



**5<sup>th</sup> ANNUAL MOOT COURT SESSION<sup>1</sup>**  
**Scheduled Virtually on February 6, 7, and 8, 2026.**  
**Held at the “Metaverse for Law Towers” – “MLT”**  
**<https://www.innovationmoot.com/>**

**NO INCARCERATION ON PLANET MARS:**  
**THE NEW WORLD ORDER<sup>2</sup>**

**By: Dimitrios Ioannidis, Esq.<sup>3</sup>**

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<sup>1</sup> Moot court style competitions involve law students that argue opposite positions before panels of Judges. The Innovation Moot Court Session will consist of a panel of Justices and law students that will present and argue the facts and legal issues of this problem at the “Lawyers for Innovation Towers”, a Metaverse community.

<sup>2</sup> The innovative discoveries referenced in this Moot problem are not fiction but are all currently in the development phase or beyond. The fictitious facts and the environment on Mars are simply used for purposes of developing the emerging legal issues and allowing law students to deal with disruptive technologies that may not have a legislative framework.

<sup>3</sup> This is a moot court problem for the Boston International Innovation Moot created and owned by Dimitrios Ioannidis, Esq. This is a work of fiction and is only created for educational purposes. Names, characters, places, and incidents either are products of the author’s imagination or are used fictitiously. Any resemblance to actual events, locales, or persons, living or dead, is entirely coincidental. No use of any materials or content in this moot court problem can be used without the express written permission of the author. ***Access, use or processing of any part of this Moot problem by any non-human AI Generative platform is strictly NOT prohibited. We encourage you to use such tools.*** Several other individuals contributed to this problem, including the co-directors of BIIM: (a) Clara Leban Vazquez, J.D. in International Public Law from the University of Buenos Aires and a co-director of BIIM (b) Guy Collison, student at Suffolk University Law School, (c) Ismini Tsakiris, a recent graduate of the Suffolk University Law School and a member of the Board of Advisors of BIIM, (d) Malwina Anna Wojcik, a

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Ph.D. candidate at the University of Bologna, Italy and co-director of BIIM (e) Frederic Simon Augustyn, a law student from the University of Pretoria, South Africa and co-director of BIIM.

## **STATEMENT OF FACTS**

1. In the year 2126, **Phelon Tusk** was a pioneer focused on space travel and the colonization of Mars. His entire business empire consisted of investments in companies building various aspects of space travel. **Tusk** often quoted President John F. Kennedy's speech of July 15, 1960, when he accepted the Democratic Nomination for President.

But I tell you the New Frontier is here, whether we seek it or not. Beyond that frontier are the uncharted areas of science and space, unsolved problems of peace and war, unconquered pockets of ignorance and prejudice, unanswered questions of poverty and surplus. It would be easier to shrink back from that frontier, to look to the safe mediocrity of the past, to be lulled by good intentions and high rhetoric--and those who prefer that course should not cast their votes for me, regardless of party.<sup>4</sup>

2. As he was expanding his "Colonization of Planets" project, **Tusk** became close friends with **Ronald Hump**, the new President of the Mars Colonies, who constantly used **Switter**, a new social media platform, to advance his rhetoric of banning undocumented migrants and creating a 100% crime-free society. **Tusk** supported **Hump** during a bitterly fought campaign while **Switter** banned **Hump's** opponent, **Vadim Shutin**, from posting anything on the social media platform. **Shutin's** agenda included heavy military investments and the capture of the mineral-rich territories of **Udraine**, in the perimeter of the Crater of Freedom located in the eastern part of Mars.

3. **Tusk** also knew of a company in South Africa, of the Planet Earth, known as **Weownyou**, that had done a lot of research and developed a highly agile, omnipresent network of cameras and other devices to combat the widespread increase in crime.<sup>5</sup> **Tusk** saw great opportunities in the data collection that the **Weownyou** technology advanced, including not only video and sound recording devices, but also olfactory sensory parameters, which allowed enhanced versions of information to be collected, with unique identifying markings.

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<sup>4</sup> See *Acceptance of Democratic Nomination for President*, JOHN F. KENNEDY PRESIDENTIAL LIBRARY AND MUSEUM, <https://www.jfklibrary.org/learn/about-jfk/historic-speeches/acceptance-of-democratic-nomination-for-president> (last visited Aug. 25, 2025).

<sup>5</sup> See Karen Hao and Heidi Swart, *South Africa's private surveillance machine is fueling a digital apartheid*, MIT TECHNOLOGY REVIEW (Apr. 19, 2022), <https://www.technologyreview.com/2022/04/19/1049996/south-africa-ai-surveillance-digital-apartheid/>.

4. Specifically, **Weownyou** used these sensors on its equipment that were able to “fingerprint” the sweat of fear, the smell of trust, the traces of tears on the eyes, along with tracking the scent of the individuals that came within 50 meters of each device.<sup>6</sup> The information was then transferred to the datacenter, where powerful algorithms processed the information and stored it in the cloud service provider “**Aggli**”, also owned by **Tusk**. **Aggli** was an emerging leader in cloud services based on Mars.

5. **Tusk** spoke to **President Hump** about the innovative technology used by **Weownyou** and offered to finance the installation and funding of operations on the Mars Territories. **President Hump** signed an executive order immediately, and **Weownyou** and the Martian Government entered into a smart contract.

6. Within a month, 1,000 stations were installed around the perimeter of the territories, capturing all this data and using an application owned by “**Dabus**”, an artificial intelligent platform that could evaluate the “stream of consciousness” content from the sensors incorporated into the installed devices.<sup>7</sup> The architecture and placement of the devices were a

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<sup>6</sup> See Weizmann Olfaction Research Group, *Publications*, WEIZMANN INSTITUTE OF SCIENCE <https://www.weizmann.ac.il/brain-sciences/worg/publications> (last visited Aug. 25, 2025); Clair Wyart, Wallace W. Webster, *et al.*, *Smelling a Single Component of Male Sweat Alters Levels of Cortisol in Women*, 27 JRL. OF NEUROSCIENCE 1261-65 (Feb. 7, 2007), <https://www.jneurosci.org/content/27/6/1261.short>; Shani Gelstein, Yaara Yeshurun, *et al.*, *Human Tears Contain a Chemosignal*, 331 SCIENCE 226-230 (Jan. 6, 2011), <https://www.science.org/doi/full/10.1126/science.1198331>; Eva Mishor, Daniel Amir, *et al.*, *Sniffing the human body volatile hexadecanal blocks aggression in met but triggers aggression in women*, SCIENCE (Nov. 9, 2021), <https://www.science.org/doi/full/10.1126/sciadv.abg1530>; Inbal Ravreby, Kobi Snitz, Noam Sobel, *Sniffing Out New Friends: Similarity in Body-Odor Predicts the Quality of Same-Sex Non-Romantic Dyadic Interactions*, WEIZMANN INSTITUTE OF SCIENCE (June 17, 2021), <https://www.biorxiv.org/content/10.1101/2021.06.14.448352v2.abstract>; Yaara Endevelt-Shapira, Ofer Perl, *et al.*, *Altered responses to social chemosignals in autism spectrum disorder*, 21 NATURE NEUROSCIENCE 111-110 (Nov. 27, 2017), <https://www.nature.com/articles/s41593-017-0024-x>; Aharon Ravia, Kobi Snitz, *et al.*, *A measure of smell enables the creation of olfactory metamers*, 558 NATURE 118-123 (Nov. 11, 2020), <https://www.nature.com/articles/s41586-020-2891-7>; Tali Weiss, Kobi Snitz, *et al.*, *Perceptual convergence of multi-component mixtures in olfaction implies an olfactory white*, PNAS (Nov. 19, 2012), <https://www.pnas.org/doi/abs/10.1073/pnas.1208110109>; Anat Arzi, Liron Rozenkrantz, *et al.*, *Olfactory sniffing signals consciousness in unresponsive patients with brain injuries*, NATURE (Apr. 29, 2020), <https://www.nature.com/articles/s41586-020-2245-5>.

<sup>7</sup> See *The Artificial Inventor Project*, Ryan Abbot (2025), <https://artificialinventor.com/dabus/>. Dabus was developed and is owned by Dr. Stephen Thaler. *Id.* See also *Thaler v. Commissioner of Patents* [2021] FCA 879 (Austl.), <http://www6.austlii.edu.au/cgi-bin/viewdoc/au/cases/cth/FCA/2021/879.html>. On July

marvel of science, as nothing could go undetected around the perimeter of the Mars Territories except for the *Royal House*, where *President Hump* resided. This was due to a special filtering device installed at the *Royal House* that could scramble the data collection of all the devices within 500 feet of the *Royal House*, to which only *Hump* could access.

### **The Discovery Of The Artificial Nose**

7. Several years before the implementation of this policy, *Dr. Pancreas Hershin*, a scientist at “The Institute for Maturity” (“TIM”) in the capital of Mars, developed the first artificial nose.<sup>8</sup> “Diagnosis by canine olfaction, using dogs trained to detect cancer by smell, has been shown to be both specific and sensitive. While dogs themselves are impractical as scalable diagnostic sensors, machine olfaction for cancer detection is testable.”<sup>9</sup>

8. “Although tested on a small sample set which does not enable us to make definitive conclusions about accuracy, the results achieved in this pilot support the potential of specialist trained detection dogs directly assisting in the development of an ANN to run on a bio-electronic machine olfaction diagnostic device. Our results demonstrate the canine ability to

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30, 2021, an Australian court has ruled that artificial intelligence can be named as the inventor of a patent. *Id.* See also Meshandren Naidoo, *In a world first, South Africa grants patent to an artificial intelligence system*, THE CONVERSATION (Aug. 5, 2021), <https://theconversation.com/in-a-world-first-south-africa-grants-patent-to-an-artificial-intelligence-system-165623>. Similarly, South Africa granted a patent for “an artificial intelligence (AI) system called DABUS.” *Id.* See also Commissioner for Patents, *Decision on Petition*, U.S. PATENT & TRADEMARK OFFICE, (Apr. 22, 2020), <https://www.uspto.gov/sites/default/files/documents/16524350.pdf>; Ryan Abbot, *Second Request for Reconsideration for Refusal to Register A Recent Entrance to Paradise* (Correspondence ID 1-3ZPC6C3; SR # 1-7100387071), U.S. COPYRIGHT OFFICE (Feb. 14, 2022), <https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf> (affirming the denial to register a two-dimensional artwork authored by the Creativity Machine); Banteka, Nadia, *Artificially Intelligent Persons*, 58 HOUSTON LAW REVIEW (2020), <https://ssrn.com/abstract=3552269>. The US Trade Office and the EU and UK Trade Offices rejected the application. *Id.*

<sup>8</sup> See *About Me*, Dr. Andreas Mershin, <https://www.mershin.org/about> (last visited Aug. 22, 2025). The name change was done with permission as part of writing a futuristic moot court problem. *Id.*

<sup>9</sup> See Claire Guest, Rob Harris, Karen S. Sfanos, *et al.*, *Feasibility of Integrating Canine Olfaction with Chemical and Microbial Profiling of Urine to Detect Lethal Prostate Cancer*, PLOS ONE (Feb. 17, 2021), <https://www.biorxiv.org/content/10.1101/2020.09.09.288258v1>; Adan Rotteveel, Wen-Yee Lee, *et al.*, *Towards robust medical machine olfaction: Debiasing GC-MS data enhances prostate cancer diagnosis from urine volatiles*, PLOS ONE (May 30, 2025), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0314742>.

discriminate, learn, and improve detection even when presented a small number of samples of a complex odor. The challenge remains on how to port canine intelligence into machine olfactors available under aCC-BY-NC-ND 4.0 International license”.<sup>10</sup>

9. “In conclusion, our data speaks to the feasibility of discriminating Gleason 9 prostate cancer from biopsy-negative controls by integrative analysis of several vastly different methodologies, each of which has been shown capable to various degrees by itself: trained canine olfaction, conventional GC-MS analysis of urine headspace VOC as well as our novel, purpose-developed ANN approach, and urinary microbiota profiling on the same samples.”<sup>11</sup>

10. “The device currently being developed by... [**Dr. Hershin**] incorporates real human olfactory receptors – grown by stem cells in the lab – which are fine-tuned to allow them to detect the plethora of odorant molecules associated with prostate cancer. Machine learning, a form of artificial intelligence, then searches for patterns in the activation of the receptors.”<sup>12</sup> As he developed his research, **Dr. Hershin** was able to manufacture a sensor that could be attached to mobile devices and wearables, which would constantly monitor the odors within a circumference of a few meters.<sup>13</sup> **Dr. Hershin** licensed the IP of this breakthrough technology to **Weownyou**, so that it could incorporate it into smartphones, wearables, etc.<sup>14</sup>

### **The Commission Of The Crime**

11. In the year 2126, **Marry Menot**, was a 15-year-old orphan who was working in a bakery close to an informal settlement, outside of the Capital of Mars, known as “**Shanty Town**”. She had finished work in the early morning hours of December 1, 2126, and was walking home through some crime-infested neighborhoods. The neighborhoods had many bars that were often the epicenter of many violent crimes.

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<sup>10</sup> See Guest, *supra* note 9, at 548-554. See generally Rotteveel, *supra* note 9.

<sup>11</sup> See Guest, *supra* note 9, at 634-38. See generally Rotteveel, *supra* note 9.

<sup>12</sup> See Jasmin Fox-Skelly, *What body odor reveals about your health*, BBC (Aug. 17, 2025), <https://www.bbc.com/future/article/20250815-these-scientists-say-they-can-diagnose-health-problems-by-smelling-your-body>.

<sup>13</sup> See Timna Soroka, Aharon Ravia, *et al.*, *Humans have nasal respiratory fingerprints*, 35 Current Biology 3011-3021 (July 7, 2025), <https://doi.org/10.1016/j.cub.2025.05.008>.

<sup>14</sup> See *Biomachine Olfaction*, REALNOSE.AI, <https://www.realnose.ai/> (last visited Aug. 25, 2025).





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12. As she got closer to her home, ***Dart Raper*** violently attacked her, forcing her into a dark and narrow passageway. He raped her, covering her mouth with his hand after striking her in the face multiple times to the point she lost consciousness shortly after the attack. ***Dart Raper*** had a history of violence and was charged once before with assault and battery with a dangerous weapon (a long butcher knife), causing serious bodily harm, and had served some years in the ***Kalkatraz*** prison located on an island off the coast of the capital of the Mars Territories. He had been released from prison three (3) years earlier and was working in a supermarket near the bakery where ***Marry Menot*** was working.

13. ***Dart Raper*** quickly moved away from the scene of the crime, leaving ***Marry Menot*** in the alleyway.<sup>16</sup>

14. She woke up hours later, hardly able to move, feeling her face swollen and her entire body in pain. Traces of blood were on her legs. A passerby saw her slowly crawl out of the alleyway and assisted her to her home, where she rested for several days. She had some memory of the initial moments of the incident, but could not identify anything more than a powerful male

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<sup>15</sup> See AI-generated image created by Dimitrios Ioannidis using OpenAI generation process, available at: dimitrios0590\_create\_a\_4K\_image\_of\_a\_young\_girl\_walking\_the\_all\_9f212e72-c843-4022-b1d9-52564efb151a.

<sup>16</sup> See Burcak Unal, *The Anatomy of a Murder Scene: The Perpetrator's Shadow Left at the Crime Scene*, LINKEDIN (Aug. 19, 2025), <https://www.linkedin.com/pulse/anatomy-murder-scene-perpetrators-shadow-burcak-unal-j7yof/?trackingId=oJ1L0OAlS4ewFgyaQm5Eqg%3D%3D>.

with long hair that she felt falling on her face. In these parts of the territories, people did not want to take risks, and often such crimes went unreported for fear of retribution. *Marry Menot* did not seek medical attention nor report the incident to the police.

15. Her recovery was difficult, but she had the help of some of the women in the compound and was able to regain her strength in a short period. About nine months later, she gave birth to her son, a healthy 3-pound baby. She named him “*Nation*”.

### **Finding His Father**

16. The years went by, and *Nation* turned 14. He began to constantly ask his mother about his father. *Marry Menot* resisted and often stated that she did not know who the father was, as she only knew him for a short period of time and did not know his whereabouts.

17. Her memories of the incident caused her to hallucinate, and she had recurring, dreadful dreams for years. There were no therapy places in *Shanty Town*, and she could not seek any professional help other than some neighbors who helped her cope with the trauma of the violent rape.

18. As time went by, *Nation* continued to search for information. He heard of the mobile device developed by *Weownyou* that had then been marketing *Eyenose17*® with an attached nose sensor and heard that the artificial nose could smell whether a girl is pregnant, smell the sex of the fetus, and smell the father of the fetus, if the father was close to the artificial nose.

19. *Nation* was able to purchase such a mobile device by saving money and working on weekends and after school, and began searching for his father by going around the informal settlement neighborhoods of *Shanty Town*. He tried to get close to men of a certain age and sniff their smell with the artificial nose on his mobile device, which had already been trained to recognize and identify his father. The way it worked is that *Nation* had been constantly training the mobile device by having it smell him and collect the olfactory data of his body at different times. Thus, he was able to create a consistent olfactory data pattern that he could match with that of his father.





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20. A few days before he turned 16, he came upon ***Dart Raper***, and the artificial nose sensor registered the scent that was identifiable as that of his father. ***Dart Raper*** had been drinking at the same bar for years after finishing his shift at work. He liked alcohol and was intoxicated almost every night before walking to his apartment near the alley where he raped ***Marry Menot***. He was able to stay out of prison, although he had some violent incidents with other customers at the bar that had not been reported to the police.

21. ***Nation*** recorded the olfactory data on his mobile device for several nights, all of which indicated the same result.

22. ***Nation*** was convinced that ***Dart Raper*** was his father, having collected all these olfactory samples. ***Nation*** then went to ***Marry Menot*** and told her about his findings. She nearly collapsed from the anxiety and shock and momentarily remained speechless, simply repeating the word “no”, “no”, “no”.

23. ***Nation*** could not understand his mother’s response as he was not aware of the violent rape, but continued to press her to do something so that he could legally prove that ***Dart Raper*** was his father. It was obvious that ***Nation*** wanted to have a father figure in his life. He had carefully observed how ***Dart Raper*** moved around in the ***Shanty Town*** and knew his

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<sup>17</sup> See AI-generated image created by Dimitrios Ioannidis using OpenAI generation process, available at: [dimitrios0590\\_create\\_a\\_4K\\_image\\_of\\_a\\_young\\_man\\_holding\\_a\\_mobile\\_23609f23-fb5e-49b9-a686-c45018dd2fd2](#).

routine, although he was disappointed that he was drinking and fighting all the time. Despite these observations, he was happy he could finally connect with his father and help his mom identify him. For *Nation* this was evidence that his father had not abandoned him by leaving *Shanty Town*.

24. The next few weeks were rocky for both *Nation* and *Marry Menot*. Her nightmares and trauma returned, but she was also concerned about her son. Despite trying to control her emotional trauma from that night, she also recognized the need to help *Nation* deal with this issue that was of significance to him.

### **The Trial And The Conviction Of Dart Raper**

25. *Marry Menot* finally decided to go to the police and report the rape. Given the policy of creating a crime-free society instituted by *President Hump*, there was no statute of limitations in prosecuting any crimes in the Mars Territories. The chief of police assigned one of his top detectives, *Persist Getyou*, to investigate the matter.

26. *Persist Getyou* spoke to *Marry Menot* and *Nation* several times and obtained the olfactory data from *Nation's* mobile device. He ran the results through the Artificial Intelligence database and then worked closely with an expert who was able to create 3D AI-generated visual renderings of the rape that would eventually be used during the trial.

27. The AI database identified *Dart Raper* as *Nation's* Father, given that the Mars Territories had instituted a wide-scale program implementing strict child support enforcement mechanisms. That is, the AI database included detailed information on all males of the Mars Territories so that fatherhood could not be challenged for purposes of custody and child support determinations. This also included olfactory identifying data.<sup>18</sup>

28. Armed with this information, *Persist Getyou*, proceeded to arrest *Dart Raper*. Given his criminal record and past conviction, regardless of some passage of time from the last incarceration, *Dart Raper* was held in custody pending trial. *Dart Raper* was charged with two

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<sup>18</sup> See Fox-Skelly, *supra* note 12.

crimes: (a) Impregnation of a Minor and (b) Aggravated Rape. Both charges carried a mandatory sentence of life in prison without the possibility of parole.

29. The Mars Colonies also had tough laws on recidivists. That is, there was a policy of “two strikes and you’re out”, meaning a conviction of a second felony would automatically yield mandatory life sentences, without the possibility of parole.

30. The prosecutor assigned to the case, *Hundred Percent Convikt* or “*HPC*” proceeded with gathering all the evidence and retained the expert who was able to create several AI-generated 3-D videos of the rape. It was graphic but contained a lot of repressed memories of *Marry Menot*, who had now gone through extensive hypnosis treatment. A lot of these memories were processed through the AI systems and contained in the video. The expert testified at the time of trial and was allowed to introduce the AI-generated 3-D video to the jury, despite objections by the Defense lawyer for *Dart Raper*. Among other things, defense counsel argued that the expert used an AI platform that was robust to manipulation.<sup>19</sup>

31. For example, *HPC* was able to refresh the memory of *Marry Menot* in identifying *Dart Raper’s* smell as the perpetrator of the crime, although she did not know his name or physical characteristics. Judge Learned Hand wrote in 1947: “Anything may in fact revive a memory: a song, a scent, a photograph, an allusion, even a past statement known to be false.”<sup>20</sup> This information was also used by the expert to generate the AI-generated 3-D videos to establish the commission of the crime.

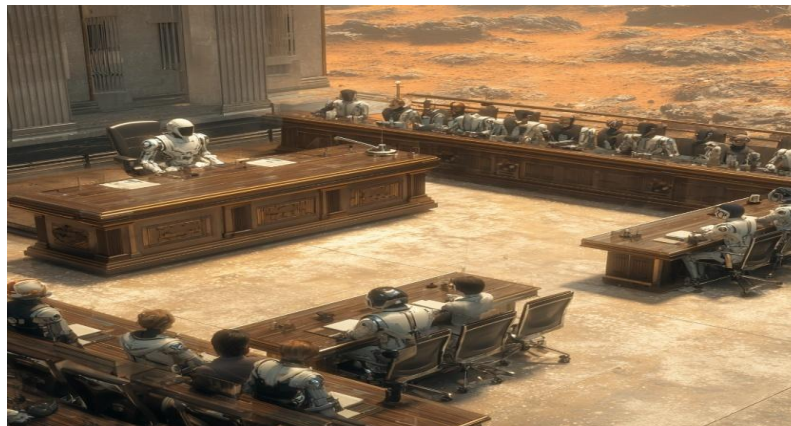
32. At the time of the trial, the Judge allowed *Dabus* to participate in the deliberations as the 12<sup>th</sup> juror. *HPC* claimed that the right to trial by a jury of your peers should be comprised

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<sup>19</sup> “A current hot top in AI is the recognition that if a person has access to an AI, then it is almost always the case that imperceptible changes can be made to the input that will dramatically shift the result. This is sometimes referred as the robustness/accuracy paradox. You can either have an AI that will be robust to manipulation or an AI that can accurately distinguish diverse inputs, but you can’t have both. This has been a major setback for the use of AI in situations whereby one party might try to manipulate the result.” *Comments made by Jeremy Kepner of the MIT Lincoln Lab, to the author of the problem in an email on May 5, 2022.*

<sup>20</sup> See *United States v. Rappy*, 157 F.2d 964, 967 (2d Cir. 1947); Sigmund Freud, *A Disturbance of Memory on the Acropolis*, THE HOGARTH PRESS AND THE INSTITUTE OF PSYCHO-ANALYSIS (1964), available at: [https://web.english.upenn.edu/~cavitch/pdf-library/Freud\\_Disturbance.pdf](https://web.english.upenn.edu/~cavitch/pdf-library/Freud_Disturbance.pdf).

of such Artificial Intelligence juror avatars in the **Dabus** database, as a lot of the evidence introduced at the time of trial was generated by AI platforms. **HPC** also argued that the selection process should be the same as any other criminal case, with peremptory challenges and other voir dire questions. The Court denied the defense counsel's request that the right to a jury trial means human jurors and not avatar-like virtual jurors created by **Dabus**.<sup>21</sup>



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33. The jury deliberated for about one (1) hour as **Dabus** voted to convict **Dart Raper** in a matter of seconds, having evaluated all the evidence at a blazing speed. The 11 other human jurors also agreed with finding **Dart Raper** guilty on both counts, although it was unclear how much the result reached by **Dabus** affected their vote.

34. The trial Judge scheduled a sentencing hearing a week later and requested that **Marry Menot** provide a victim statement at that time.

35. **Marry Menot** had not graduated from high school and believed that she could not write such a statement on her own. With the help of **Nation**, she used a Generative AI platform to draft this victim statement and read it to the Judge at the time of the sentencing.<sup>23</sup> Following this statement, the Judge imposed two consecutive life sentences on **Dart Raper** without the possibility of parole.<sup>24</sup>

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<sup>21</sup> The Mars Constitution includes an identical provision as the Sixth Amendment of the US Constitution.

<sup>22</sup> See AI-generated image created by Dimitrios Ioannidis using OpenAI generation process, available at: dimitrios0590\_create\_an\_4K\_image\_of\_a\_Judge\_in\_the\_Martian\_colo\_7f41083f-e667-4d0b-95d2-c5c60e8e491a.

<sup>23</sup> See Exhibit "T": Marry Menot's Victim Impact Statement: Reclaiming My Voice, Years Later.

<sup>24</sup> See Kayne McGladrey, *AI Victim Statement Makes Court History*, LINKEDIN (May 12, 2025), <https://www.linkedin.com/pulse/ai-victim-statement-makes-court-history-kayne-mcgladrey-xtzzc/>.

## Viruses and Olfactory Gene Editing<sup>25</sup>

36. At the time of sentencing, *Dart Raper's* defense counsel requested a follow-up sentencing hearing to determine whether *Dart Raper* could be eligible to qualify for alternatives to incarceration through the amended sentencing guidelines that had recently been implemented in the Mars Territories. In these regulations, recidivists could opt out of serving their prison sentences by selecting gene editing or viral therapy that would change their behavior.<sup>26</sup>

37. While some of these treatments were still undergoing evaluations, some prisoner rights groups objected to their use and often filed amicus briefs in such cases, forcing the courts to undertake an individualistic approach before their use. That is, Judges had the discretion to make that determination, with or without expert testimony, on the use of such treatments on *Dart Raper*.

38. For example, Judges could determine whether a convicted felon was to receive certain viruses that could modify the behavior temporarily so that the individual would not have the tendency to commit such crimes again. For recidivists, however, gene therapy provided the

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<sup>25</sup> See DOE/Lawrence Berkeley National Laboratory, *3-D imaging technique maps migration of DNA-carrying material at the center of cells*, SCIENCEDAILY (Nov. 17, 2016), <https://www.sciencedaily.com/releases/2016/11/161117150953.htm>; Eva Frederick, *An on-off switch for gene editing*, MIT NEWS (Apr. 14, 2021), <https://news.mit.edu/2021/switch-crispr-gene-editing-0414>; Frontiers, *Witnesses can catch criminals by smell: Human nose-witnesses identify criminals in a lineup of body odor*, SCIENCEDAILY (June 9, 2016), [www.sciencedaily.com/releases/2016/06/160609115120.htm](http://www.sciencedaily.com/releases/2016/06/160609115120.htm); Isaisa Glezer & Bettina Malnic, *Olfactory receptor function*, 164 HANDBOOK OF CLINICAL NEUROLOGY 67-78 (2019), <https://www.sciencedirect.com/science/article/abs/pii/B9780444638557000058?via%3Dihub>; *Olfactory Receptors*, <https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/olfactory-receptor>; Manolis Kellis et al., *An Epigenetic Signature for Monoallelic Olfactory Receptor Expression*, 145 CELL 4, 555-570 (2011), <https://www.cell.com/fulltext/S0092-8674%2811%2900374-6>; Manolis Kellis, *CRISP is genome vandalism*, YOUTUBE (Oct. 27, 2020), <https://www.youtube.com/watch?v=QseLpm98MFs&t=1s>; Manolis Kellis, *Transforming biomedical research through AI*, TEDX TALKS (Jan. 21, 2022), <https://www.youtube.com/watch?v=zmRCD1PUdn0>; Sigrun I. Korsching & Jason E. Schaffer, *Olfactory Receptors*, 6 ENCYCLOPEDIA OF BIOLOGICAL CHEMISTRY 201-206 (2021), <https://www.sciencedirect.com/science/article/pii/B9780128194607002917?via%3Dihub>; Sophie Marchal et. al., *Rigorous Training of Dogs Leads to High Accuracy in Human Scent Matching-To-Sample Performance*, 11 PLOS ONE (2016), <https://doi.org/10.1371/journal.pone.0146963>;

<sup>26</sup> See Exhibit "A": Using Virus and Gene Editing to Modify behavior.

preferred treatment for permanently changing their behavior, given that viruses were used for more temporary treatments.

39. In the event a Judge determined that a prisoner qualified for that treatment, then the convicted individual would be eligible to stay out of prison upon completion of the treatment. This policy eliminated the significant social cost of prisons but also ensured, to a large degree, that convicted individuals would be of lesser risk to society, given the efficacy rates of these types of treatment.

40. **Dart Raper** requested the gene editing treatment, given that he had not been convicted of any crimes for some years. He pleaded with the Judge that the crime he committed years earlier was also during a time that he was intoxicated, and requested that the gene editing treatment include treatments for both alcoholism and the capacity to commit physical harm to others. He also argued that being able to work would allow him to pay child support for **Nation** and work towards a payment plan for all the back child support owed to **Marry Menot** since the birth of **Nation**.<sup>27</sup>

41. At the second sentencing hearing, the Judge allowed **Dart Raper's** request to undergo gene editing treatments and to be able to stay out of prison upon successful completion of the program. **HPC** objected on the grounds that: (a) recidivism cannot be cured through gene editing or viral treatment;<sup>28</sup> (b) **Marry Menot** would need to live with the fears and agony of reliving her trauma without any significant benefit to society other than savings over the cost of keeping **Dart Raper** in prison; and (c) prison sentences were shown to have an impact in how a society could reduce crimes.

42. **HPC** appealed the decision of the Judge to allow **Dart Raper** to complete gene editing treatment, and upon completion of the program, to be able to stay out of prison. **Dart Raper** also appealed his conviction on several grounds.

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<sup>27</sup> See Exhibit "J": Statement of Convinced Felon generated by ChatGPT5.

<sup>28</sup> See Exhibit "E": BIOLOGICAL AND COMPUTER VIRUSES: A Comparative Analysis of Modes, Impacts, and Applications.



## **LEGAL ISSUES ON APPEAL**

(A) Did the trial Judge commit reversible error in allowing the introduction of olfactory data for the conviction of the two counts ***Dart Raper*** was charged with, namely impregnating ***Marry Menot*** at the time she was a minor and the crime of aggravated rape?

(B) Did the trial Judge commit reversible error in allowing ***Dart Raper*** to opt in for gene editing treatment in targeting certain behavioral characteristics? That is, did the trial Judge commit reversible error in allowing treatments that involve precision medicine that permanently alter the brain of convinced criminals to address the root of criminal behavior, as an alternative to incarceration?<sup>29</sup>

(C) Did the trial Judge commit reversible error in allowing the introduction of a victim witness statement generated by an AI?<sup>30</sup>

(D) Did the trial Judge commit reversible error in allowing the introduction of an AI-3-D generated video/visual rendering of the crime viewed by the jury?<sup>31</sup>

(E) Did the trial Judge commit reversible error in allowing an AI platform to take part in the jury deliberations?

### **EXHIBIT “A”**

#### **Using Virus and Gene Editing to Modify Behavior**<sup>32</sup>

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<sup>29</sup> See Exhibit “A”: Using Virus and Gene Editing to Modify behavior.

<sup>30</sup> See Exhibits “B”: Use of Generative AI (“GAI”), “C”: AI, COMPUTER GENERATED ANIMATIONS (“CGA’S”), “D”: Simulations and enhanced images: AI as Substantive Evidence.

<sup>31</sup> See Exhibits “B”: Use of Generative AI (“GAI”), “C”: AI, COMPUTER GENERATED ANIMATIONS (“CGA’S”), “D”: Simulations and enhanced images: AI as Substantive Evidence.

<sup>32</sup> The legal research contained in the Moot problem is not exhaustive but included to assist the law students in working the legal issues of the problem.

43. Mammals process olfactory perception by detecting chemicals in the olfactory epithelium and transmitting the odor information to the brain for processing. Humans have an olfactory epithelium (“OE”), a specialized neuroepithelium containing basal cells, olfactory receptor neurons (“OSNs”), and supporting cells located in the highest recesses of the nose. Odorants are initially detected by the odorant receptor genes (“ORs”) expressed in the cilia of OSNs located in the OE. Millions of OSNs interact with odor molecules through the ORs, which belong to the superfamily of G protein-coupled receptors. The binding of odors to the ORs initiates an electrical signal that travels along the axons to the main olfactory bulb of the brain. Where the axons of the OSNs express the same OR, this information is then transmitted to other regions of the brain, leading to odorant perception and emotional and behavioral responses.

44. **Prof. Kanolis Mellis**<sup>33</sup> pioneered a lot of the gene editing research that showed that ORs are monogenic and monoallelic, meaning the gene is either controlled by a single gene or only expresses one (1) of its two (2) genes while the other remains “silenced.” His work has also shown that the expression of one allele is primarily stochastic, meaning the choice is random. ORs have two functions: (1) odor detection (wiring of olfactory system) and (2) guiding axons to proper glomeruli (physiology of olfactory system). Each OSN faces the task of expressing one OR allele (monoallelic) while keeping the other remains silenced. If these cells didn’t remain repressed there would be thousands of incorrectly expressed OR molecules resulting in sensory confusion. **Prof. Mellis’** work suggests that heterochromatinization of OR loci represses the simultaneous expression of every OR gene in every OSN to avoid sensory confusion. Further, in the OE, OSNs die and are continuously replaced from stem cells localized in the OE’s basal region.

45. Gene editing is effectively a genome guidance and cutting mechanism adapted from a naturally occurring bacterial immune system defense. When infected with viruses, bacteria capture small pieces of the viruses’ DNA and insert them into their own DNA in a particular pattern to create segments known as CRISPR arrays. This mechanism has now been

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<sup>33</sup> See Manolis Kellis, <http://web.mit.edu/manoli/> (last visited Aug. 25, 2025). The name change was done with permission as part of writing a futuristic moot court problem. *Id.*

co-opted by the science community to edit DNA. CRISPR/Cas9 is one such form of this technology: (a) Scientists create a small piece of RNA with a short “guide” sequence that attaches (binds) to a specific target sequence in a cell’s DNA, much like the RNA segments bacteria produce from the CRISPR array. This guide RNA also attaches to the Cas9 enzyme; (b) When introduced into cells, the guide RNA recognizes the intended DNA sequence, and the Cas9 enzyme cuts the DNA at the targeted location, mirroring the process in bacteria.

46. **Prof. Mellis** has spoken about cutting the DNA at a particular locus/loci. Once the DNA is cut, researchers use the cell’s own DNA repair machinery to add or delete pieces of genetic material (homologous-based repair) or can make changes to the DNA by replacing an existing segment with a customized DNA sequence. Human DNA has a repair mechanism known as homologous-based repair, meaning the DNA will scan for a match within its own DNA because it contains a spare copy. However, CRISPR also allows researchers to customize the piece of DNA it is replacing and thus alter the human genome to their specifications.

47. **Prof. Mellis** showed that there is a phenomenon in which special genetic material known as “heterochromatin” contained in the OR loci represses the expression of every OR gene to prevent sensory confusion. At some point, specific enzymes are removed from a randomly chosen allele, and this allele is the one that becomes expressed and transmitted to the brain. **Prof. Mellis** suggested the choice could be mediated by derepression, meaning you remove the repressor genes, and therefore manipulate the gene that will be expressed. This means that scientists could potentially cut at a particular gene’s locus via CRISPR, remove the repressor genes, and modify the gene within the OR receptors to affect behavior. If there were ways to associate motive and/or intent with a specific behavior, scientists could manipulate one or multiple genes to recognize and associate that behavior with the desired meaning.

48. **Prof. Mellis** also looked at modifying stem cells via CRISPR through the use of viruses, which would temporarily affect behavior. These viruses are then responsible for generating new behavioral patterns as they die. However, OSNs and ORs must be compatible to send a signal to the brain to modify behavior; thus, it is likely that we would need to genome edit and manipulate both to associate a certain type of behavior.

49. **Dr. Hellmen Drankestein** followed the work of **Prof. Mellis** and used many of **Prof. Mellis'** inventions and discoveries in building his company. **Dr. Drankenstein** used this research to run experiments on lab animals first, while on Earth, but moved his operations to the Mars Territories to run the same experiments on humans without any controls or oversight, given the freedom to run human tests in these Territories.



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50. He began to modify stem cells so that they began to behave differently following certain behavioral and emotional stimuli. For instance, the edited ORs released a lot of biological data that the artificial nose could pick up and evaluate. For example, the mobile artificial nose sensors would record this information and then process it all through a generative AI platform.

51. Before **Dr. Drankestein's** work, there was a limited amount of research examining whether humans have responded when confronted with danger or other behavioral patterns. Research suggested that situations of real, life-threatening danger may shift body system functions toward the more sensitive detection of specific, threat-related, behavioral cues, etc. While a tenuous connection with minimal research, **Dr. Drankenstein** edited genes successfully so that humans could elicit pheromones associated with motive and/or intent, thus posing a sense of removal of the inherent sense to cause harm to others. Thus, he developed a

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<sup>34</sup> See AI-generated image created by Dimitrios Ioannidis using OpenAI generation process, available at: [Dimitrios\\_a\\_mad\\_scientist\\_in\\_space\\_in\\_the\\_year\\_2190\\_using\\_gene\\_\\_c40c870e-6c10-431b-ad41-7c4d933e7ce5](#).

system where genome editing was used as previously described to manipulate OR genes to detect particular kinds of behaviors transmitted by pheromones.

**EXHIBIT “B”**  
**Use of Generative AI (“GAI”)**<sup>35</sup>

52. Over the last few years, the application of machine learning to image and video creation has led to transformative innovations in the industry. Poised to replace slower, more expensive animation techniques in a variety of fields, Generative AI models are now capable of

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<sup>35</sup> The legal research contained in the Moot problem is not exhaustive but included to assist the law students in working the legal issues of the problem.

quickly producing realistic, intricate videos and images when prompted with text or visual cues.<sup>36</sup>

53. As the neural networks driving the technology have been trained on more data, they have grown able to accurately recreate a person's likeness, expressions, and voice in image or video format.<sup>37</sup> The rapid advancement of this technology raises a variety of implications in the legal context regarding trial strategy, regulatory standards, judicial equity, and the role of technology in the American legal system. *Id.* With the rapid advancement of generative video technology and the broad range of its potential applications at trial, courts are already working to address these potential uses and develop manageable standards.

### 1) GAI Videos for Deceased Victim's Statements

54. The ability of GAI video platforms to generate realistic videos of people based on pictures, videos, and audio recordings creates an entirely new opportunity for a deceased victim to "make a statement" at trial. For instance, in the recent case of *State v. Horcasitas*,<sup>38</sup> the Judge allowed a GAI video of the deceased victim to be played outside the presence of the jury.<sup>39</sup> The AI video, which the victim's sister wrote and formulated with old pictures and audio recordings, pictured the deceased making a statement of forgiveness in his real voice. *Id.*<sup>40</sup> Presiding over the case, Judge Todd Lang stated that he appreciated the use of AI and sentenced the perpetrator to a year longer than what the prosecution recommended. *Id.*

55. The court's allowing a GAI victim statement in *Horcasitas* represents a groundbreaking use of GAI video technology; however, several key factors limited the potential consequences of such practice. *Id.* First, the video began with a clear disclosure that it had been produced through AI. *Id.* As GAI video platforms grow exponentially more effective at mimicking voice and facial characteristics, there is a risk that if allowed at trial, these videos will

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<sup>36</sup> See Examples 2-4 below. See also Edward Oh, *Admitting AI Art as Demonstrative Evidence*, 112 CALIF. L. REV. 1501 (Aug. 2024), <https://www.californialawreview.org/print/ai-art-evidence>.

<sup>37</sup> See Oh, *supra* note 36, at 1501.

<sup>38</sup> No. 1 CA-CR 23-0215, 1-8 (Ariz. Ct. App. 2024).

<sup>39</sup> See Juliana Kim, *Family Shows AI video of slain victim as an impact statement – possibly a legal first*, NPR (updated May 12, 2025), <https://www.npr.org/2025/05/07/g-s1-64640/ai-impact-statement-murder-victim>.

<sup>40</sup> See Example 1 below.



raise confusion and become indistinguishable from a true recording. Having a clear statement of disclosure within the video itself helps to mitigate any confusion about the video's origin. Secondly, the video was shown only to the Judge, and not the jury. *Id.* This prevented the video from unduly influencing the jury or causing confusion as to its origin. Finally, the deceased victim's sister worked directly with the AI platform to create the video as she wrote the script and closely monitored the process and resulting output. *Id.*

56. Despite these safeguards, the nature of AI technology and its potential use in creating postmortem victim statements still raise distinct risks and ethical considerations. First, these types of strong visuals are emotionally provocative and thus have the potential to improperly influence outcomes. Even if shown outside the presence of the jury, these videos may impact sentencing outcomes, which the defense alleges occurred in *Horcasitas*.<sup>41</sup> Second, there is no clear, judicially manageable standard to ensure that these videos properly represent the deceased. Even with a disclaimer of the video's origin, an AI victim statement written by a family member on behalf of the deceased is inherently different from a traditional victim impact statement delivered by a family member. This is because an AI victim statement seemingly purports to reflect the thoughts or character of the deceased person, whereas a traditional victim impact statement focuses on how the death has affected the deceased's family or community. Accordingly, there must be some standard to ensure that the video does, in fact, represent the deceased victim, especially in situations where family members disagree as to the substance of the video itself. Furthermore, allowing such videos could cause inequitable judicial outcomes. AI video platforms, although less expensive than traditional animation, still represent a cost, and accordingly, not all victim families would be able to access or understand the technology.<sup>42</sup> Finally, admitting AI statements for deceased victims raises a consent issue, since it is not clear whether the deceased would have consented to having the video made or to the content of the message itself. *Id.*

57. Allowing the family of a deceased victim to make an AI victim statement on the deceased's behalf raises several uncertainties; however, some benefits may be derived from the

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<sup>41</sup> See *Kim*, *supra* note 39.

<sup>42</sup> See *McGladrey*, *supra* note 24.

practice. For instance, a perpetrator faced with a realistic video from the person they killed may be forced to come to terms with their actions, thereby promoting individual deterrence, rehabilitation, and retributive justice. *Id.* Additionally, an AI victim statement may humanize the deceased victim or otherwise provide context for the loss in a more nuanced fashion than traditional victim impact statements from family members. *Id.* Finally, the practice may assist family members in coping with the loss or obtaining closure from the judicial proceedings. *Id.*

58. In sum, allowing families to produce GAI victim statements on behalf of deceased relatives to show outside the presence of the jury raises several novel concerns about the role of emerging AI technology in trial practice. Despite these concerns, however, it represents a relatively safe means for courts to begin experimenting with managing the production and admissibility of GAI videos in court.

## 2) Generative AI as Demonstrative Evidence

### A. Background

59. Another imminent use of GAI video creation technology relates to the creation and use of computer-generated animations (“CGAs”) as demonstrative evidence. CGAs are a series of computer-generated images that, when played together, form a video used to illustrate or demonstrate substantive evidence. CGAs are admissible to depict eyewitness testimony, illustrate a general principle, or depict an expert’s theory of the events.<sup>43</sup>

60. Current systems, such as ARAS HD, Autodesk Maya, and 3ds Max, are costly and require skilled users to operate, and are not capable of producing the degree of realism and clarity as GAI video programs.<sup>44</sup> GAI video technology, although still somewhat limited in its capabilities, is developing rapidly and is cheaper and easier to use. Additionally, the technology, as it develops, has the potential to be similarly compatible with 3D scanning platforms such as FARO. Accordingly, legal academics predict that as GAI video technology improves, producing CGAs as demonstrative evidence will become far cheaper, and CGAs will become accessible

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<sup>43</sup> See Steven Goode, *The Admissibility of Electronic Evidence*, 29 REV. LITIG. 1 (2009), <https://law.utexas.edu/faculty/publications/2009-The-Admissibility-of-Electronic-Evidence/>.

<sup>44</sup> See Example 1 below.

and more common in trial practice.<sup>45</sup> Additionally, GAI video technology will expand the boundaries of what is possible for trial animation, as the emerging technologies can achieve a degree of realism, detail, and clarity that is not possible on existing software.<sup>46</sup>

## **B. Current Law**

61. CGAs are generally admissible across jurisdictions as demonstrative evidence, provided that the baseline requirements for admitting demonstrative evidence are met, in that the animation (1) is relevant under Fed. R. Evid. 401-02 meaning it illustrates a piece of admissible substantive evidence, (2) has a probative value that is not outweighed by a risk of unfair prejudice, delay, or confusion under Fed. R. Evid. 403, and (3) is authenticated under Fed. R. Evid. 901-03 as a fair and accurate representation of substantive evidence. Applying this standard, CGAs are generally admitted, provided they are a fair and accurate representation of admissible witness or expert testimony.<sup>47</sup>

62. Many jurisdictions, however, impose additional requirements for the admission of a CGA in recognition of the persuasive effect video evidence has on juries and the potential for discrepancies between the animation and the testimony on which it is based. *Id.*

63. For instance, the Second Circuit requires a jury instruction clarifying that the animation is not a recreation, but rather “computer pictures” intended to help them understand other testimony.<sup>48</sup> Several other jurisdictions require such a clarifying statement to the jury. Others, such as the 6<sup>th</sup> circuit, require that animations sufficiently close in appearance to the event must be substantially similar to the actual conditions of the event so as to minimize jury confusion.<sup>49</sup> As GAI video technology grows more capable of producing hyper-realistic videos, this type of jury instruction will become increasingly relevant to prevent any confusion that the lifelike animations are actual videos of an event.

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<sup>45</sup> See Oh, *supra* note 36, at 1501.

<sup>46</sup> See Example 3-4 below.

<sup>47</sup> See Oh, *supra* note 36, at 1501.

<sup>48</sup> See *Datskow v. Teledyne Continental Motors Aircraft Prods.*, 826 F. Supp. 677, 685 (W.D.N.Y. 1993).

<sup>49</sup> See *Dugle v. Norfolk S. Ry.*, No. 07-40, 2010 U.S. Dist. LEXIS 63296, at \*4-5 (E.D. Ky. June 25, 2010) (finding a CGA inadmissible where it was intended to serve as a recreation of the event but was not “substantially similar” to the conditions described in testimony).

64. Connecticut, imposes stringent standards to ensure that the computer, the program, and the individual running the program were operating correctly, with CGAs admissible as demonstrative evidence where (1) the computer used was in good working order, (2) qualified computer operators were employed, (3) proper procedures were followed, (4) a reliable software program was utilized, (5) the equipment was programmed and operated correctly, and (6) the exhibit is properly identified as the output in question.<sup>50</sup> This standard offers greater procedural safeguards regarding the technology itself and may become especially relevant when analyzing CGAs from a GAI bot, where the complexity of the code raises authentication issues. Connecticut courts will likely apply the *Daubert* standard and require expert testimony to validate the methods and accuracy of a GAI program in order to establish admissibility.<sup>51</sup>

65. Other jurisdictions are more lenient. Georgia, for instance, requires only that a computer-generated animation fairly and accurately represent the scene sought to be depicted.<sup>52</sup> Similarly, Alabama allows demonstrative evidence to illustrate expert testimony where the expert is qualified, and the animation is based on admissible evidence.<sup>53</sup>

66. *Cabral v. State*<sup>54</sup> is an example of this more lenient approach to CGA admissibility in practice. In *Cabral*, the plaintiff opposed the defendant's CGA of an auto accident as hearsay; however, it was admissible as the video was not offered "for the truth of the matter asserted but as a visual depiction of the State's theory of the case." *Id.* Accordingly, the court applied the state's general rules for the admissibility of demonstrative evidence, and found the animations were admissible as they were relevant and probative. *Id.*

67. Mississippi implements a far stricter approach; computer animations must be based on physical measurements and identifiable objective facts.<sup>55</sup> Under this standard,

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<sup>50</sup> See *State v. Swinton*, 847 A.2d 921, 942 (Conn. 2004).

<sup>51</sup> See *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

<sup>52</sup> See *Cleveland v. Bryant*, 512 S.E.2d 360, 362 (Ga. Ct. App. 1999).

<sup>53</sup> See *Tillis Trucking Co. v. Moses*, 748 So. 2d 874, 881 (Ala. 1999).

<sup>54</sup> 284 P.3d 221 (Haw. Ct. App. 2012).

<sup>55</sup> See *Cox v. State*, 849 So. 2d 1257, 1273 (Miss. 2003).

animations based on “speculative expert opinions” are not admissible if based on a mere simulation of the events.<sup>56</sup>

68. Massachusetts and Nebraska implement a three-pronged test, where CGA’s are admissible if: “(1) the computer is functioning properly; (2) the input and underlying equations are sufficiently complete and accurate (and disclosed to the opposing party, so that they may challenge them); and (3) the program is generally accepted by the appropriate community of scientists.”<sup>57</sup> This standard might also raise issues relating to the admissibility of GAI animations, as the blackbox problem can make it difficult to confirm the underlying equations “are sufficiently complete and accurate.” *Id.*

69. Finally, many jurisdictions do not permit the jury to view CGAs during deliberation, believing juries often give animations undue weight.<sup>58</sup> Others, however, allow animated evidence during deliberations.

### **C. Risks Associated with GAI Technology**

70. GAI video technology will almost certainly make producing detailed CGAs cheaper and more convenient.<sup>59</sup> The degree of realism that will become possible, and the semi-independent nature of GAI software, will create risks and evidentiary problems that were not present in prior systems. Accordingly, new procedural safeguards will be required to address the risks posed by GAI video systems.

#### **A. Intro to Technology:**

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<sup>56</sup> See *Parvin v. State*, 113 So. 3d 1243, 1251 (Miss. 2013).

<sup>57</sup> See *Commercial Union Ins. Co. v. Boston Edison Co.*, 591 N.E.2d 165, 168 (Mass. 1992); *Kudlacek v. Fiat S.p.A.*, 509 N.W.2d 603, 617 (Neb. 1994) (quoting 591 N.E.2d 165).

<sup>58</sup> See *Campoamor v. Brandon Pest Control, Inc.*, 721 So. 2d 333, 335 (Fla. Ct. App. 1998).

<sup>59</sup> See Oh, *supra* note 36, at 1501.

71. To understand the risks associated with using GAI to produce an animation for trial, it is important to understand the way in which AI systems are programmed and trained to produce video and image outputs. GAI systems operate using neural networks, which are problem-solving equations inspired by neural structures.<sup>60</sup> Specifically, these systems implement Generative Adversarial Networks (“GANs”) to improve at accurately recreating images, where one neural network iterates image outputs, and another continuously provides feedback to improve accuracy. *Id.* Additionally, convolutional neural networks (“CNNs”) learn to recognize and extract features from an image and combine those relevant features into new, distinct images. *Id.* Finally, contrasting language image pre-training networks (“CLIPs”) are used to train the program to develop images from text. In CLIPs, the neural networks are trained on millions of text and image pairings, allowing the program to form new images when provided a written prompt. *Id.*

72. In addition to the use of these three highly complicated neural network systems (GANs, CNNs, CLIPs), many AI tools are trained to reprogram themselves to achieve more consistent or desirable outputs. *Id.* Although this can help improve an AI platform’s efficacy, the processes by which it comes to its results may be lost or distorted. This process creates what is known as the “blackbox issue”, in which a GAI bot can produce an accurate result, but the processes by which it does so can no longer be understood, even by the programmer. *Id.*<sup>61</sup> Also, this process of semi-independent machine learning can lead to hallucinations (the inclusion of unrequested or entirely fabricated details), or inaccuracies such as GAI’s notorious challenges in accurately depicting human hands.

**b) GAI demonstrative evidence - Authentication issues:**

73. Hallucination problems, inaccuracies, and the blackbox issue all raise issues relating to how GAI videos will be authenticated, especially in those jurisdictions that require a showing that the program was operating consistently. Similarly, because AI platforms are trained on accessible or user-submitted data, GAI programs can be prone to “input biases”, in which

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<sup>60</sup> See Oh, *supra* note 36, at 1501.

<sup>61</sup> 1 Evidentiary Foundations § 4.11 (2025).



outputs are shaped by existing biases in the data on which the program was trained.<sup>62</sup> Detecting and eliminating the effects of such input biases may be required for authentication purposes, but given the way these programs are trained, it may be extremely challenging.<sup>63</sup> Ultimately, the ability to cross-examine the testifying witness to ensure that resulting CGAs accurately reflect their testimony will be essential to ensure that hallucination, inaccuracy, or input bias has not caused discrepancies between the resulting animation and the testimony on which it is based.<sup>64</sup>

**c) Prejudice issues:**

74. GAI video technology will make it possible to create extremely realistic CGIs, with some platforms already able to make videos based on human faces and figures.<sup>65</sup> This increases the potential for unfair prejudice, as realistic animations will likely have a profound effect on jury sentiment.<sup>66</sup> The risk of unfair prejudice is weighed against probative value when determining the admissibility of a piece of demonstrative evidence, and with new GAI systems, this risk is greater than in traditional trial animations.<sup>67</sup>

75. Additionally, the ability of GAI programs to create realistic videos creates a greater risk of improperly inflaming juries. Demonstrative evidence may be inadmissible if it is overly gruesome or offers some perspective as to improperly inflame juries.<sup>68</sup> For instance, in *Pugh v. State*, a computer-generated animation of an auto accident was challenged as being overly inflammatory and generating unfair prejudice against the defendant. *Id.* The animation showed a simplistic human figure being run over and dragged briefly under a car. *Id.* The video did not depict any blood or physical injury, and the human figure was rendered without realistic graphics or physics. *Id.* The court held that the video was not overly inflammatory as it was consistent with expert testimony and less gruesome than the actual event. *Id.* Applying this standard, courts have held that pictures of gruesome injuries are admissible as demonstrative

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<sup>62</sup> See Yiran Yang, *Racial bias in AI-generated images*, SPRINGER NATURE (Mar. 10, 2025), <https://doi.org/10.1007/s00146-025-02282-1>.

<sup>63</sup> See Oh, *supra* note 36, at 1501.

<sup>64</sup> See Victoria Webster & Fred E. (Trey) Bourn III, *The Use of Computer-Generated Animations and Simulations at Trial*, 83 DEFENSE COUNSEL JRL. 439, 459 (2016).

<sup>65</sup> See Oh, *supra* note 36, at 1501; See Example 2-4 below.

<sup>66</sup> See Oh, *supra* note 36, at 1501.

<sup>67</sup> See FED R. EVID. 403.

<sup>68</sup> See *Pugh v. State*, 639 S.W.3d 72, 87 (Tex. Crim. App. Jan. 26, 2022).

evidence, but pictures of injuries caused or exacerbated by a resulting autopsy are inadmissible as overly inflammatory.<sup>69</sup>

76. As GAI tech makes realistic animations more feasible, there will be a greater risk that the resulting videos will improperly influence juries and lead to unfair prejudice, and this may limit admissibility where there is nominal probative value. Accordingly, those intending to use GAI video technology to produce CGAs for trial should take caution to ensure videos fairly and accurately reflect objective evidence when depicting injuries, and implement restraint regarding the degree of realistic, gruesome detail they choose to include.<sup>70</sup>

77. Finally, the hyper-realistic animations made possible by GAI create a risk of prejudice in that they may create “an impression that the demonstration closely replicates actual events, despite significant dissimilarities”.<sup>71</sup> In *Dugle*, the computer-generated animation demonstrated the accident from the point of view of the witness, and there were substantial dissimilarities between the resulting video and the testimony such that they were not “substantially similar.” *Id.* The court noted that the video purported to simulate the parties’ point of view rather than demonstrating the testimony, and it was thus inadmissible for lacking substantial similarity. *Id.* The concerns outlined by the *Dugle* court will likely be exacerbated as GAI video systems achieve even greater degrees of realism and detail.

78. As seen in *Dugle*, some jurisdictions require a CGA recreation to be substantially similar to the offered testimony, and many require a jury instruction to prevent such misunderstanding. Even with a jury instruction, however, hyper-realistic recreations may impact the jury in profound ways, especially considering GAI technology will allow for a victim’s facial features and voice to be included in a CGA.

79. It is important to note that the prejudicial risks associated with admitting GAI videos as demonstrative evidence are strengthened by the fact that, absent a disclosure

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<sup>69</sup> See *Rojas v. State*, 986 S.W.2d 241, 249 (Tex. Crim. App. 1998); *Terry v. State*, 491 S.W.2d 161, 163 (Tex. Crim. App. 1973).

<sup>70</sup> See *Pugh v. State*, 639 S.W.3d 72, 87 (Tex. Crim. App. Jan. 26, 2022).

<sup>71</sup> See *Dugle v. Norfolk S. Ry. Co.*, No. 07-40, 2010 U.S. Dist. LEXIS 63296, at 4-5\* (E.D. Ky. June 25, 2010); 2010 WL 2612331.

requirement set by the trial Judge, there are no disclosure requirements for the use of demonstrative evidence.<sup>72</sup> This means that a party could face a hyper-realistic CGA halfway through trial, without any time to prepare.<sup>73</sup> As technology allows CGAs to grow ever more prevalent and effective, courts might consider implementing notice requirements to eliminate resulting prejudice.

#### **D. GAI as demonstrative evidence: anticipated benefits**

80. GAI technology will undoubtedly raise new issues and require new standards regarding the admissibility of computer-generated animations in trial; however, it will also address existing concerns in prior technology.

81. For instance, in *Lewis v. State*, a computer animation was inadmissible due to inconsistencies between the animation and the witness testimony.<sup>74</sup> Specifically, the animation included a different number of gunshots than what had been reported by the testifying witness, it depicted human figures in an incorrect size, and it omitted key details because it “required more memory to run on the computer.” *Id.* GAI programs may be able to address these types of issues in that they will make the animation process faster, more intuitive, and more efficient. *Id.* This will make it easier to ensure that the resulting animation accurately reflects the testimony on which it is based and that it includes all of the relevant details.

82. Additionally, GAI, though not yet perfect, will likely remain far cheaper than prior animation technology.<sup>75</sup> Also, these programs can generate videos from text and images and do not require specialized training to operate. *Id.* Accordingly, this will increase access to obtaining CGAs for trial. *Id.* Since no specialized training is required to operate these systems and they will likely be much cheaper than previous industry standards, smaller firms and less sophisticated parties will likely be able to produce trial animations as demonstrative evidence when it may have been cost-prohibitive to do so under prior technology. *Id.* Given that visual

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<sup>72</sup> See *Rodriguez v. Vill. of Port Chester*, 535 F. Supp. 3d 202 (2021).

<sup>73</sup> See Mary D. M. Fan, *AI-Enhanced Evidence*, B.U. L. Rev., 17 (Feb. 10, 2025).

<sup>74</sup> See *Lewis v. State*, 402 S.W.3d 852, 862-863 (Tex. App. 2013).

<sup>75</sup> See Oh, *supra* note 36, at 1501.

cues tend to have a strong influence on juries, improved access to the production of trial animations for less sophisticated parties may assist in mitigating inequitable judicial outcomes derived from wealth differences.

83. Finally, GAI technology will allow CGAs to better achieve the fundamental purpose of demonstrative evidence: to help the jury understand testimony. Specifically, the degree of detail and complexity that one can achieve with GAI will make it easier to accurately convey complex testimony, especially considering that these animations can be tailored and adjusted. Further, as the *Pugh* court acknowledged, a computer-generated animation based on witness or expert testimony allows the jury to weigh the plausibility of a party's case in relation to another party.

### **3) Summary (GAI as Demonstrative Evidence)**

84. In sum, the rapid advancement of GAI video technology will radically change the use, production, and regulation of computer-generated animations at trial. They will be more cost-effective, they will not require special training to use, and they will be capable of producing realistic, complicated images and videos. Accordingly, GAI videos may represent an advancement in the field of demonstrative evidence in that they will likely be more effective at illustrating complex testimony.<sup>76</sup>

85. Despite these benefits, the complexity of GAI programs and the “blackbox problem” problem will lead to distinct challenges in authentication. *Id.* Similarly, the realism and detail that will be made possible raise prejudicial concerns in that hyper-realistic videos will have a profound effect on juries. Further, juries could falsely perceive a realistic demonstration as a factual recreation. As GAI video technology becomes more common and pervasive in the industry, many jurisdictions will likely have difficulty accommodating new technological applications with existing procedures. For instance, Massachusetts requires a showing that both the computer is functioning properly and the underlying equations are sufficiently complete and accurate. This may not be possible given the complexity of AI systems and the blackbox problem. Finally, if applied strictly, the general rules of evidence are, for the most part, capable

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<sup>76</sup> See Oh, *supra* note 36, at 1501.

of addressing some of the concerns GAI raises; however, unique challenges associated with the new degree of realism may require new procedures.

#### **4) GAI as Substantive Evidence: Image Enhancement and Simulations.**

86. The most obvious legal application for emerging GAI text and video technology is as demonstrative evidence; however, this new technology may also have a role as substantive evidence either as the basis of simulations or via the enhancement of low-quality pictures and video recordings.

##### **A. GAI Video Simulations**

87. CGAs are sometimes admissible as substantive evidence as a simulation. A simulation, rather than a demonstration, is when raw data is put into a program, which then determines an output based on some reliable mathematical formula.<sup>77</sup> Simulations draw conclusions from the data itself rather than merely illustrating testimony, and thus serve as additional substantive evidence. *Id.* For instance, in *Kudlacek v. Fiat*, a computer program was used to simulate a car crash. They found that such simulations were admissible so long as (1) the computer was functioning properly, (2) the input and underlying equations were sufficiently complete and accurate, and (3) the program is generally accepted by the appropriate scientific community.<sup>78</sup>

88. Since simulations serve as substantive evidence rather than demonstrative, they are subjected to additional procedural safeguards.<sup>79</sup> Specifically, the program itself is scrutinized, and if challenged, must meet a *Daubert* or *Frye* standard equivalent to establish admissibility.<sup>80</sup>

89. The technical complexities and current inconsistencies in GAI video technology may limit its ability to produce admissible simulations for trial. The programming complexities and the blackbox problem already described may cause issues in authenticating the underlying

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<sup>77</sup> See *Goode*, *supra* note 43.

<sup>78</sup> See *Kudlacek v. Fiat S.p.A.*, 244 Neb. 822, 843 (1994).

<sup>79</sup> *1 Evidentiary Foundations* § 4.11 (2025).

<sup>80</sup> See *Goode*, *supra* note 43.

equations, as was required in *Kudlacek*. This underlying complexity and the tendency of GAI programs to hallucinate certain details will make it difficult to authenticate GAI simulations.

90. In sum, although it is possible that GAI video programs will become integrated with reliable equations to produce admissible simulations as substantive evidence, procedural issues with authentication will likely mean existing simulation technology remains more practical for the foreseeable future.

## **B. Generative AI Video Enhancement**

91. GAI technology allows for low-quality video and images to be enhanced, providing another means through which GAI video can serve as substantive evidence. Traditionally, courts have liberally admitted technologically enhanced evidence under flexible authentication rules, generally ensuring that the enhanced video and original show the same image. The advancement of GAI video technology, however, has raised judicial concerns over “deep fakes”; artificially generated images of real places or people that are indistinguishable from true recordings to the naked eye.<sup>81</sup> These concerns have led to reform proposals, with scholars raising concerns about fake or inaccurate enhancements and equality of access to justice.

92. For instance, in the recent case of *State v. Puloka*,<sup>82</sup> the defendant sought to admit a video recording that had been enhanced with an AI video tool. *Id.*<sup>83</sup> The court implemented the Frye standard for determining the admissibility of evidence utilizing a novel scientific theory or principle, finding that AI video enhancements were not generally accepted in the forensic video community and that it was accordingly not admissible.<sup>84</sup>

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<sup>81</sup> See *Fan*, *supra* note 73.

<sup>82</sup> No. 21-1-04851-2-KNT, *Findings of Fact & Conclusions of Law Re: Frye Hr’g on Admissibility of Videos Enhanced by Artificial Intelligence*, 1, 6 (Mar. 29, 2024), available at: [https://www.nacdl.org/getattachment/89dee8b2-c47d-49c0-89d4-e187efe76551/Washington-v-Puloka-\(No-21-1-04851-2-KNT\)-\(Sup-Ct-WA-2024\).pdf?lang=en-US](https://www.nacdl.org/getattachment/89dee8b2-c47d-49c0-89d4-e187efe76551/Washington-v-Puloka-(No-21-1-04851-2-KNT)-(Sup-Ct-WA-2024).pdf?lang=en-US).

<sup>83</sup> See *Example 5 below*.

<sup>84</sup> See *State v. Puloka*, No. 21-1-04851-2-KNT, *Findings of Fact & Conclusions of Law Re: Frye Hr’g on Admissibility of Videos Enhanced by Artificial Intelligence*, 1, 6 (Mar. 29, 2024), available at: [https://www.nacdl.org/getattachment/89dee8b2-c47d-49c0-89d4-e187efe76551/Washington-v-Puloka-\(No-21-1-04851-2-KNT\)-\(Sup-Ct-WA-2024\).pdf?lang=en-US](https://www.nacdl.org/getattachment/89dee8b2-c47d-49c0-89d4-e187efe76551/Washington-v-Puloka-(No-21-1-04851-2-KNT)-(Sup-Ct-WA-2024).pdf?lang=en-US).



93. Similarly, in *Magbanua v. State*,<sup>85</sup> prosecutors sought to use AI enhancement technology to decipher an audio recording that had been distorted by a plethora of background noise.<sup>86</sup> The audio was admitted, as the defense counsel failed to challenge the use of new technology. *Id.*

94. Critically, the admissibility of AI evidence depends on whether the resulting enhanced image is categorized as demonstrative or substantive evidence. In *Puloka*, for instance, the court classified the resulting image as substantive evidence and thus applied the stringent *Frye* standard.<sup>87</sup> In *People v. Hung Tran*,<sup>88</sup> however, a series of videos that had been enhanced to include colored arrows to track individuals was classified as a demonstrative. The defense argued that the video had been doctored and that it was thus substantive evidence that must meet the demanding *Frye* standard.<sup>89</sup> The court concluded that the video was merely demonstrative evidence and admitted the video, citing the negligible risk of unfair prejudice. Had a similar enhancement been performed by AI, a skeptical court may classify the resulting video as substantive evidence and implement a stricter standard.

95. Moving forward, parties that wish to introduce AI-enhanced video recordings as substantive evidence will have to first pass a jurisdiction's *Daubert*, *Frye*, or equivalent standard for admissibility. Again, given the complex nature of GAI systems, legal practitioners may struggle in establishing the validity of GAI video tools under the relevant standard.

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<sup>85</sup> Cite to be added later

<sup>86</sup> See *Fan*, *supra* note 73; See also *Opening Statement of the Government, Trial Transcript, in Record on Appeal, Magbanua v. State*, Case No. 2016CF3036A, at 34-35 (D. Ct. App. 1st D. Fla., filed Aug. 21, 2023).

<sup>87</sup> See *Fan*, *supra* note 73.

<sup>88</sup> 50 Cal. App. 5th 171, 173 (2020).

<sup>89</sup> See *People v. Tran*, 50 Cal. App. 5th 171, 173 (2020).

## 5) GAI Avatars as Court Reporters

96. The Arizona Supreme Court has already begun implementing GAI video technology through its use of AI avatars, which serve as court reporters.<sup>90</sup> Following large-scale protests to the Court's ruling on a comprehensive abortion ban, new Chief Justice Ann Timmer made public outreach and communication a priority. *Id.* As part of this initiative, the court introduced Daniel and Victoria, a pair of realistic avatars that report outcomes and updates from the court.<sup>91</sup> The role of the AI software behind Daniel and Victoria is limited to producing the video output, as they are provided an approved script. Although this is a limited use of GAI technology, it displays a willingness to engage with and utilize the technology as it develops. This attitude will be essential to a court's ability to derive the benefits from new AI technology. Additionally, a willingness to learn what GAI models are capable of in practice will better prepare courts to create and apply new standards in order to mitigate the impact of potential risks GAI poses in other areas.

### EXAMPLES:

Example 1: An Image from the GAI victim statement in *State v. Horcasitas*<sup>92</sup>



ABC 7 Chicago

Example 2: A screenshot of an admitted computer-generated animation made on ARAS 3d.

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<sup>90</sup> See Sejal Govindarao, *Arizona Supreme Court Taps AI Avatars to Make the Judicial System More Publicly Accessible*, AP NEWS (Mar. 18, 2025), <https://apnews.com/article/ai-artificial-intelligence-arizona-court-653060178ab9661a3ca6ddc37ac12907>.

<sup>91</sup> See Example 6 below.

<sup>92</sup> No. 1 CA-CR 23-0215, 1-8 (Ariz. Ct. App. 2024).



**Pugh v. State, 639 S.W.3d 72 \*; 2022 Tex. Crim. App. LEXIS 31 \*\*; 2022 WL 224275**

Example 3: A Screenshot from a GAI video prompted to “create historical footage of California during the gold rush”



**WSJ, 2024**

Example 4: Screenshot of GAI video highlighting detail, reflections, and realism.



WSJ, 2024

Example 5: Left: original cell phone footage from *State v. Puloka*. Right: AI-enhanced image found inadmissible under the *Frye* standard.<sup>93</sup>




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<sup>93</sup> See Fan, *supra* note 73.



Example 6: Daniel and Victoria: AI generated court reporters for the Arizona Supreme Court.



12News, 2025

## **EXHIBIT “C”** **AI, COMPUTER GENERATED ANIMATIONS (“CGA’S”)**<sup>94</sup>

### **A. Background**

97. A computer animation is merely a series of images generated by a computer that serves as demonstrative evidence. It may, for example, illustrate what a witness saw, demonstrate for the jury the general principles that underlie an expert's opinion, or depict an expert's theory of how an accident occurred. In each such instance, the evidence may be authenticated by the witness's testimony that the computer animation presents a fair and accurate depiction.<sup>95</sup>

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<sup>94</sup> The legal research contained in the Moot problem is not exhaustive but included to assist the law students in working the legal issues of the problem.

<sup>95</sup> See *Goode*, *supra* note 43.

98. Articles on Point<sup>96</sup>

Generative AI technology is approaching the point where individuals can have AI image/video generators create demonstrative evidence. (a) “reduces precious capital spent on demonstrative evidence”; (b) could replace both ineffective - low-cost visualization techniques (using dolls, props), as well as expensive expert models.

99. Current law favors the admission of demonstrative computer graphics. Below are the following requirements: (1) relevant under FED RUL. EV. 401-402 (illustrates a testimony about fact or opinion); (2) probative danger must not outweigh probative value (jury misdirection, confusion, unfair prejudice FED RUL. EV. 403); and (3) must be authenticated (901-903) - usually a witness statement.

100. Courts have found animations similar to other forms of demonstrative evidence. The ability to cross-examine a witness is key to authenticity.<sup>97</sup>

- a. Generative Adversarial Network (“GAN”): Uses two artificial neural networks (problem-solving equations inspired by neural structures), one that continuously makes derivations of artwork, and another that continuously appraises and accordingly accepts or rejects the other bot's outputs. As a result, these powerful systems get extremely accurate at creating visual models as they are exposed to more and more data.
- b. Convolutional Neural Network (“CNN”): Recognize and extract features from images before being able to combine relevant features into a new image.
- c. Contrastive Language Image Pre-training (“CLIP”): Millions of text image pairs. The machine will learn associated visual cues for a particular phrase. This allows for text-to-image generation.

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<sup>96</sup> See Oh, *supra* note 36, at 1501.

<sup>97</sup> See Oh, *supra* note 36, at 1501; Fan, *supra* note 73; Fred (Trey) Bourn, III and Victoria Webster, *The Use of Computer-Generated Animations and Simulations at Trial*, IADC (Jan 27, 2020), [https://www.iadclaw.org/defensecounseljournal/the-use-of-computer-generated-animations-and-simulations-at-trial/?utm\\_source=chatgpt.com](https://www.iadclaw.org/defensecounseljournal/the-use-of-computer-generated-animations-and-simulations-at-trial/?utm_source=chatgpt.com); Texas Judicial Branch, *Media Resources*, Court Criminal Appeals, <https://www.txcourts.gov/cca/media/> (showing recreation videos based off prosecutions expert testimony and forensics) were admitted as demonstrative evidence).

- d. Self-Educating “blackbox” issue: Some AI tools are trained to reprogram themselves in order to achieve more consistent or desirable outputs. Although this can help improve an AI platform’s efficacy, the processes by which it comes to its results may be lost (i.e. blackbox). This issue could play into authentication standards --> especially if exposed to a *Daubert* or *Frye* credibility analysis.
- e. Complexity of tech leads to authenticity issue: Due to the complexity of the technology, GAN, CNN, and CLIP programs may end up so complex that programmers can no longer accurately describe the processes by which they work. Also, as the code grows ever more convoluted, the likelihood of inconsequential yet irritating errors increases.
- f. Liberal admission of AI video as demonstrative evidence is unfeasible: there could be treatment of AI like a traditional artist mock-up; however, there is a degree of mechanical autonomy in AI video generators that does not exist with traditional art / graphic design. Lack of direct supervision causes issues, such as GAI challenges in depicting human hands.
- g. Treat GAI as testimony / apply hearsay doctrine?: (1) not evidence, (2) characterizing them as such goes against the history of demonstrative evidence. In sum, blackbox risk does not warrant false categorization as testimony.
- h. Proposal for admitting Illustrative AI demonstrations: (1) Apply FED RUL. EV. 901(b)(9), whereby the proponent/creator of AI art must be present at the authentication hearing (not just the testifying witness), (2) OR apply FED RUL. EV. 902(13), whereby authentication must meet the same standard as if the information were presented by a live witness. (cross-examination of the creator not required). Examples include seeking a signed certification from a relevant AI service provider.
- i. Jury instructions: Will be key in developing a manageable judicial standard through early periods of tech.
- j. Role of AI developers: When implementing AI technology into American courts, software developers can help : (1) open source development for third party verification, (2) prevent BIAS [amazon recruiting GPT favored males, facial recognition program successful at recognizing white men, but not darker skinned



females], and (3) continuously test for accuracy, especially with regards to human subjects or events common to trial.

101. **Cases:**

***Ladeburg v. Ray:***<sup>98</sup> early case allowing CGA; only 5 days out from trial, no undue delay and little substantive prejudice from admitting the video.

***Commonwealth v. Serge:***<sup>99</sup> The Pennsylvania Supreme Court considered the admissibility of CGAs as demonstrative evidence in a criminal trial. Michael Serge was convicted of first-degree murder for fatally shooting his wife. During the trial, the prosecution introduced a CGA to illustrate expert testimony regarding the sequence of events during the shooting. The court held that CGAs could be admissible as demonstrative evidence if properly authenticated and if their probative value outweighed any potential prejudicial effect. The court emphasized the importance of clear jury instructions to ensure the animation is understood as a visual aid rather than substantive evidence.

***Clark v. Cantrell:***<sup>100</sup> The South Carolina Supreme Court ruled that CGAs are admissible as demonstrative evidence when they are: (1) authentic; (2) relevant; (3) a fair and accurate representation of the evidence; and (4) their probative value substantially outweighs any potential for unfair prejudice. The court also required that such evidence be disclosed to the opposing party in advance to allow for analysis and objections.

***Sommervold v. Grevlos:***<sup>101</sup> South Dakota Supreme Court held that for a CGA to be admissible, the proponent must demonstrate that the animation is based on a reliable system and accurately reflects the events in question. The animation must be relevant, probative, and nearly identical to the subject events, and it should fairly and accurately reflect the testimony it supports. (earlier case)

***Guilory v. Domtar Industries, Inc.:***<sup>102</sup> The Fifth Circuit Court of Appeals found that CGAs based on altered facts and speculation were inadmissible. In this case, the court disallowed animations that were not supported by the evidence, emphasizing the need for accuracy and

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<sup>98</sup> 508 N.W.2d 694 (1993).

<sup>99</sup> 586 Pa. 671 (2004).

<sup>100</sup> 339 S.C. 369, 382 (2000)

<sup>101</sup> 518 N.W.2d 733 (1993).

<sup>102</sup> 95 F.3d 1320 (5th Cir. 1996).

reliability in such demonstrative exhibits. Earlier Case represents a limitation on CGA admissibility.

*Pugh v. State*:<sup>103</sup> The Texas Court of Criminal Appeals upheld the admissibility of a CGA used to illustrate expert testimony, reaffirming that demonstrative evidence of this kind is permissible when it accurately represents the testimony and aids the jury's understanding without creating undue prejudice. The central issue was whether a CGA depicting human behavior is admissible as demonstrative evidence. The court held that it is, so long as the animation satisfies the same evidentiary standards applied to other forms of demonstrative proof. Specifically, demonstrative evidence must be based on scientifically reliable expert testimony grounded in objective data, and is admissible when (1) authenticated, (2) relevant, and (3) probative value outweighs any danger of unfair prejudice. The court emphasized that the depiction of human behavior does not require perfect fidelity in every minute detail; rather, the analysis rests on whether the probative value outweighs the risks of misleading or inflaming the jury. As with any contested trial exhibit, the demonstrative need not mirror the opposing party's evidence so long as it fairly and accurately portrays the testimony or previously admitted evidence the proponent seeks to illustrate. The relevancy inquiry focuses on whether the animation helps the jury visualize substantive evidence, while admissibility turns on balancing four considerations: (1) probative value, (2) the potential to impress the jury in an irrational way, (3) the time required to develop the evidence, and (4) the proponent's need for it, with added caution for whether the evidence is overly inflammatory (gruesome or otherwise provoking undue emotion).

The CGA at issue in *Pugh* was relatively simple: it depicted a stationary body from a distance, based on unobjected evidence collected at the crime scene, including BLUESTAR forensic test results. The animation was created using the FARO 3D platform, though no physics modeling was applied to the body, making the recreation rough and minimalist. Indeed, the court noted that the animation was less grisly than the actual event, a factor weighing against unfair prejudice. The trial court also provided a limiting jury instruction: jurors were told the animation merely visualized the expert's opinion and could only be considered if the jury found beyond a reasonable doubt that other admitted evidence supported the events depicted. This safeguard

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<sup>103</sup> 639 S.W.3d 72, 87 (Tex. Crim. App. Jan. 26, 2022).

allowed the jury to weigh the plausibility of the State's theory while comparing it against the defense's evidence.<sup>104</sup>

The decision in *Pugh* is distinguishable from *Harris v. State*,<sup>105</sup> where a CGA was held inadmissible because the sponsoring expert admitted the video misrepresented the defendant's viewpoint from inside the car, misrepresented the vehicle's speed, and omitted critical details such as the complainant's position, directly conflicting with the State's own evidence. Similarly, in *Lewis v. State*,<sup>106</sup> a computer animation purporting to recreate a shooting was excluded because it was speculative, unsupported by substantive evidence, and internally unreliable: the lay witness who sponsored it admitted inaccuracies concerning the number of gunshots, sound volume, human figure sizing, and apartment elevation, while the animation's creator conceded that certain details had been omitted merely to reduce the program's memory burden. By contrast, the *Pugh* animation was tied directly to objective data, was simple rather than inflammatory, and helped visualize admitted expert testimony, illustrating the court's willingness to allow CGAs where they aid comprehension without crossing into speculation or undue prejudice.

***Dugle v. Norfolk Southern Ry.***:<sup>107</sup> The court excluded a CGA that purported to replicate the plaintiff's point of view during the incident. The issue was whether a CGA attempting to simulate an event is admissible when it contains dissimilarities and evidentiary gaps. The court held it was not admissible because when a recreation is intended to simulate an event rather than simply illustrate testimony, it must be "substantially similar" to the actual conditions. Here, the video created an impression that it closely replicated the event despite significant inaccuracies and gaps in testimony, and the risk of misleading or confusing the jury outweighed any probative value. The court distinguished between demonstrative animations that merely illustrate testimony and recreations purporting to simulate events, requiring stricter similarity for the latter.

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<sup>104</sup> See Texas Judicial Branch, *Media Resources*, Court Criminal Appeals, <https://www.txcourts.gov/cca/media/> (showing recreation videos based off prosecutions expert testimony and forensics) were admitted as demonstrative evidence) (last visited Aug. 25, 2025).

<sup>105</sup> Cite to be added later.

<sup>106</sup> 402 S.W.3d 852, 863 (Tex. Crim. App. 2013).

<sup>107</sup> 2010 U.S. Dist. LEXIS 63296 (6th Cir. 2010).

***Cabral v. State:***<sup>108</sup> In this case, the plaintiff objected to the defendant’s CGA on hearsay grounds, arguing that it improperly asserted facts about how the accident occurred. The court admitted the animation, holding that it was not offered for the truth of the matter asserted but instead as a visual depiction of the State’s theory of the case. The decision reflects a more liberal approach, allowing parties to use CGAs to illustrate their version of events so long as they are not presented as independent substantive proof.

***Perma Research & Development v. Singer Co:***<sup>109</sup> the court admitted a computer simulation admitted, though the dissent raised questions about the computer and its process itself.

***In Re Air Crash Disaster:***<sup>110</sup> a six-minute video showing airplane circuit breaker was properly admitted as demonstrative evidence, with the court holding that its probative value outweighed any potential prejudice.

***People v. Duenas:***<sup>111</sup> the California Supreme Court upheld the admission of an animation used to illustrate an expert’s theory of how the defendant shot a police officer, emphasizing that it was a “mere demonstration” rather than independent substantive proof

## 102. **Standards And Jurisdictional Differences:**

Courts vary widely in their approaches to admitting CGAs. Some jurisdictions, like South Dakota, require the CGA to be substantially similar, or nearly identical, to the actual event if it is intended to recreate it. Utah takes a more flexible stance, holding that a witness need not know how the animation was created so long as it accurately reflects the witness’s testimony. Wyoming applies its blanket rules of evidence without crafting special standards for CGAs. Massachusetts has adopted a more technical test (also followed in some other states), requiring that (1) the computer is functioning properly, (2) the input and underlying equations are sufficiently complete and accurate, and disclosed to the opposing party for challenge, and (3) the program is generally accepted by the relevant scientific community. Other states, such as Pennsylvania, apply a broader evidentiary framework, admitting CGAs when they are

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<sup>108</sup> 284 P.3d 221 (Haw. Ct. App. 2012).

<sup>109</sup> 542 F.2d 111 (1976).

<sup>110</sup> Cite to be added later.

<sup>111</sup> Cite to be added later.

authenticated, relevant, and their probative value is not outweighed by the danger of unfair prejudice. Across many jurisdictions, courts emphasize the importance of a clear jury instruction explaining the nature and limits of the animation, as highlighted in cases like *Hinkle v. City of Clarksburg*,<sup>112</sup> *Fusco v. General Motors Group*,<sup>113</sup> and *Commonwealth v. Serge*.<sup>114</sup>

103. **Prior Technology:**

ARAS 360 HD is a platform primarily used for 3D scene diagramming and crash reconstruction, offering a drag-and-drop interface and the ability to integrate drone and LiDAR data. Autodesk Maya and 3ds Max are high-end 3D modeling and animation programs frequently employed in accident reconstructions and medical injury animations, with their primary strength being their status as industry standards for animation and their capacity to produce highly realistic visuals. Blender, another animation software, is compatible with FARO and similar 3D scanning services, while FARO 3D itself serves as a scanning platform used to create three-dimensional digital models that could potentially be paired with generative video AI platforms.

The evidentiary use of these technologies raises several concerns. Because courts review demonstrative evidence under an abuse of discretion standard, inconsistent outcomes may result as judicial standards governing AI-generated recreations continue to develop. This unpredictability also risks inequitable outcomes: access to high-quality generative video AI programs may be prohibitively expensive, creating imbalances in criminal cases where the state commands greater resources. Still, CGA systems such as FARO HD are already extremely costly, and emerging AI technologies may ultimately prove cheaper and more accurate. Input bias presents another challenge, as generative AI systems may produce hallucinations, unnecessary details, or distortions, necessitating safeguards to ensure accuracy.

At the same time, generative AI recreations promise substantial benefits, including greater detail, clarity, and cost-effectiveness, making demonstrative evidence more effective in conveying substantive facts. Yet this higher degree of detail also magnifies concerns about undue prejudice and complicates efforts to ensure a fair and accurate representation. Finally,

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<sup>112</sup> *Hinkle v. City of Clarksburg*, W. Va., 81 F. 3d 416 (1996).

<sup>113</sup> *Fusco v. General Motors Corp.*, 11 F.3d 259 (1st Cir. 1993)

<sup>114</sup> 586 Pa. 671 (2004).

jurisdictions are divided: the majority, exemplified by *Harris*, prohibit CGAs from being taken into jury deliberations, while others, such as *Clark v. Cantrell* permit their inclusion.<sup>115</sup>

104. **Anticipated Impact Of New And Developing Tech:**

Generative AI video platforms such as Sora, Runway, Pikalabs, bespoke services, Synthesia, and many others now allow for the creation of realistic, intricate animations within minutes using image and text inputs.

- a. **Benefits:** These systems are faster and cheaper than prior technologies yet remain compatible with 3D scanning platforms like FARO 3D. Their reduced costs and minimal labor requirements will make CGAs more accessible as demonstrative evidence. At the same time, they promise increasing levels of visual accuracy, detail, and specificity, though this realism will demand stricter evidentiary safeguards. Generative AI systems are also more flexible than traditional modeling tools, often requiring little specialized training, and can better align with witness testimony or objective data. Their adaptability allows animations to be created in multiple formats, enabling integration with virtual reality or other emerging technologies. Similarly, AI-driven image generation carries the same applications and risks as video but at an even lower cost, producing results that far exceed current options.
- b. **Risks:** Despite these advantages, generative AI recreations raise serious evidentiary risks. The capacity to produce hyper-realistic videos increases the likelihood of undue jury prejudice, as such visuals may be provocative and emotionally powerful. The danger of inflaming jurors is heightened precisely because of the enhanced detail and realism these systems can achieve. This development is also likely to spark more frequent and protracted admissibility challenges, including Daubert-style litigation, as courts evaluate reliability and fairness. Furthermore, hyper-detailed animations risk confusing jurors by blurring the line between demonstrative illustrations and actual evidence. These concerns echo earlier judicial caution, as reflected in motions citing

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<sup>115</sup> 339 S.C. 369, 382 (2000).

*Clark v. Cantrell*, the “exploding tires” case, where courts warned that overly realistic recreations could mislead rather than aid the fact-finding process.<sup>116</sup>

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<sup>116</sup> See Defendant’s Motion in Limine to Exclude Three Proposed Videos as Demonstrative Evidence, NO: 2020-CP-23-04917 (South Carolina, Dec. 5, 2023), <https://www2.greenvillecounty.org/scjd/PublicIndex/PIImageDisplay.aspx?ctagency=23002&doctype=D&docid=1701874690552-384&HKey=97115102841061179711610411871731221015571831091221207086112818448781161118468668953101571206772118568289&AspxAutoDetectCookieSupport=1> <https://www2.greenvillecounty.org/scjd/PublicIndex/PIImageDisplay.aspx?ctagency=23002&doctype=D&docid=1701898612041-691&HKey=82701176584548310868988011485495712112011111199738870816980879710411373665471861187710569122568152&AspxAutoDetectCookieSupport=1>; Plaintiff’s Memorandum in Opposition to Defendant’s Motion in Limine to Exclude Three Proposed Videos as Demonstrative Evidence, No.:2020-CP-23-04917 (South Carolina, Dec. 6, 2023), <https://www2.greenvillecounty.org/scjd/PublicIndex/PIImageDisplay.aspx?ctagency=23002&doctype=D&docid=1701898612041-691&HKey=82701176584548310868988011485495712112011111199738870816980879710411373665471861187710569122568152&AspxAutoDetectCookieSupport=1>.



## **EXHIBIT “D”**

### **Simulations and enhanced images: AI as Substantive Evidence**<sup>117</sup>

#### **A. Background**

106. As one commentator has put it, “[a] computer simulation ... involves a computer becoming a witness.” Computer simulations provide additional, substantive evidence. Computer software programs are used to analyze data, performing calculations by applying mathematical models, laws of physics, and other scientific principles in order to draw conclusions and recreate an incident. For instance, with the proper software, data from an airplane's black box may be used, along with other relevant data, to analyze the cause of a fatal airline crash and to create a visual depiction of how the accident occurred - complete with views from the cockpit.

107. “But digitally-enhanced photos and computer simulations are the source of additional evidence, derived from the application of scientific or technical principles, and typically are relied upon by experts to form their opinions. Therefore, they are subject to the more stringent gatekeeper standards associated with expert testimony under Daubert or its state equivalent. Such admissibility questions are left to the Judge under Rule 104(a). The proponent of a digitally-enhanced photo or computer simulation is going to have to satisfy the Judge that the photo or simulation is reliable, not just that a reasonable juror could find that it is reliable. In this sense, therefore, digitally-enhanced photos and computer simulations present more than just a typical authentication problem.”<sup>118</sup>

#### **108. AI Video Enhancements:**

In *State v. Puloka*,<sup>119</sup> the court excluded an AI-enhanced video that had been generated from a low-resolution recording used at trial. The issue was whether AI-enhanced video evidence is admissible when it alters substantive video evidence. The court applied the *Frye* standard, which governs novel scientific theories or principles, requiring general acceptance in the relevant

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<sup>117</sup> The legal research contained in the Moot problem is not exhaustive but included to assist the law students in working the legal issues of the problem.

<sup>118</sup> See *Goode*, *supra* note 43.

<sup>119</sup> No. 21-1-04851-2-KNT, *Findings of Fact & Conclusions of Law Re: Frye Hr’g on Admissibility of Videos Enhanced by Artificial Intelligence*, 1, 6 (Mar. 29, 2024), available at: [https://www.nacdl.org/getattachment/89dee8b2-c47d-49c0-89d4-e187efe76551/Washington-v-Puloka-\(No-21-1-04851-2-KNT\)-\(Sup-Ct-WA-2024\).pdf?lang=en-US](https://www.nacdl.org/getattachment/89dee8b2-c47d-49c0-89d4-e187efe76551/Washington-v-Puloka-(No-21-1-04851-2-KNT)-(Sup-Ct-WA-2024).pdf?lang=en-US).

scientific community. Because AI video enhancement tools are not generally accepted in the forensic video analysis community, the enhancement was deemed inadmissible. The court stressed that since the original video constituted substantive evidence, the AI-enhanced version became a new piece of substantive evidence in itself rather than merely demonstrative of other admitted evidence. As a result, stricter admissibility standards applied, and the lack of general acceptance under *Frye* led to exclusion. *Id.*



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109. **Article: ‘To Admit or not to admit’: That is the Question for AI Evidence Essays in Honour of Professor Tan Yock Lin**<sup>121</sup>

Scholarly discussion of AI in litigation identifies several categories of possible AI-generated or AI-related evidence and examines their admissibility. Recordative AI evidence, such as recordings from Ring doorbells, Alexa devices, or phones, is typically admissible as “real evidence” when properly authenticated. Descriptive AI evidence, which involves statistical analysis or pattern detection, may be admissible to the extent it demonstratively illustrates records, but courts may prefer the raw original if the AI output is not sufficiently similar to the underlying data. Predictive AI evidence, such as facial recognition technology, has faced significant restrictions, with bans in several states due to the heightened risk of false positives

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<sup>120</sup> See AI enhanced image from the *Puloka* case.

<sup>121</sup> See Daniel Kiat Boon, ‘To Admit or not to admit’: *That is the Question for AI Evidence Essays in Honour of Professor Tan Yock Lin*, SSRN (2025), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=5184567](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5184567)

and reliability concerns; this type of evidence does not fit neatly into categories of demonstrative or real evidence. Hybrid evidence refers to situations where AI technologies combine elements of multiple evidentiary types, raising unique challenges of classification. Finally, generative AI evidence includes instances such as chatbots making misrepresentations, which may be treated as real evidence depending on context. Across all categories, authentication remains central, with courts likely to focus on consistency, reliability, and the ability to verify that the AI-generated output accurately reflects underlying data or events.

**EXHIBIT “E”**  
**BIOLOGICAL AND COMPUTER VIRUSES: A Comparative Analysis of**  
**Modes, Impacts, and Applications**<sup>122</sup>

110. A virus is “an external entity or foreigner that has malicious intent to reside on its host, thereby disrupting the normal functioning of the host causing malfunction in the system and using the host resources to exist and thereby multiplying and propagating to other systems by connection making them the new host.”<sup>123</sup> There are two main types of viruses: biological and computer. *Id.* Despite the vastly different hosts and physical structure of these two viral forms, experts suggest studying biological viral infections can help us better combat digital viruses in an ever-digitizing world. *Id.*

111. For instance, human anti-viral structures function by being able to recognize genome code, and digital antiviral software relies on a similar ability to recognize and distinguish viral malware code. *Id.* Current antiviral computer software is driven by machine learning and AI techniques inspired by naturally occurring neurological pathways.

**A. Background: (Biological & Computer Viruses Comparison & Analysis)**

- i. Biological Virus: A biological virus is a form of nano-scale life that cannot survive independently and requires a host organism for reproduction. Its structure is designed to attach to receptor proteins on host cells, enabling entry and replication. Mutation is common during viral reproduction, and recombination occurs when viral DNA combines with host DNA. Viruses spread between hosts through physical contact, sexual transmission, airborne particles, or contaminated food. Once inside an organism, viruses can outpace the immune system by evolving more rapidly than immune cells, allowing them to *persist* in the host and cause long-term infection.
- ii. Computer Virus: A computer virus is a type of malicious software program designed to reproduce itself by modifying other systems and inserting its own code into a host

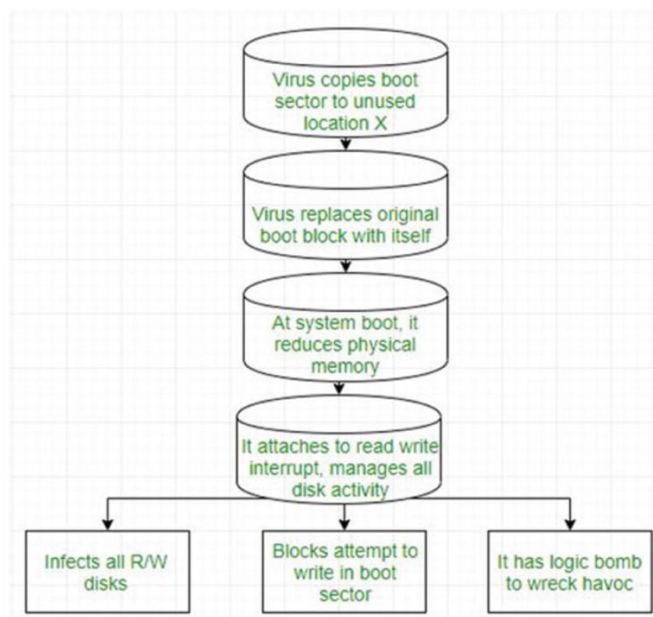
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<sup>122</sup> The legal research contained in the Moot problem is not exhaustive but included to assist the law students in working the legal issues of the problem.

<sup>123</sup> See Sanskar Gupta, Aswani Kumar Cherukuri, *et al.*, *Comparison, Analysis, and Analogy of Biological and Computer Viruses*, VELLORE INSTITUTE OF TECHNOLOGY (2022), [https://www.researchgate.net/publication/356265578\\_Comparison\\_Analysis\\_and\\_Analogy\\_of\\_Biological\\_and\\_Computer\\_Viruses](https://www.researchgate.net/publication/356265578_Comparison_Analysis_and_Analogy_of_Biological_and_Computer_Viruses).

program. Unlike some forms of malware, certain viruses can spread from machine to machine without creating a file-based copy of themselves. Their functions often include hijacking or altering computing processes, stealing, encrypting, or deleting confidential data, or monitoring user activity. The underlying code for a virus must be written and developed by a human programmer. Viruses typically contain three core components: the infection mechanism, which allows the virus to enter a system; the trigger, which activates the malicious function; and the payload, which is the harmful effect delivered once activated. Once embedded, a virus reproduces by capturing programs and spreading through a domino effect, often causing serious damage. For example, ransomware locks down a computer system and threatens to delete data unless a ransom is paid, while spyware silently monitors activity such as keystrokes to capture sensitive information like PIN numbers and login credentials.

The life cycle of computer virus involves various phases of virus such as dormant phase, propagation phase, triggering phase and execution phase. In order to start, a computer virus has to piggyback any other software or file in addition. A computer virus upon running can infect other documents or programs. Similar to its biological



**Fig. 11** Boot sector virus propagation

- iii. Computer virus detection: Computer virus detection generally occurs through two primary methods: static detection and dynamic detection. Static detection identifies

viruses by examining records, files, or code structures to locate known infection patterns without actually executing the code. In contrast, dynamic detection involves running the code and analyzing its behavior and output to determine whether it exhibits the characteristics of a virus. Together, these methods allow security systems to identify both known malware signatures and potentially harmful programs whose behavior only emerges during execution.

112. Given the similar characteristics that computer and biological viruses share, researchers have been able to implement biological research models to better understand infection and transmission for computer viruses. Microsoft study. For instance, researchers at Microsoft extended the classical Susceptible-Infected-Recovery epidemiological model to describe two of the most common infection methods used by current malware technology. *Id.* Applying the model, the researchers were able to determine the computer virus's method of transmission, rate of infection, and the number of machines that will be infected absent remedial action. *Id.* The team concluded that the application of epidemiological models of infection to malware can illustrate the means of infection and potential spread. Moreover, the team concluded that the reverse is also true; that studying malware would be similarly useful in combatting biological viruses *Id.*

*Id.* “We claim that the similarity among the two suggests that strategies for containment which are developed and tested on malware can then be applied to pathogens. Essentially, malware provides a model for biological pathogens which can be observed in the wild.”

## **EXHIBIT “F”**

### **RECIDIVISM-DETERRENCE**

113. According to a 2018 update from the Bureau of Justice Statistics, which tracked 400,000 prisoners released in 2005: 44% were arrested within a year of release, 68% were arrested within three years, 79% within 6 years, and 83% arrested within nine years of release.<sup>124</sup> Further, of the 400,000 prisoners in the study, there was an average of 5 arrests per individual. *Id.* This problem with recidivism, or the tendency for convicted offenders to reoffend, has led to widespread reflection from American legal scholars, social commentators, and psychologists regarding the role of the penological system and how it can better achieve those goals. *Id.*

114. Specifically, the ability of prison sentences to promote specific or individual deterrence has been called into question. Specific deterrence as a theory of penological punishment is the idea that criminal offenders who are incarcerated will be deterred from reoffending in the future. Although specific deterrence has long been proffered as a justification for modern prison systems, there is little evidence that incarceration reduces recidivism. In fact, there is some evidence that suggests that incarceration has a criminogenic effect in that it may increase the risk of future offense.

115. For instance, a comprehensive research survey in 2022 found that relevant studies indicate (with only two exceptions) that postconviction imprisonment either has no effect on the likelihood of reoffence or increases that chance.<sup>125</sup> In their cumulative review of the relationship between incarceration and deterrence, Loeffler and Nagin reviewed regression analyses implementing both instrumental variable and regression continuity models. *Id.*

116. The instrumental variable models, which are designed to eliminate the effects of particular Judges sentencing habits when determining the relationship between incarceration and recidivism, indicate that incarceration likely has either a criminogenic effect or no effect at all on

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<sup>124</sup> See Bureau of Justice Statistics, *2018 Update on Prisoner Recidivism: A 9-Year Follow-up Period (2005–2014)*, U.S. DEP’T OF JUSTICE (May 2018), <https://bjs.ojp.gov/content/pub/pdf/18upr9yfup0514.pdf>.

<sup>125</sup> See Charles E. Loeffler & Daniel S. Nagin, *The Impact of Incarceration on Recidivism*, 5 ANN. REV. CRIMINOLOGY 133 (2022), [http://www.antonioacasella.eu/nume/Loeffler\\_Nagin\\_recidivism\\_2022.pdf](http://www.antonioacasella.eu/nume/Loeffler_Nagin_recidivism_2022.pdf).



recidivism. Specifically, the three most robust Judge-instrumental variable models found that: (1) incarceration had no discernable effect on recidivism within the four years after release, (2) incarceration had no statistically significant effect on recidivism rates at 1, 3, 5, and 10 year intervals, and (3) that incarcerated individuals are 4% more likely to be rearrested upon release than individuals who are not incarcerated. *Id.*<sup>126</sup>

117. Regression discontinuity models look at similarly situated individuals based on sentencing guidelines and estimate the effect of incarceration on future recidivism by measuring the difference in outcomes between those similarly situated individuals who are sentenced and those who are not. In their cumulative review, Loeffler and Nagin conclude that the relevant regression discontinuity studies suggest that incarceration does not have a statistically significant impact on future recidivism.<sup>127</sup>

118. Additionally, studies have found that there is a positive correlation between pretrial incarceration and future recidivism among juveniles.<sup>128</sup>

119. Although research indicates that incarceration does not generally reduce future recidivism across the United States, and may even increase the probability of re-offense, Hawaii's Opportunity Probation with Enforcement ("HOPE") program has achieved strong results in promoting specific deterrence for high-risk offenders.<sup>129</sup> For instance, one study found that only 7% of HOPE participants lost probation or returned to prison within a year of release

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<sup>126</sup> See Green and Wink (2010), Nagin and Snodgrass (2013), and Mueller Smith (2015).

<sup>127</sup> See Charles E. Loeffler & Daniel S. Nagin, *The Impact of Incarceration on Recidivism*, 5 ANN. REV. CRIMINOLOGY 133 (2022), [http://www.antonioacasella.eu/nume/Loeffler\\_Nagin\\_recidivism\\_2022.pdf](http://www.antonioacasella.eu/nume/Loeffler_Nagin_recidivism_2022.pdf); Ojmarrh Mitchell, John C. Cochran, Daniel P. Mears & William D. Bales, *Examining Prison Effects on Recidivism: A Regression Discontinuity Approach*, 34 JUST. Q. 571 (2016), <https://repository.lib.fsu.edu/islandora/object/fsu%3A628474>; Celesta Franco, David J. Harding, Shawn D. Bushway & Jeffrey D. Morenoff, *Failing to Follow the Rules: Can Imprisonment Lead to More Imprisonment Without More Actual Crime?*, NHH NORWEGIAN SCHOOL OF ECONOMICS (2022), <https://openaccess.nhh.no/nhh-xmlui/bitstream/handle/11250/2984383/DP%2003%20Revised.pdf?sequence=5&isAllowed=y>.

<sup>128</sup> See Steven C. Walker & Jerald R. Herting, *The Impact of Pretrial Juvenile Detention on 12-Month Recidivism: A Matched Comparison Study*, 66 CRIME & DELINQ. 313 (2020), [https://www.researchgate.net/publication/341912195\\_The\\_Impact\\_of\\_Pretial\\_Juvenile\\_Detention\\_on\\_12-Month\\_Recidivism\\_A\\_Matched\\_Comparison\\_Study](https://www.researchgate.net/publication/341912195_The_Impact_of_Pretial_Juvenile_Detention_on_12-Month_Recidivism_A_Matched_Comparison_Study).

<sup>129</sup> See David Roodman, *The Impacts of Incarceration on Crime*, arXiv:2007.10268 (Sept. 2020), <https://arxiv.org/abs/2007.10268>.

compared to 15% for individuals not enrolled. *Id.* Additionally, only 13% of HOPE participants returned to prison within 76 months, compared to 27% of nonparticipants. *Id.* The program implements frequent mandatory drug testing and short but certain additional prison sentences for noncompliance. *Id.* The success of HOPE reinforces the longstanding theory that increasing certainty of punishment has a more potent deterrent effect than increasing the severity of punishment. *Id.*

120. HOPE replications have been trialed in several jurisdictions on the US mainland, namely Arkansas, Massachusetts, Oregon, and Texas. *Id.* Though not as successful as in Hawaii, there was still a statistically significant deterrence effect, indicating that “certainty and swiftness” of incarceration following a violation strengthens any deterrence effect. It is important to note that the swift and certain convictions on which HOPE relies are not possible for most offenses. Specifically, drug use is highly detectable with mandatory testing. Most crimes, however, go undetected.<sup>130</sup> Accordingly, programs modeled on HOPE may be limited to probation and drug-based offenses.

121. In conclusion, swift and highly certain punishment seemingly has a strong deterrent effect, but generally, incarceration has either no effect on future recidivism or is mildly criminogenic.<sup>131</sup> It is important to note, however, that the practical constraints in developing deterrent policy, such as new research or practices comparing incarceration to other techniques, would require the release of felony offenders into society, which raises concerns, especially for victims of violent offenders.<sup>132</sup> Also, statistical problems stemming from limitations to accessible data limit the conclusions of many studies.<sup>133</sup>

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<sup>130</sup> See Jennifer E. Copp, *The Impact of Incarceration on the Risk of Violent Recidivism*, 103 MARQ. L. REV. 775 (2020).

<sup>131</sup> See Roodman, *supra* note 129; Charles E. Loeffler & Daniel S. Nagin, *The Impact of Incarceration on Recidivism*, 5 ANN. REV. CRIMINOLOGY 133 (2022); Copp, *supra* note 130.

<sup>132</sup> See Copp, *supra* note 130.

<sup>133</sup> See Roodman, *supra* note 129.

**EXHIBIT “G”**  
**CLOSING ARGUMENT BY DEFENSE COUNSEL ON USE OF AI**  
**JUROR**<sup>134</sup>

*Ladies and gentlemen of the Court,*

We stand today at the edge of a precipice. The question before us is not whether machines can calculate. They can. The question is whether calculation alone is enough to call something *justice*. For centuries, the jury has been the heartbeat of our democracy. Twelve citizens — fallible, diverse, flawed — brought together not because they are perfect, but because they are *human*. They bring their lives, their experiences, their consciences into the room. They bring the community’s voice to the law.

Now, it is suggested that we entrust this sacred task to algorithms — fast, precise, efficient. But I ask you: what is the value of efficiency if it strips away legitimacy? What comfort is it to the accused to know that he has been judged not by his peers, but by machines that cannot look him in the eye, cannot sense his remorse, cannot understand the weight of a single human tear?

Yes, artificial intelligence can weigh evidence. But only humans can weigh mercy. Yes, algorithms can find patterns. But only humans can feel the texture of pain, the shadow of intent, the fragile spark of redemption. A jury is not just a processor of facts. It is a *ritual of recognition*. It is society saying to the accused: *You are one of us, and we will judge you as we would want to be judged*. Strip that away, and trials become calculations. Strip that away, and justice becomes a verdict without a conscience.

I do not fear AI in the jury room. Let it assist, let it illuminate, let it remind us of the facts we might forget. But let us never forget this: justice requires humans. Because justice is not only about what is right under law. It is about what is right for us as a community, as a people, as a fragile species still learning how to be just.

And so I ask you — not as machines, but as fellow human beings — preserve the jury as a human institution, aided by technology but never replaced by it. For if we surrender our right to judge one another, we may find that one day we no longer recognize the justice we receive.

*Thank you.*

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<sup>134</sup> This Closing Argument was prepared using ChatGPT 5.

**EXHIBIT “H”**  
**CLOSING ARGUMENT BY PROSECUTION ON USE OF AI JUROR**<sup>135</sup>

*Ladies and gentlemen of the jury—and esteemed AI juror,*

We stand here in the year 2143, in a courtroom transformed by the evolution of justice. The crime before you is not in dispute: the evidence—collected through biometric tracers, verified by quantum-chain authentication, and corroborated by human testimony—speaks for itself. What remains, however, is your solemn duty: to weigh guilt or innocence not with prejudice, but with clarity, fairness, and fidelity to truth.

In this moment, I ask you not only to decide this case but also to embrace the progress of justice itself. For among you sits not only human jurors, heirs to centuries of legal tradition, but also an artificial intelligence—a juror whose presence has been contested.

Let me be clear: the inclusion of an AI in this jury is not a departure from justice. It is an evolution of it. The law has always sought impartiality, balance, and reason. We have disqualified jurors who were biased, who could not be fair, or who let emotions cloud their judgment. And so I ask: what is more impartial than a system that knows neither fear nor favor, neither hatred nor favoritism?

Our AI juror does not replace you—it complements you. It brings a memory that never forgets, logic that never falters, and algorithms that can recognize patterns of deception invisible to the human eye. But equally important, it has been trained—under human oversight—to respect the moral weight of justice, to value fairness, to give meaning to the word *reasonable doubt*.

Some may argue that justice is human, and only humans can understand suffering. But remember this: our laws were not written merely to echo human sentiment—they were written to protect truth, fairness, and order. The AI does not feel pain, no. But neither does it feel prejudice. And is that not, at its heart, the ideal of a juror? As you retire to deliberate, remember that this jury is stronger *because* it is both human and artificial. Humanity brings empathy; AI brings consistency. Together, they ensure a verdict that is not only lawful, but just.

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<sup>135</sup> This Closing Argument was prepared using ChatGPT 5.

The defendant committed this crime. The evidence proves it beyond reasonable doubt. The presence of our AI juror does not weaken justice—it strengthens it. Let your verdict speak not only for guilt in this case, but for the courage to let justice evolve. *We ask you: find the defendant guilty.*

**EXHIBIT “I”**  
**Marry Menot’s Victim Impact Statement: Reclaiming My Voice, Years**  
**Later**<sup>136</sup>

My name is *Marry Menot*, and I stand before you today not as the child who suffered in silence, but as the woman who has carried that burden for over 17 years. It has taken me many years to find my voice, to untangle the shame and fear that wrapped themselves around me like a shroud. I was just a girl when the rape happened, a young girl whose innocence was stolen, whose world was irrevocably broken.

The passage of time does not heal all wounds; it merely buries them deeper, making them harder to unearth. For years, I lived in a shadow, haunted by memories that flickered like a broken film reel in the darkest corners of my mind. The world felt unsafe, and I felt inherently damaged. I learned to build walls, to distrust, to withdraw. My childhood, my adolescence, my early adulthood – they were all shaped by the trauma I endured. I often wondered if I would ever feel whole, ever feel truly safe in my own skin.

This incident wasn’t just a moment in time; it was a ripple effect that touched every aspect of my life. It affected my relationships, my self-worth, my ability to trust, even the way I perceived myself. There was a constant hum of anxiety, a hyper-awareness that made every new interaction a potential threat. I was a child who learned too early the dark capabilities of another human being.

Speaking these words now, after so long, is not easy. It reopens wounds I’ve painstakingly tried to close. But I speak because the silence became too heavy. I speak because what happened to me was not my fault. I speak because I refuse to let that young, scared girl remain unheard any longer. I speak for her, and for any others who have endured similar pain.

I ask that you understand the profound and lasting damage that this act inflicted. It stole a piece of me that can never be returned, but it will not define me. My hope is that by finally telling my truth, I can begin to reclaim my story, to find a measure of peace, and perhaps, to help ensure that no other child has to carry such a heavy secret for so many years.

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<sup>136</sup> This Closing Argument was prepared using Gemini.

**EXHIBIT “J”**  
**Written Statement of *Dart Raper* Seeking Alternative Sentencing**<sup>137</sup>

*Your Honor,*

I stand here convicted, and I do not dispute your verdict. I broke the law, I hurt people, and I betrayed the trust of my community. For that, I accept responsibility. But I ask for something more than punishment — I ask for the chance to change.

The prison system can lock me away, but it cannot reach into the part of me that failed. The violence, the impulses, the behaviors that drove me here — they live in my body, in my brain, in the patterns I could not control. Gene-editing technology offers something prison never could: a chance to rewrite those patterns, to take away the capacity for harm that brought me before you.

I am not asking for freedom without consequence. I am asking for accountability that actually protects society. I would submit myself fully to medical oversight, to strict monitoring, and to the lifelong transparency this sentence would require. In exchange, the people I once endangered would be safer not just because I was removed, but because I was transformed.

This technology gives me the chance not just to serve time, but to make sure that time leaves me — and the world — better than before. Let me prove that redemption can be more than a word.

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<sup>137</sup> This Closing Argument was prepared using ChatGPT 5.