became Reality*, WIRED (May 20, 2014, 6:30 AM), https://www.wired.com/2014/05/oculus-rift-4/ [https://perma.cc/DPE2-RJJ2 (staff-uploaded)].

52. *See* Bernadette Johnson, *How the Oculus Rift Works*, HOW STUFF WORKS, https://electronics.howstuffworks.com/oculus-rift.htm [https://perma.cc/W7SB-JXWN] (last visited Feb. 13, 2025).

53. *Id.*

stereoscopic [3D] effect."[54] These functions of the Oculus Rift are what produce the immersive experience, enabling people who wear the headsets to step into another story, experience, and world.[55] The Oculus Rift and its updated version, the Oculus Quest 2, provide a very similar VR experience, with a key improvement being that the Oculus Quest 2 possesses higher resolution.[56] This means that the visual depictions within the VR simulation are clearer, "sharper," and more "defined" with the Oculus Quest 2.[57] Notably, the Oculus Quest 2 became the first VR headset used in a courtroom to present evidence.[58]

IV. VR USE IN THE COURTROOM: *ALBISU V. STATE*

Albisu v. State appears to be the first case where a VR simulation was proffered as evidence at a pre-trial hearing.[59] Currently, the simulation (presented through the Oculus Quest 2 headset) was only shown to Judge Siegel at a pre-trial hearing and has not yet been deemed admissible for a jury.[60] The defendant, Miguel Albisu owns a wedding venue and was charged with nine counts of aggravated assault with a deadly weapon for "waving his gun" at guests during a wedding reception.[61] Albisu, however, claims this was in self-defense; he felt the

54. Farhani et al. *supra* note 40, at 2; *see* Barnard, *supra* note 37.

55. *See* Johnson, *supra* note 52; Penn & Hout, *supra* note 30; John, *supra* note 51; *see* Farhani et al. *supra* note 40.

56. Will Greenwald, *Oculus Quest 2 vs. Oculus Rift S: Which VR Headset Should You Buy?* PC MAG, https://www.pcmag.com/comparisons/oculus-quest-vs-oculus-rift-s-which-vr-headset-should-you-buy [https://perma.cc/7UQ6-JMN3 (staff-uploaded)] (last updated Nov. 23, 2020).

57. *Resolution*, VARJO, https://varjo.com/learning-hub/resolution/ [https://perma.cc/TL7J-8N3G (staff-uploaded)] (last visited Feb. 13, 2025).

58. Daniel, *supra* note 2; Rattray, *supra* note 2; Vazquez, supra note 2.

59. Vazquez, *supra* note 2; Daniel, *supra* note 2; Rattray, *supra* note 2.

60. Matt Novak, *Florida Judge Allows VR Simulation of Alleged Crime to Be Submitted as Evidence*, GIZMODO (Jan. 2, 2025), https://gizmodo.com/florida-judge-allows-vr-simulation-of-alleged-crime-to-be-submitted-as-evidence-2000544922 [https://perma.cc/2MSL-B7EQ (staff-uploaded)]; *see* Dale Arasa, *Courtroom Hearing Uses Virtual Reality for the First Time*, INQUIRER NET (Jan. 1, 2025, 1:13 PM), https://technology.inquirer.net/139567/courtroom-hearing-uses-virtual-reality-for-the-first-time [https://perma.cc/LZ5Y-YFCY (staff-uploaded)].

61. Rafael Olmeda, *Wedding Venue Owner Who Waves Gun at Guests Says It Was Self-Defense*, SUNSENTINEL, https://www.sun-sentinel.com/2024/10/01/wedding-

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wedding guests were a threat to him, his family, and his property.[62] Specifically, he claims he entered the wedding venue only after being told by his family that wedding guests had refused to leave and physically attacked them.[63] He claims that the wedding guests were "screaming threats . . . throwing chairs, breaking glasses, and ripping door panels off walls."[64] Albisu allegedly only waved his gun once he was "surrounded" by wedding guests, physically grabbed by another man, and "feared for his life."[65]

The immersive VR simulation shown by the defense presents this narrative from Albisu's perspective by illustrating "what he faced when he was surrounded" by wedding guests and depicting the events that ultimately led Albisu to draw his gun.[66] The defense wanted to show the fear and genuine threat to safety that Albisu felt; they accomplished this by allowing Judge Siegal to experience Albisu's point of view when the alleged events unfolded.[67] Judge Siegel experienced this *before* deciding whether it would be admitted as evidence.[68] A jury, however, will be able to have this experience only if the VR simulation is separately *admitted as evidence* for a jury trial.[69]

V. The Federal Rules of Evidence

This Note primarily applies and evaluates the Federal Rules of Evidence ("FRE") because they are the "most . . . recognized guide to

venue-owner-who-waved-gun-at-guests-says-it-was-self-defense/ (last updated Oct. 1, 2024 4:35 PM EDT), *reprinted in* Kenneth Padowitz P.A., https://www.lauderdalecriminaldefense.com/wedding-venue-owner-who-waved-gun-at-guests-says-it-was-self-defense/ [https://perma.cc/4YN5-LGBF (staff-uploaded)] (last visited Mar. 31, 2025); Defense Motion to Dismiss, at 2, 183, State v. Albisu, No. 23002405CF10A (Fla. 17th Cir. Ct. Aug. 21, 2024).

62. Olmeda, *supra* note 61; Defense Motion to Dismiss, *supra* note 61, at 1, 2, 178, 180.

63. Defense Motion to Dismiss, *supra* note 61, at 178–89.

64. *Id.* at 179; Vazquez, *supra* note 2.

65. Defense Motion to Dismiss, *supra* note 61, at 181–83; Olmeda, *supra* note 61.

66. Vazquez, *supra* note 2; Motion to Allow Forensic Animation at 1–4, State v. Albisu, No. 23002405CF10A (Fla. 17th Cir. Ct. Aug. 21, 2024).

67. Motion to Allow Forensic Animation, *supra* note 66, at 1–4; Vazquez, *supra* note 2.

68. Vazquez, *supra* note 2; Daniel, *supra* note 2.

69. Vazquez, *supra* note 2; *see* Daniel, *supra* note 2.

the general principles of evidence."[70] While states have crafted their own evidentiary rules, many states have modeled them after these federal rules.[71] The Federal Rules of Evidence control what is admitted into federal courts through a series of rules and requirements.[72] As stated in FRE Rule 102, the purpose of these rules is to "administer every proceeding fairly . . . and promote the development of evidence law, to the end of ascertaining the truth and securing a just determination."[73] While there are multiple categories of evidence, for the purpose of this Note, evidence can effectively be divided into two distinct categories: real and illustrative. Real evidence consists of primarily tangible or physical evidence.[74] Courts perceive mediums like VR generally as illustrative evidence, which typically takes the form of visual evidence that serves as a reflection of real evidence or testimony.[75]

A. Admissibility Requirements for Illustrative Evidence

Rule 107 governs the use of "illustrative aids" in the courtroom.[76] The rule allows a party to "present an illustrative aid to help the trier

70. *Rules: Federal Rules of Evidence*, FED. JUD. CTR., https://www.fjc.gov/history/work-courts/rules-federal-rules-evidence [https://perma.cc/88FK-L7YY (staff-updated)] (last visited Mar. 22, 2025).

71. *Court Rules Research Guide: State Court Rules*, MARQ. UNIV. L. SCH., https://libraryguides.law.marquette.edu/c.php?g=318621&p=2127178) [https://perma.cc/3TUE-9TUU (staff-uploaded)] (last visited Mar. 22, 2025).

72. *Federal Rules of Evidence*, U.S. CTS., https://www.uscourts.gov/forms-rules/current-rules-practice-procedure/federal-rules-evidence [https://perma.cc/K5KD-DK65 (staff updated)] (last visited Mar. 12, 2025).

73. FED. R. EVID. 102.

74. *How to Win Your Case with Demonstrative Evidence*, COURTROOM ANIMATION, https://courtroomanimation.com/blog/how-to-win-your-case-with-demonstrative-evidence/ [https://perma.cc/TU8R-3KCB (staff-uploaded)] (last visited Feb. 13, 2025); *Understanding Evidence in a Criminal Trial*, MCCREADY L. GRP. (Feb. 22, 2022), https://zacharymccreadylaw.com/blog/understanding-evidence-criminal-trial/ [https://perma.cc/M2CH-2WWG (staff-uploaded)].

75. Mary C. Kelly & Jack N. Bernstein, *Virtual Reality: The Reality of Getting It Admitted*, 13 J. MARSHALL J. COMP. & INFO. L. 145, 162 (1994) (arguing that VR "should be treated as demonstrative evidence"); Anjelica Cappellino, *Virtual Reality: The Future of Expert Testimony*, EXPERT INST., https://www.expertinstitute.com/resources/insights/virtual-reality-the-future-of-expert-testimony/ [https://perma.cc/FM6F-T98F (staff-uploaded)] (last updated Feb. 26, 2025).

76. FED. R. EVID. 107.

of fact understand the evidence or argument if the aid's utility in assisting comprehension is not substantially outweighed by the danger of unfair prejudice, confusing the issues, misleading the jury, undue delay, or wasting time."[77] Rule 107 continues that "[a]n illustrative aid is not evidence and must not be provided to the jury during deliberations unless: (1) all parties consent; or (2) the court, for good cause, orders otherwise."[78] Rule 107 explicitly states "computer simulations" are a type of illustrative aid.[79]

Rule 107's language makes clear that illustrative aids are *not* intended to be used to resolve or prove a factual dispute.[80] Rather, they must be offered only "for the narrow purpose of helping the trier of fact to understand what is being communicated to them by the witness or party presenting evidence or argument."[81] Essentially, the rule asks judges to balance the illustrative aid's probative value with its dangers (unfair prejudice, misleading the jury, etc.).[82] This precisely mirrors Rule 403, which says a "court may exclude relevant evidence if its probative value is substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence."[83]

Rule 107 is the first rule controlling the use of illustrative aids in the courtroom.[84] Beyond this, specific rules governing the use of VR have not been passed. This creates a large gap in evidentiary standards as the technology grows and is increasingly taken advantage of in the courtroom. To be admissible as evidence, a VR simulation must pass the existing Federal Rules of Evidence, along with Rule 901 (Authenticity), Rule 702 (Testimony by Expert Witness), and Rule 403 (Excluding Relevant Evidence for Prejudice, Confusion, Waste of Time, or Other Reasons). While other evidentiary rules are relevant for this inquiry, this Note focuses only on these.

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77. *Id.*
78. *Id.*
79. *Id.*
80. *Id.*
81. *Id.*
82. *Id.*
83. FED. R. EVID. 403.
84. *See* FED. R. EVID. 107.

B. How Virtual Reality Evidence Can Be Authenticated

Federal Rule of Evidence 901 outlines a fundamental requirement for all evidence: that it must be authenticated to demonstrate its reliability.[85] To meet the requirements set by Rule 901, "the proponent must produce evidence sufficient to support a finding that the item is what the proponent claims it is."[86] This can be achieved in a few ways, such as testimony of a witness with knowledge.[87] To assess the reliability of evidence where "the accuracy of a result is dependent upon a process or system which produces it," there needs to be evidence that describes that "process or system" and shows that it "produces an accurate result."[88]

Under the current evidentiary rules, VR appears to generally be treated as an "illustrative aid"; the same rules that apply to the admission of a computer animation apply to VR.[89] A computer animation is a type of illustrative aid employed to assist the jury in visualizing existing evidence.[90] In other words, a computer animation's role is primarily limited to illustrating evidence and simply "reinforce[s] the verbal narrative" presented to the court.[91]

Because *Albisu* is being heard in a Florida court, this Note applies Florida's Rules of Evidence as it relates to computer animations.[92] In Florida, for a computer animation to be admitted as an "illustrative aid," the relevant rules are: "(1) the opinion evidence must be helpful to the trier of fact, (2) the witness must be qualified as an expert," (3) "the proponent must establish that the facts or data on which the

85. FED. R. EVID. 901.

86. *Id.*

87. *Id.*

88. *Id.*

89. FED. R. EVID. 107.; Cappellino, *supra* note 75 (discussing how "courts consider virtual reality as demonstrative"); *see* Motion to Allow Forensic Animation *supra* note 66, at 1 (treating VR as a demonstrative aid in its motion to admit it as evidence for the pre-trial hearing).

90. *Forensic Computer 'Animations' vs. 'Simulations': Why Attorneys Need to Know Difference*, KENNETH PADOWITZ, https://www.lauderdalecriminaldefense.com/forensic-computer-animations-vs-simulations-why-attorneys-need-to-know-difference/ [https://perma.cc/9MU6-YAKH (staff-uploaded)] (last visited Mar. 12, 2025).

91. *Id.*

92. *See* Pierce v. State, 671 So. 2d 186, 190 (Fla. Dist. Ct. App. 1996).

expert relied in forming the opinion expressed by the computer animation are of a type reasonably relied upon by experts in the subject area," and (4) "the computer animation must be a fair and accurate depiction of that which it purports to be."[93]

These evidentiary standards for admitting a computer animation differ from the admissibility requirements for a forensic simulation.[94] Forensic simulations are animations rooted in scientific principles that "form part of the basis of the expert's opinion" and aim to resolve a factual dispute.[95] Because a forensic simulation is often employed to "support" the expert's findings or opinion, they are subject to higher scrutiny than a computer animation or illustrative aid; those are used to *reflect* the expert's opinion rather than serve as the *basis* of their opinion.[96] If the animation is a forensic simulation, then the expert testifying to authenticate the simulation needs to meet the requirements outlined in FRE Rule 702, which are the same rules codified in Florida's Evidence Code.[97]

Rule 702 outlines the requirements for an expert witness's testimony. The expert must

> demonstrate[ ] to the court that it is more likely than not that: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert's opinion

93. *Id.*

94. PADOWITZ, *supra* note 90; Victoria Webster & Fred E. (Trey) Bourn III, *The Use of Computer-Generated Animations and Simulations at Trial*, 83 DEF. COUNS. J., 439, 440–41 (2016); Karen L. Campbell, Lauren A. Jones & David B. Datny, *Avatar in the Courtroom: Is 3D Technology Ready for Primetime?*, 63 FDCC Q. 295, 296–300 (2013).

95. *Computer Simulations in the Courtroom: An Expert Perspective*, EXPERT INS., https://www.expertinstitute.com/resources/insights/computer-simulations-in-the-courtroom-an-expert-perspective/ (last updated Feb. 26, 2025) [https://perma.cc/RC4Z-XXDN (staff-uploaded)].

96. PADOWITZ, *supra* note 90; *see* Webster & Bourn, *supra* note 94, at 440.

97. *Id.*; Webster & Bourn, *supra* note 94, at 441; *see* FLA. STAT. § 90.702 (2024).

> reflects a reliable application of the principle methods to the facts of the case.[98]

As a result of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,[99] Rule 702 has been amended to include a list of factors that "assess the reliability" of expert testimony.[100] Florida has also implemented the *Daubert* standard.[101]

Accordingly, because admissibility standards differ for computer animation and forensic simulation, it is *crucial* to determine what a VR simulation is: a computer animation, or a forensic simulation? As explained earlier, courts approach illustrative aids "more leniently" than evidence used to resolve a disputed fact in jury deliberations.[102] Most VR simulations are viewed as illustrative aids akin to computer animation.[103] However, many commentators argue for stricter guidelines for authenticating VR evidence,[104] with one legal scholar alluding to the possible need for VR to meet some "or all" of the heightened scientific standards.[105]

Given the interactive and immersive nature of VR, it is not clear whether courts should simply view VR as an illustrative aid or if they should subject it to more careful scrutiny, akin to scientific evidence like forensic simulations.[106] Although a VR simulation can *reflect*

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98. FED. R. EVID. 702.

99. 509 U.S 579 (1993).

100. *See id.*; FED. R. EVID. 702.

101. Thomas S. Edwards, Jr. & Jennie R. Edwards, *The Daubert Expert Standard: A Primer for Florida Judges and Lawyers*, FLA. BAR (Mar./Apr. 2020), https://www.floridabar.org/the-florida-bar-journal/the-daubert-expert-standard-a-primer-for-florida-judges-and-lawyers/ [https://perma.cc/G4QR-K89K (staff-uploaded)].

102. Khirin Bunker, *From Presentation to Presence: Immersive Virtual Environments and Unfair Prejudice in the Courtroom*, 92 S. CAL. L. REV. 411, 420.

103. Cappellino, *supra* note 75.

104. MacDonald, *supra* note 8; Bunker, *supra* note 102, at 422; Rattray, *supra* note 2; Daisy Thomas, *Virtual Reality in the Courtroom: Florida Case Hints at a Justice System Transformed*, LINKEDIN (Jan. 3, 2025), https://www.linkedin.com/pulse/virtual-reality-courtroom-florida-case-hints-justice-system-thomas-zyrbe/ [https://perma.cc/9826-RSBV (staff-uploaded)].

105. Bunker, *supra* note 102, at 437; Campbell et al., *supra* note 94, at 295.

106. *See* Bourn & Webester, *supra* note 93, at 441 (discussing how simulations are subject to heightened scientific standards).

testimony or evidence, it could also *enhance* existing evidence with immersion—creating an entirely new experience for the jury.

Even though all VR simulations are not based on scientific evidence or data,[107] courts *should* apply stricter standards to VR simulations, similar to the level of scrutiny applied to scientific forensic simulations. This is because VR simulations present risks of cognitive misjudgment. VR is not an ordinary animation; rather, it is built to simulate reality through immersion, engagement, and human perception. As an immersive technology, it is hard to ensure VR simulations accurately represent evidentiary records.[108] Accordingly, VR evidence should be treated akin to a "forensic" simulation"—as opposed to a mere illustrative aid or computer animation—and thus its admissibility should be governed by heightened authentication requirements.

If treated like a forensic simulation, VR evidence would be subject to *Daubert* scrutiny.[109] In *Daubert*, the Court developed a balancing test for determining whether an expert's testimony is reliable.[110] In the case of VR, courts should employ a VR expert as one of the testifying experts among others deemed necessary. The key factors in a *Daubert* analysis are (1) testing, (2) peer review, (3) error rates, and (4) acceptance in the scientific community.[111] These are not stringent requirements, and "other factors" may still be considered for admissibility.[112] The testing factor assesses whether a technique or

107. *See id.* at 440 (describing simulations as "reconstructions based on scientific principles" that are "created by entering data and engaging in computer-assisted analysis").

108. MacDonald, *supra* note 8; *see also* Ron Vaughn, *Is Virtual Reality the Future of Courtrooms?*, OKLA. BAR ASSOC. (May 2019), https://www.okbar.org/barjournal/may2019/obj9005vaughn [https://perma.cc/G58C-8CQT]; *see also* Daniel, *supra* note 2; Bunker, *supra* note 102, at 436–37.

109. *See* PADOWITZ, *supra* note 90; Webster & Bourn, *supra* note 94, at 440–41.

110. *See* Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 579–80 (1993).

111. *Id.* at 593–94; Kumho Tire Co. v. Carmichael, 526 U.S. 137, 137 (1999).

112. *Daubert*, 509 U.S at 593–94.

"methodology"[113] has been "falsified" or is refutable,[114] as well as whether an expert has rooted their conclusions in "sufficient facts or data."[115] The peer review factor addresses scholarship.[116] Though not dispositive, if something has been published, this may bolster the overall accuracy or reliability of the evidence.[117] The error rates factor assesses the overall accuracy of the technique (here being VR) by examining any oversights or miscalculations in both the process of creating the simulation and in the simulation itself.[118] Though it is beneficial for the expert to "provide a numerical error rate," this is not a requirement.[119] Lastly, the general acceptance factor turns on whether the technique is widely accepted in the scientific community.[120] As such, "[a] known technique which has been able to attract only minimal support within the community, may properly be viewed with skepticism."[121]

Though *Daubert* applied the factors specifically to *scientific* expert witness testimony,[122] *Kumho v. Carmichael* [123] extended the use of these to *all* expert testimony, scientific or not.[124] Because these factors can assist in "describing a process or system and showing that it produces

113. The *Daubert* case famously marked a shift from analysis of an expert's ultimate conclusions toward analysis of the methodologies employed to reach those conclusions. For further discussion on "methodologies," see Anjelica Cappellino, *The Daubert Standard*, EXPERT INST., https://www.expertinstitute.com/resources/insights/the-daubert-standard-a-guide-to-motions-hearings-and-rulings [https://perma.cc/F55H-NSGQ] (last updated May 9, 2024).

114. *Daubert*, 509 U.S. at 593.

115. Cappellino, *supra* note 113.

116. *Id.*

117. *Id.*

118. *Daubert*, 509 U.S. at 594.

119. *The Daubert Standard and Daubert Challenge: A Guide for Expert Witnesses*, INTELLEX (Nov. 26, 2024), https://intellex.com/expert-insights/the-daubert-standard-and-daubert-challenge-a-guide-for-expert-witnesses [https://perma.cc/K6LB-3GJG].

120. *Id.*

121. *Daubert*, 509 U.S. at 594 (quoting U.S. v. Downing, 753 F.2d 1224, 1238 (3d Cir. 1985)).

122. *Id.* at 591–95.

123. *See generally* Kumho Tire Co. v. Carmichael, 526 U.S. 137, 137 (1999).

124. *Id.* at 138.

an accurate result,"[125] they should be utilized when determining whether individual VR simulations are, in fact, reliable and authenticated.

VI. Applying the Evidentiary Rules to Virtual Reality Headsets

A. *Application of the* Daubert *Factors*

Regarding the first *Daubert* factor, testing, two primary parts of a VR simulation should be verified to authenticate its methodology.[126] First, the VR simulation must precisely mirror the testimony or evidence it intends to reflect[127] so that it does not "distort the facts of a case."[128] This requires a diligent, meticulous review of the relevant facts and a careful examination of the final product.

The level of scrutiny required to determine authenticity differentiates VR from computer animation, given VR's immersive nature. To prevent admission of a biased perspective or manipulated evidence, *every* aspect of the simulation depicting *any and all* pertinent facts from the case will have to be meticulously referenced against the existing evidence it was based on. These would include the appearance of the individuals, the space between the viewer and the individuals, individuals' physical movements, the viewer's own physical movement, the design of the environment, the lighting, the sounds, the size and angles of the simulation, and the timing of events. Essentially, the "inputs," or the data fed into the simulation, must be strictly verified, given that a simulation is only as "accurate as the data entered into it."[129] Second, courts will also need to verify the methodology itself (the systems and programs that created the simulation) to further ensure

125. Fed. R. Evid. 901.

126. Fed. R. Evid. 901(b)(9) ("Evidence describing a process or system and showing that it produces an accurate result.").

127. *See* Mark Robins, *Using Simulation Software in the Courtroom*, COMSOL Blog (June 17, 2019), https://www.comsol.com/blogs/using-simulation-software-in-the-courtroom [https://perma.cc/X3SX-ZY8R] (discussing how critical it is that the expert "stress the degree to which [their] model fits the facts of the case" so they can be permitted to "testify based on the simulation").

128. Webster & Bourn, *supra* note 94, at 439.

129. Kelly & Bernstein, *supra* note 74, at 171.

the VR simulation "is the product of reliable . . . principles and methods."[130]

The second *Daubert* factor, peer review, is not as probative of accuracy, and given the novelty of VR, it would be more difficult to assess. In *State v. Puloka*,[131] the defense tried to admit a photograph enhanced by artificial intelligence ("AI") as evidence.[132] The court rejected the photograph primarily on the grounds that the AI tools used to create the photo had not been "peer-reviewed by the forensic-video analysis community" and that AI-enhanced evidence had not yet been admitted in any criminal or civil trial.[133] This raises a number of questions regarding whether the use of VR, as used in *Albisu*, has been peer reviewed, given that *Albisu* represented the first instance of VR being admitted into evidence. While VR technology was introduced decades ago, it has become more advanced in recent years, especially with the development of commercial VR products, such as the Oculus Quest 2.[134] As a result, it is unclear how a court would rule.

First, the headset used to depict and experience the VR simulation should be peer reviewed as to determine the quality of the experience, considering aspects such as the overall responsiveness, resolution, and field of view.[135] Further, the underlying technology utilized to create the VR simulation should be peer reviewed.[136] This poses additional difficulties since VR simulations are typically produced using a number of different types of software, from "3D modeling programs," "VR development platforms," "graphic design software," "animation software," "audio editing tools," and in many cases, AI-facilitated

130. Cappellino, *supra* note 113.

131. No. 21-1-04851-2 KNT, 2024 Wash. Super. LEXIS 1467, at *1 (Wash. Super. Ct. Mar. 29, 2024) (discussing the admissibility of an AI-enhanced photograph).

132. *Id.* at *5–6.

133. *Id.*

134. *See* Barnard, *supra* note 37.

135. *VR Headsets*, INTERACTION DESIGN FOUND., https://www.interaction-design.org/literature/topics/vr-headsets [https://perma.cc/ZML8-3GMK (staff-uploaded)] (last visited Mar. 15, 2025) (discussing various types of VR headsets and how different headsets can impact a user's VR experience).

136. *See, e.g.*, Livingston v. Isuzu Motors, Ltd., 910 F. Supp. 1473, 1495 (D. Mont. 1995) (analyzing the peer review process for an expert witness' computer simulation methodology).

enhancement tools.[137] Moreover, because VR is a continuously developing field, and given that the underlying software and hardware used to build and enhance VR experiences is actively advancing, it is unclear if scholars will be able to keep pace.

Daubert factor three, error rates, may weigh against the reliability of the VR simulations, but it ultimately depends on the methodology's accuracy and the measurability of error rates.[138] Numerous aspects can be considered when assessing the potential error rate of a VR simulation, including the technology's reliability; the data and methodology used to create the simulation;[139] and the accuracy of the simulation to the alleged or undisputed facts, whether based on tangible evidence, photographs, surveillance, witness testimony, expert testimony, or other evidence.[140] More specifically, the underlying data and software used to build the simulation should be examined,[141] including any potential AI technologies utilized to enhance the simulation experience.[142] Though this information may not necessarily lead to the production of a precise, quantifiable error

137. Kevin J. Quilty, *Washington Court Rejects Novel Use of AI Enhanced Video in Trial*, GREENBERG TRAURIG LLP (May 23, 2024), https://www.gtlaw.com/en/insights/2024/5/washington-court-rejects-novel-use-of-ai-enhanced-video-in-trial [https://perma.cc/95XG-EDGC] (discussing a case where an "ai-enhanced video" of an original video was rejected because it used a tool that had not been verified by the scientific community); *Virtual Reality Simulations*, PROGRAM ACE, https://program-ace.com/expertise/virtual-reality-simulations [https://perma.cc/L2AU-T8RF] (last visited Mar. 15, 2025); *AI in Virtual Reality*, IEEE DIGIT. REALITY, https://digitalreality.ieee.org/publications/ai-in-virtual-reality [https://perma.cc/7SWY-A9MW] (last visited Mar. 15, 2025); *see Livingston*, 910 F. Supp. at 1495; Thomas, *supra* note 104.

138. *Livingston*, 910 F. Supp. at 1495.

139. *See id.* (discussing how it was better to not exclude expert's testimony when he was explaining the reliability of the technology, since allowing it to be admitted would let the opposing party highlight potential errors in the methodology on cross-examination).

140. *See id.*

141. INTELLEX, *supra* note 119 (discussing how the main purpose error rates is to "determine whether the methodology is accurate"); Cappellino, *supra* note 113 (explaining how the court assesses "methodologies for flaws" to determine the error rate).

142. *See How AI Can Work Together with VR and AR*, HQSOFTWARE, https://hqsoftwarelab.com/blog/ai-and-ar-vr [https://perma.cc/2LUL-EQYK] (last visited Mar. 5, 2025).

rate, it is still helpful for understanding the overall reliability of the methodology and the technology.[143]

Because VR evidence incorporates immersive software, forensic data, and potentially AI, amongst other systems and programs, the error rate may be more difficult to measure.[144] Still, even if an error rate cannot be quantified, VR simulations should not be excluded on these grounds alone. Cross-examination of an expert witness can inform a court of the "possibilities and uncertainties regarding error."[145] This is particularly important for establishing the reliability of a VR simulation, as cross-examination can further convey whether the data is "complete," "biased," or tampered with.[146]

Understanding AI's role in VR is crucial in further discerning why VR simulations should be closely scrutinized. AI technology is not solely limited to improving VR's "functionality" or contributing to the simulation's production: It can also be utilized to create the *entire* simulation, derived from the "input data or generative models."[147] While not all VR is enhanced or created by AI, the two technologies are progressively working in tandem,[148] and a simulation that does employ AI should require additional scrutiny. Broadly speaking, the legal profession has become increasingly concerned with the admission of AI evidence, given the difficulty in assessing algorithms' reliability

143. *See Livingston*, 910 F. Supp. at 1495.

144. *See id.* (discussing how the complexity of the forensic simulation, which involved "physics equations, vehicle dimensions, road conditions, etc.[,] made it difficult to measure the error rate"); Quilty, *supra* note 137; PROGRAM ACE, *supra* note 137; IEEE DIGITAL REALITY, *supra* note 137.

145. *See Livingston*, 910 F. Supp. at 1495.

146. Daniel, *supra* note 2; MacDonald, *supra* note 8 (discussing the potential challenges with assessing the authenticity of VR evidence).

147. HQSOFTWARE, *supra* note 142.

148. *See* Greg Lukosek, *The Exciting Future of VR and AI: How Technology Is Changing the Game*, CODEMENTOR (Mar. 26, 2024), https://www.codementor.io/@lukos86/the-exciting-future-of-vr-and-ai-how-technology-is-changing-the-game-2epy3jyl51 [https://perma.cc/Y38X-9J3X]; *see also* Chester Avey, *Does AI Enhance Virtual Reality Experiences?* SECUREWORLD (Oct. 13, 2025), https://www.secureworld.io/industry-news/does-ai-enhance-virtual-reality-experiences [https://perma.cc/JR2Z-WTSE]; Thomas, *supra* note 104; IEEE DIGITAL REALITY, *supra* note 137.

since the technology has "no human author," as all content produced by AI is machine-generated.[149]

While AI and VR are distinguishable technologies, both are fed human-made data—which can contribute to a biased or manipulated AI generation or VR simulation. AI is based on training data that can be biased because of decisions of the humans that built the algorithms.[150] Similarly, VR can contain biases based on how animators interpret data—in this case, the evidence used to make design decisions for how the simulation should display in VR. In sum, if AI is employed to enhance a VR simulation, the VR simulation should require a heightened level of scrutiny that assesses the reliability of the AI tools.

Daubert factor four, acceptability, mirrors the application of the third factor in the context of VR, given this new technology is still evolving and advancing. To show that a forensic simulation has fulfilled the "general acceptance" requirement, courts look to how often the specific software or underlying programs have been used to prove *what* the simulation is demonstrating.[151] For example, in *Commercial Union Insurance Co. v. Boston Edison Co.*,[152] a forensic simulation was created to "predict a building's energy consumption."[153] The court considered the general use of a specific program that created the simulation by engineers and other professionals to "model energy consumption."[154] This helped establish that the simulation had "gained widespread acceptance."[155]

Here, aspects of VR to consider are courts' use of VR as evidence generally,[156] the underlying technology used to build the simulation,[157]

149. *AI Tools & Resources*, UNIV. S. FLA. LIBRS., https://guides.lib.usf.edu/c.php?g=1315087&p=9678779 [https://perma.cc/PWA7-9F3A] (last visited Mar. 15, 2025).

150. James Manyika, Jake Silberg & Brittany Presten, *What Do We Do About the Biases in AI?*, HBR (Oct. 25, 2019), https://hbr.org/2019/10/what-do-we-do-about-the-biases-in-ai [https://perma.cc/F4PT-LGVF].

151. *See* Robins, *supra* note 127.

152. 412 Mass. 545 (1992).

153. *See* Robins, *supra* note 127.

154. *Id.*

155. *Id.*

156. *See id.*

157. *See id.*; Kelly & Bernstein, *supra* note 75, at 171.

and the specific headset presenting the VR simulation. This is illustrated by the *Puloka* court's analysis of "general acceptance."[158] Since the AI tool at issue had never been used before in court—nor had *any* AI tool ever been admitted or "examined" to enhance evidence in a court—the court was persuaded that there was a lack of general acceptance of these AI tools in the "forensic-video analysis" community.[159] However, due to the rapid development of VR technology, it is unclear how probative of reliability this factor would be. That said, if the *Albisu* court ultimately admits the VR simulation as evidence, this could initiate a phase of accepting VR and their accompanying simulation software in courtrooms.

For a VR simulation to be introduced as evidence during trial, it should meet the aforementioned authenticity requirements. Both the data entered into the programs and the software employed to create the simulations should be verified to prevent misrepresentations, omissions, overstatements, or biased interpretations of the facts.

Applying these rules to *Albisu*, the simulation produced for the case is based on a review—performed by a defense expert, Rob Englert—"of depositions, a sight visit, and sworn witness statements to the police."[160] Englert is a "qualified court expert," specifically in "homicide crime scene reconstruction and blood spatter interpretation"—and his legal services extend to computer animation

158. Quilty, *supra* note 137.
In determining the admissibility of expert testimony, courts generally use one of two tests: *Frye* or *Daubert*. Most states follow the *Daubert* test. *State-by State Compendium Standards of Evidence*, NAT'L CIV. JUST. INST., https://ncji.org/wp-content/uploads/2024/01/Evidence-Standards-by-State-7.12.23.pdf [https://perma.cc/JN45-ZVEH] (last updated July 11, 2023). The *Puloka* court, however, follows the *Frye* test, which allows evidence to be admitted if the methodology has "gained general acceptance in the particular field in which it belongs." Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923) (superseded by FED. R. EVID. 702). By contrast, the *Daubert* test for determining admissibility contains numerous factors—one of which is general acceptance. Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 580, 593–94 (1993).

159. *Id.*

160. WPLG Local 10, *Judge Dons VR Headset in What's Thought to Be Courtroom First*, at 1:00 (Dec. 17, 2024), https://www.youtube.com/watch?v=FFdVPORhk10&ab_channel=WPLGLocal10 [https://perma.cc/7KJM-TNL2].

through a company partnership.[161] At the pre-trial hearing, Englert testified as to his expert psychological interpretation of Albisu's actions, as depicted in the VR simulation, based on his understanding of the facts of the case and "fight or flight."[162]

Englert and the defense worked in conjunction. While Albisu's defense attorney orally articulated the scenes taking place as the simulation played, Englert provided his expert interpretation as to why certain events transpired in the manner they did and validated the simulation.[163] For example, while the defense attorney was elucidating one scene of the simulation depicting Albisu "backing up" from a crowd of wedding guests surrounding him, Englert responded by explaining to the court that Albisu was "backing up so as not to be injured."[164] Further, Englert expressly confirmed that parts of the simulation were based entirely off real photographs taken at the scene of the charged crime, showcasing his review of the evidence and providing additional support for the accuracy of the simulation.[165]

It appears the VR simulation was based on Englert's review of the evidence, and that his testimony was intended to bolster the simulation's factual accuracy and describe the psychological rationale for Albisu's actions.[166] For the sake of argument, and suggested by the existing evidence, this Note presumes the defense expert demonstrated to the court the expert testimony requirements for admitting a "computer animation." Further, Albisu's Motion to Allow the Forensic Animation explicitly states that the "witnesses whose testimony is part of the basis for the forensic animation" and the "experts whose opinions form part of the basis for the forensic animation" will be able to testify at trial, assisting in corroborating the VR simulation to the evidentiary record.[167]

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161. EF, ENGLERT FORENSIC CONSULTANTS, https://englertforensics.com/ [https://perma.cc/ZET7-87X8] (last visited Mar. 5, 2025).

162. WPLG Local 10, *supra* note 160, at 1:04; Motion to Allow Forensic Animation, *supra* note 66, at 1, 3.

163. WPLG Local 10, *supra* note 160, at 0:47–0:52.

164. *Id.* at 0:49.

165. *Id.* at 1:09.

166. Motion to Allow Forensic Animation, *supra* note 66, at 1, 3; WPLG Local 10, *supra* note 160, at 0:47–0:52, 1:04.

167. Motion to Allow Forensic Animation, *supra* note 66, at 17–18.

Due to the novelty of VR evidence in the courtroom and the risk of bias and distortion, to ensure the accuracy of the VR simulation,[168] the VR simulation's animators should be tendered as experts to testify as to their specific methodology under *Daubert*.[169] They should articulate to the court the evidence they used, how they perceived it, and the specific programs they utilized in order to allow a VR simulation go to a jury for deliberation. While the defense expert and witnesses can express why certain scenes were depicted the way they were, and meticulously compare them to evidence in the record, they cannot accurately communicate the specific design decisions, perspective interpretations, environmental and spatial judgements, and other interpretive decisions made by the VR animator. They do not possess that particular type of knowledge. In addition to bringing in the animators to testify,[170] the court should consider employing a VR expert, who can affirm the animator's methodology under *Daubert*. The VR expert should articulate to the court that the systems were "correctly applied" and that the evidence was "appropriately translated into the model."[171] This is to ensure that the VR simulation accurately reflects the evidentiary record—the undisputed facts, and, in this case, the defendant's version of events.[172]

As VR technology continues to advance and becomes more accessible, its presence in court will only increase. *Albisu* represents only the beginning. Therefore, when parties propose to admit VR simulations as evidence, courts should employ VR experts to corroborate animators' interpretations, establish the simulation's reliability and accuracy, and provide opposing parties the opportunity

168. Daniel, *supra* note 2; MacDonald, *supra* note 8 (discussing the potential challenges with assessing the authenticity of VR evidence); *see* HQSOFTWARE, *supra* note 142; *see also Animating for Virtual Reality: Challenges and Opportunities*, HOUND, https://hound-studio.com/blog/animating-for-virtual-reality-challenges-and-opportunities/ [https://perma.cc/3Q8U-6AX2] (last visited Mar. 22, 2025) (outlining important steps and considerations an animator has to take to create a VR simulation).

169. Kelly & Bernstein, *supra* note 75, at 171; Bunker, *supra* note 102, at 437.

170. *See* Bunker, *supra* note 102, at 437 (arguing that "an expert who prepared the [VR simulation]" should testify, though not arguing the expert needs to satisfy *Daubert*).

171. Gregory P. Joseph, *Virtual Reality Evidence*, 2 B.U. J. SCI. & TECH. L. 12 (1996).

172. *Computer Simulations in the Courtroom: An Expert Perspective*, *supra* note 95.

to cross-examine these animators. Ultimately, however, the admissibility of a VR simulation lies within the discretion of the judge, who possesses "considerable leeway" in "determining whether particular expert testimony is reliable."[173]

Further, it is not clear whether the VR simulation presented to the *Albisu* court was made using any AI algorithms. That said, if any AI was used in the methodology, those specific tools need to be accurately verified as well. As discussed earlier, for *both* technologies—VR and AI—the reliability of their outputs is heavily dependent on their inputs, and the risks of manipulation, inaccuracy, and bias are present in both. For this reason, this Note argues that the proposed Federal Rule of Evidence 707 for machine-generated evidence should also extend to VR and be factors assessed within *Daubert*. The proposed amendments would require a proponent to "demonstrate a) that the output would help the trier of fact, b) sufficient facts or data were used as the inputs for the AI program, c) the AI program used reliable principles and methods, and d) that the output reflects a reliable application of the principles and methods to the inputs."[174]

Though these amendments guide courts in assessing the reliability of AI used in VR, they can similarly be employed as part of the analysis for admitting VR evidence. By emphasizing input and output, these amendments provide a simplified set of rules that can more effectively guide courts in assessing the reliability of this new era of digital evidence.

In sum, VR should be treated akin to a forensic simulation—regardless of whether it only serves an illustrative purpose—such that it is subject to higher scrutiny under *Daubert*. Animators that design

173. FED. R. EVID. 702.

174. *Agenda for Committee Rules*, ADMIN. OFF. OF THE U.S CTS.: ADVISORY COMM. ON EVIDENCE RULES 251 (Nov. 8, 2024), https://www.uscourts.gov/sites/default/files/2024-11_evidence_rules_committee_meeting_agenda_book_final_10-24.pdf [https://perma.cc/UX8E-GF4Y] (discussing proposed rules for machine-generated evidence generally, and proposed Rule 707 which functions similarly to Rule 702); *Changes Proposed to the Federal Rules of Evidence to Address AI Usage*, BARNES & THORNBURG LLP (Nov. 15, 2024), https://btlaw.com/en/insights/alerts/2024/changes-proposed-to-the-federal-rules-of-evidence-to-address-ai-usage [https://perma.cc/U8TU-V7HG]; FED. R. EVID. 702.

VR simulations will have to prove they are experts in the field[175] and testify as to how their specific methodology—like the software and technology they utilized and the data they provided to those programs—created a reliable representation of that data.[176] This may require a VR expert to affirm the animator's methodology. Further, if the VR simulation used AI to enhance or produce the simulation, that AI should be carefully evaluated for risk of bias, error, and manipulation.

B. Weighing the Probative Value Against Unfair Prejudice

Even if a VR simulation passes the above requirements, and any and all other relevant rules (relevancy, hearsay, etc.), it can still be excluded on the grounds of FRE Rule 403—that is, if the probative value of the simulation is "substantially outweighed" by "unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence."[177] Evidence misleads the jury when there is the prospect that the jury may "misinterpret the evidence."[178] "[N]eedlessly presenting cumulative evidence" means presenting essentially analogous items of evidence with only "little new information."[179] When evidence is unfairly prejudicial, it is often because it has the "tendency to suggest a decision on an improper basis, commonly, though, not necessarily, an emotional one" or risks a biased perspective.[180] Probative value refers to the likelihood that the evidence serves its "proof purpose of a relevant fact in issue."[181] Rule 403 creates a balancing test, weighing

175. *See* Kelly & Bernstein, *supra* note 75, at 171; Bunker, *supra* note 102, at 437.

176. FED. R. EVID. 901 ("Evidence describing a process and showing it produces an accurate result."); FED. R. EVID. 702.

177. FED. R. EVID. 403.

178. *Rule 403- Excluding Relevant Evidence for Prejudice, Confusion, Waste of Time, or Other Reasons*, FED. R. EVID. (2024), https://www.rulesofevidence.org/fre/article-iv/rule-403/ [https://perma.cc/9NP2-NDYY].

179. *Id.*

180. *Id.*

181. *Probative Value*, CORNELL L. SCH.: LEGAL INFO. INST., https://www.law.cornell.edu/wex/probative_value [https://perma.cc/KZZ4-P9LS] (last visited Apr. 9, 2025).

"the probative value of and need for the evidence against the harm likely to result from its admission."[182]

This Note does not focus on the myriad reasons why VR could prejudice the jury, or all the circumstances in which it could; that has been articulated by many scholars.[183] Rather, this Note elaborates on some of the relevant prejudicial effects that potentially apply to the specific VR simulation in *Albisu*. Importantly, while the entire VR simulation in *Albisu* is not publicly available, the available portions are substantial enough for these rules to be meaningfully applied.

Commentators and legal scholars seem to collectively agree that VR evidence can prejudice a jury primarily due to the technology's immersive, life-like nature and the simulations' ability to elicit empathy or other emotional responses through the effect of "presence."[184] Scholars and judges possess legitimate concerns about the jury placing too much weight on what can be attributed to the power of the simulation. Because the jury may be experiencing the trajectory of events from the perspective of the defendant themselves, or as an observer in a VR simulation, the jury may more easily believe that the narrative presented in VR must be true, or they may more easily "decide issues based on emotion or some other improper basis."[185]

This risk diminishes with a less-advanced simulation, where it may be more obvious to the jury that what they are viewing is a simulation; the risk is significantly heightened the closer the simulation is to real life and "hyperreality."[186] In the VR context, hyperrealism is a highly advanced simulation experience "so realistic that it is indistinguishable from actual reality."[187] This risk, which is further increased depending

182. *Id.*

183. *See* Kelly & Bernstein, *supra* note 75, at 171; s*ee* Bunker, *supra* note 102, at 432.

184. *See* Kelly & Bernstein, *supra* note 75, at 166–67; *see also* Bunker, *supra* note 102, at 427, 429.

185. *See* Kelly & Bernstein, *supra* note 75, at 162, 167 (describing how VR users are more likely to believe what they are seeing is true).

186. *Id.* at 167.

187. *Hyperrealistic Virtual Reality*, LINDE VIRTUAL ACAD. (Jan. 23, 2023), https://vr.linde.com/2023/01/23/hyperrealistic-virtual-reality-how-far-away-are-we/ [https://perma.cc/AGL9-KC3J].

on the type of crime at issue,[188] should be closely scrutinized to evaluate the risk of prejudice if the VR simulation is depicting a crime that involves gruesome death or violence.[189]

Moreover, a viewer's perception of events changes depending on whose perspective they hear—or, in the case of VR, *experience*.[190] With traditional evidence, a juror perceives evidence from *their own perspective* because the evidence is *presented* to them. However, with VR, a juror does not merely hear or view evidence, or a certain depiction of events through testimony. Rather, a juror is immersed into the *perspective chosen by the decision-maker*, potentially "giving the jury a biased perspective."[191]

If a VR simulation meets relevancy requirements, the VR's probative value could be significant.[192] As discussed earlier, placing the factfinder—whether judge or jury—in an immersive simulation could result in a more holistic and informed understanding of the case.[193] In order for the jury to understand the complexity of a case, the evidence

188. *See* Jules Epstein & Suzanne Mannes, "*Gruesome" Evidence, Science, and Rule 403*, NAT'L JUD. COLL. (Mar. 17, 2016), https://www.judges.org/news-and-info/gruesome-evidence-science-and-rule-403/ [https://perma.cc/33KU-3NKV] (discussing a study that showed those who "experienced" gruesome evidence "were more likely to convict" than those who did not); *see* Kelly & Bernstein, *supra* note 75, at 167–68.

189. *See* Epstein & Mannes, *supra* note 188; *see* Kelly & Bernstein, *supra* note 75, at 167–68.

190. *See* Bunker, *supra* note 102, at 426; Vaughn, *supra* note 108.

191. *See* Bunker, *supra* note 102, at 426, 429; Vaughn, *supra* note 108; Kelly & Bernstein, *supra* note 75, at 167.

192. Kelly & Bernstein, *supra* note 75, at 170; *see* Bunker, *supra* note 102, at 414–15.

193. *Virtual Reality in Courtrooms Enhances Jury Understanding and Engagement by Providing Immersive Virtual Presentations that Clarify Complex Evidence and Foster a Better Grasp of the Case*, TECH. INNOVATORS, https://www.technology-innovators.com/virtual-reality-in-courtrooms-enhancing-visual-presentations-and-jury-understanding/ [https://perma.cc/H54C-RYJV] (last visited Mar. 15, 2025); Ryan Conley, *Virtual Reality in the Courtroom Is Helping Jurors See the Facts*, BLF, https://www.biggerlawfirm.com/virtual-reality-in-the-courtroom/ [https://perma.cc/RB7F-852U] (last visited Mar. 22, 2025); Rattray, *supra* note 2; *Virtual Reality in Accident Reconstruction: How High-Tech Tools Are Changing Florida's Legal Cases*, JD SUPRA (Jan. 8, 2025), https://www.jdsupra.com/legalnews/virtual-reality-in-accident-6997626/ [https://perma.cc/RK97-BBVG]; Greengard, *supra* note 7.

needs to be communicated to them in a digestible, clear manner.[194] Illustrative aids and forensic simulations facilitate this.[195] In fact, they are some of the most effective forms of conveying evidence to a jury;[196] likewise, the significance and probative value of VR simulations as evidence, generally speaking, cannot be overstated. However, the probative value of a *specific* VR simulation will hinge on its purpose in the case and whether it will truly assist the jury.

Ultimately, the probative value of evidence is contingent on its "proof purpose of a relevant fact in issue."[197] In *Albisu*, the defense argues that Albisu was justified in waving his gun because he was acting in self-defense of his property, family, and himself.[198] According to the motion to admit the VR simulation, the simulation is intended to convey the "circumstances leading up to, during, and subsequent to the alleged incident" with the aim of assisting the jury in better understanding the "spatial dynamics, the proximity of the threats, and the timing of the actions taken in self-defense."[199]

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194. *See* Donald J. O'Brien, Jr. & Charles P. Rantis, *Essentials of Demonstrative Evidence*, 28 ILL. ASS'N DEF. TRIAL COUNSEL Q., iss. no. 3, at 47, *reprinted in* https://johnsonandbell.com/wp-content/uploads/2012/11/Essentials-of-Demonstratve-Evidence.pdf [https://perma.cc/EB5P-D79H] (last visited Mar. 7, 2025) ("The use of visual aids . . . is critical in helping the jury understand the issues."); *see* Kelly & Bernstein, *supra* note 75, at 161.

195. Anjelica Cappellino, *Demonstrative Evidence: How It Can Help Expert Testimony*, EXPERT INST. (last updated Feb. 25, 2025), https://www.expertinstitute.com/resources/insights/demonstrative-evidence-expert-testimony/ [https://perma.cc/4RSM-454W]; *see* Kelly & Bernstein, *supra* note 75, at 161.

196. *See How to Win Your Case with Demonstrative Evidence*, *supra* note 74; O'Brien & Rantis, *supra* note 194; *see* Mary Quinn, *The Use of Demonstrative Exhibits at Trial*, 34 TULSA L.J. 567, 567–69 (1999).

197. *Probative Value*, CORNELL L. SCH.: LEGAL INFO. INST., https://www.law.cornell.edu/wex/probative_value [https://perma.cc/KZZ4-P9LS] (last visited Feb. 28, 2025).

198. *See* Daniel, *supra* note 2; *Self-Defense and 'Stand Your Ground'*, NCSL, https://www.ncsl.org/civil-and-criminal-justice/self-defense-and-stand-your-ground [https://perma.cc/P6XE-HGWZ (staff-uploaded)] (last updated Mar. 1, 2023) (discussing the Stand Your Ground Law and the states that have codified it into law.); Olmeda, *supra* note 61; Defense Motion to Dismiss, *supra* note 61, at 1–2, 178, 180.

199. Motion to Allow Forensic Animation, *supra* note 66, at 14–15, 304.

Parts of the publicly available simulation are presented from the defendant's perspective, depicting his movements when he entered the venue and showcasing all the guests surrounding him and invading his space.[200] Other parts of the simulation are presented from witnesses' points of view, as well as from an aerial point of view, providing a more comprehensive view of the surrounding environment when Albisu waved his gun.[201]

The crux of a stand-your-ground and self-defense claim is "reasonable belief"—that is, that Albisu waved the gun because he "reasonably believe[d] that such conduct [was] necessary to prevent or terminate the [people's] trespass" or "criminal interference" with his property.[202] It is important for the jury to experience the animation both immersively and from the defendant's perspective. It will assist them in better understanding whether Albisu's belief (that he, his family, and his personal property were going to be harmed) was, in fact, reasonable. The prosecution's argument (that Albisu did not feel threatened, and, therefore, was not justified in waving the gun)[203] only increases the overall probative value of the VR simulation; it is evidence that can further convey what exactly "[Albisu] saw [before he waved the gun] and why he reacted the way he did."[204]

The reasonableness standard in a self-defense determination is both objective and subjective.[205] Allowing the jury to experience parts of the simulation from the defendant's perspective would allow them to make a more informed decision as to how threatened Albisu felt. While the prosecution may try to argue that the evidence is "needlessly

200. WPLG Local 10, *supra* note 160, at 0:43–0:48, 1:01, 1:23, 1:31–38; Vazquez, *supra* note 2.

201. WPLG Local 10, *supra* note 160, at 1:17, 1:56.

202. *See Self-Defense and 'Stand Your Ground'*, *supra* note 198; Defense Motion to Dismiss, *supra* note 61, at 180.

203. *See* Defense Motion to Dismiss, *supra* note 61, at 1 (arguing that Albisu's use of force was "justifiable" given the factual context).

204. Melissa Heidrick, *Virtual Reality in the Courtroom*, AM. BAR ASS'N (Mar. 01, 2025), https://www.americanbar.org/groups/law_practice/resources/law-practice-magazine/2025/march-april-2025/virtual-reality-in-the-courtroom/ [https://perma.cc/TWF6-MQ49 (staff-uploaded, dark archive)].

205. *Imperfect Self-Defense in Criminal Law Cases*, JUSTIA, https://www.justia.com/criminal/defenses/imperfect-self-defense/ [https://perma.cc/TXH4-CZBC] (last visited Mar. 21, 2025).

presenting cumulative evidence" (because, after all, the VR simulation presents already admitted evidence), the defense would likely respond that the simulation, as an immersive experience, provides the jury a more complete presentation of the evidence.

The VR simulation has probative value—but, in order to be admissible, this probative value must also not "substantially outweigh" any prejudice.[206] With a VR simulation, the primary concern is that a jury will simply believe that the headset's portrayals (so, in *Albisu*, the defendant's perspective of the events) *must* be true,[207] and never think to question its accuracy. Moreover, if the VR simulation contains any "inflammatory" material such as "particularly gruesome" scenes or sounds, this could cause the jury to feel upset, shocked, or disturbed,[208] impeding their ability to make an objective decision. In that case, regardless of the VR simulation's probative value, the prejudicial effect on the jury would outweigh the probative value.

However, some aspects of the VR simulation in *Albisu* reduce prejudicial effects: In the simulation, the perspective shifts between the defendant's to others', there is no inflammatory material, and the animation quality is not hyperrealistic.[209] First, providing different perspectives reduces bias towards the defendant by ensuring the jury has a holistic understanding of the evidence during the simulation.[210] Second, the simulation does not appear to contain any "inflammatory" material. While Albisu waves a gun in the air, which could be perceived as an act of violence, the fact that he never shoots, directs it at anyone, or threatens to shoot, lowers the risk of prejudice.[211] Accordingly, the VR simulation is void of anything graphic or gruesome that could elicit an intense emotional response from the jury.[212] Lastly, while the VR's animation quality is high, it does not

206. FED. R. EVID. 403.

207. Kelly & Bernstein, *supra* note 75, at 167.

208. *See* Epstein & Mannes, *supra* note 188; Kelly & Bernstein, *supra* note 75, at 168.

209. WPLG Local 10, *supra* note 160, at 0:43–0:48, 1:01, 1:17, 1:23, 1:31–38, 1:56; Kelly & Bernstein, *supra* note 75, at 168; *see* Bunker, *supra* note 102, at 426.

210. *See* Rattray, *supra* note 2.

211. *See* Defense Motion to Dismiss, *supra* note 61, at 127.

212. Motion to Allow Forensic Animation, *supra* note 66, at 3; *see* WPLG Local 10, *supra* note 160, at 0:32, 0:38, 0:43–0:48, 1:01, 1:17, 1:23, 1:31–38, 1:56; Vazquez, *supra* note 2.

equate to any form of "hyperrealism," where the design of the environment and individuals mirrors the real world,[213] or matches what people see on a day-to-day basis. This is significant: Though the VR simulation is immersive—a quality that sets it apart from other types of computer animation—the design does not resemble reality; the jury should therefore understand that what they are viewing is a *simulation*.

While some risk of prejudice to the jury remains, the probative value of the simulation in *Albisu* is not substantially outweighed by the prejudice. The simulation provides the jury with a crucial angle of the defendant's testimony, forming the crux of the defense—that Albisu felt threatened, causing him to wave a gun. Therefore, the probative value of the simulation is incredibly high. Potential prejudice is diminished by differing perspectives, the absence of inflammatory material, and the quality of the animation. Consequently, the VR simulation in *Albisu* should not be excluded based on Rule 403.

Due to the prejudicial effects it can have on a jury, there are legitimate reasons for excluding VR simulations from evidence. However, if a VR simulation can provide a jury with a more complete understanding of the specific defense proffered—as done in *Albisu*—it should be admitted (with limiting instructions[214] provided to the jury) so long as the simulation's design reduces the risk of prejudice. Through limiting instructions, it should be made clear to the jury that what they are viewing "is not an actual re-creation of the event,"[215] and that the simulation's sole purpose is to deliver a complete representation of the evidence to enhance their understanding.[216] Overall, despite the legitimate prejudicial risks posed by VR simulations, the design of a VR simulation, lack of inflammatory material, and limiting jury instructions can reduce these risks.

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213. *Hyperrealistic Virtual Reality*, *supra* note 187; *see* WPLG Local 10, *supra* note 160, at 0:32, 0:38, 0:43–0:48, 1:01, 1:17, 1:23, 1:31–38, 1:56.

214. Kelly & Bernstein, *supra* note 74, at 168.

215. *Id.* at 169.

216. *See* Silverberg, *supra* note 35 (noting it is important for the "lawyer [to] clearly guide the jurors through the scenario"); *Virtual Reality in Courtrooms Enhances Jury Understanding and Engagement by Providing Immersive Visual Presentations that Clarify Complex Evidence and Foster a Better Grasp of the Case*, *supra* note 193.

VII. Conclusion

VR is a technological advancement capable of fundamentally changing how lawyers present, and how juries perceive, evidence. While courts are generally reluctant to draft new rules for courtroom technology before it poses issues,[217] the judiciary must respond. Today, VR is a fast-developing technology that continues to grow more life-like—including through the incorporation of AI, which, like VR, is also governed by existing evidentiary rules. However, unlike AI,[218] no new rules are under consideration for determining the admissibility standards of VR evidence.

While some argue VR is akin to computer animation, this Note argues that VR's nature—as an interactive, engaging, and immersive technology—requires a distinct categorization. This Note does not advocate for courts to view AI and VR identically. However, they often work in tandem and share overlapping risks:[219] The reliability of both technologies' outputs is heavily dependent on their inputs, and the risks of manipulation, inaccuracy, and bias are present in both.

For this reason, the proposed factors for FRE Rule 707, which governs machine-generated evidence, should extend to VR and be assessed within a *Daubert* analysis. While the proposed amendments encompass parts of the *Daubert* factors and function similarly to Rule 702, they provide clearer, more specific guidelines for the admissibility of these new technologies. Discussions surrounding Rule 707 further emphasize the importance of scrutinizing inputs and outputs to ensure that technologies posing higher risks—like VR and AI—are reliable and accurate. These amendments underscore concerns of bias, manipulation, and inaccuracy in digital, enhanced evidence

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217. *See* Ralph Losey, *The Problem of Deepfakes and AI Generated Evidence: Is It Time to Revise the Rules of Evidence? Part Two*, JD Supra (Sept. 20, 2024), https://www.jdsupra.com/legalnews/the-problem-of-deepfakes-and-ai-3991038/ [https://perma.cc/5KSD-KU8Z (staff-uploaded)] (urging a cautious approach to AI rules because of how quickly the area is developing); Silverberg, *supra* note 35 ("[T]he legal profession is hesitant to adopt new technology.").

218. Losey, *supra* note 217.

219. Demond Cureton, *Why Are Artificial Intelligence and Virtual Reality the Perfect XR Pair?*, XR Today (May 29, 2023), https://www.xrtoday.com/virtual-reality/why-are-artificial-intelligence-and-virtual-reality-the-perfect-xr-pair/ [https://perma.cc/J85M-9APY]; HQSoftware, *supra* note 142.

and highlight the need for more rigorous evidentiary standards as technology evolves.

While an illustrative aid is intended to merely depict *existing* testimony, scientific evidence like forensic simulations (which serve as the basis of an expert's testimony)[220] is intended to assist the jury in deciding *factual disputes*.[221] *Albisu* blurs this line: The dispute is whether it was reasonable for Albisu to believe he was going to be harmed. Though it can be argued that VR merely *presents* existing evidence, it can also be viewed as a tool that *enhances* existing evidence, due to VR's immersive qualities. This prompts questions: Should VR be treated as simply an illustrative aid? Or, because it provides an *enhanced* depiction of the evidence, should it be treated as demonstrative evidence? The answer is clear: A VR simulation presents something *new* to the jury, something beyond a traditional computer animation, beyond testimony, and beyond tangible evidence.

The December 2024 use of VR in a courtroom signifies the novel use of a technological innovation—one that has the power to shift the current judicial decision-making process. One legal analyst opined that VR use has the potential to entirely eliminate the jury's role in resolving factual disputes.[222] Such weighty concerns indicate the importance of regulating VR: The technology has the power to change how a juror perceives evidence, how they understand a case, and ultimately, how they reach their verdict. Therefore, VR's reliability and authenticity must be carefully examined under the *Daubert* factors—which, as a flexible standard, should include the factors outlined in the proposed evidentiary rule for machine-generated evidence.[223]

Courts adapt slowly to technological advancements, but VR has *already* reached the courtroom—and its presence will only grow. This technology poses legitimate risks that will only increase if courts fail to respond. This Note analyzes a VR simulation under the *Daubert*

220. *Computer Simulations in the Courtroom: An Expert Perspective*, *supra* note 95.

221. PADOWITZ, *supra* note 90; *Computer Simulations in the Courtroom: An Expert Perspective*, *supra* note 95.

222. *Criminal Cases- Are AI and VR Game Changers in the Courtroom?* YAHOO! FIN. (Feb. 13, 2025), https://finance.yahoo.com/news/criminal-cases-ai-vr-game-165444903.html [https://perma.cc/EY97-R9QB (staff-uploaded)].

223. *Agenda for Committee Rules*, *supra* note 174 (discussing Rule 707); *Changes Proposed to the Federal Rules of Evidence to Address AI Usage*, *supra* note 174.

factors because those factors apply a higher level of review to digital evidence. The *Daubert* factors are, of course, relevant in determining the reliability and authenticity of VR evidence, but courts should also consider adopting rules specific to VR.

VR should be viewed as an entirely new technology: Unlike any technology used in courtrooms before, VR transports a factfinder to the crime scene, allowing them to see what the defendant saw at every angle. VR's unique power necessitates strict guidelines for its admissibility in the courtroom.