COMPUTER GENERATED VIDEO GRAPHICS: HOW TO AUTHENTICATE THE EVIDENCE

- By -

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Computer generated video graphics presents compelling imagery for the jury at a trial. The video can illustrate testimony of an expert or eyewitness. A jury can better understand how an accident occurred by viewing a computer re-enactment or simulation of the accident.

Computer animation is useful for explaining to the jury scientific, medical, and technical matters. A trial attorney can use graphics to present arguments and show more powerfully than testimony could ever show a theory of liability or defense or damages.

Computer generated exhibits come in four categories: (i) static images such as tables, graphs, diagrams, and maps projected onto a screen, computer panel, or monitor by a computer display system, (ii) animation that is not intended to recreate or simulate an event, (ii) recreations or simulations that are detailed and realistic and allow the jury to view animation of the creator's opinion about the nature of the event, and (iv) computer models that are compilation of formulae and expressions integrated into computer programs.[1]

Admitting computer generated video graphics into evidence can be a formidable task. Grounds for excluding computer simulations and animations include relevancy, reliability, lack of authentication, hearsay, lack of foundation when the software developer has not testified, and undue prejudice.[2]

A state may have a specific statute addressing the elements of proof for admission into evidence of computer generated evidence. General rules of evidence, including the federal rules of evidence, also should be consulted for necessary steps for authentication of video imagery.

Computer Graphics Are Not Equivalent To Still Pictures

Computer generated video graphics can be demonstrative ("illustrative") or substantive ("real") evidence. A demonstrative computer generated video graphic usually consists of still images or animation that illustrates a witness' opinions and testimony. A substantive computer graphic "usually consists of computer simulations or recreations, which are prepared by experts and which are based on mathematical models in order to recreate or reconstruct an incident or event".[3]

A pedagogical device such as a drawing is used as an aid to the jury in cases involving complicated or voluminous evidence.[4] A visual aid is a model, diagram, or chart used by a witness to illustrate testimony and facilitate jury understanding.[5]

An animation used to illustrate a witness' testimony, by recreating a scene or process, is demonstrative evidence. Video animation that explains or summarizes other evidence and testimony is demonstrative evidence.[6]

Computer generated animation that illustrates a witness' testimony can be admitted into evidence if it is a fair and accurate representation of the scene sought to be depicted.[7] Demonstrative evidence can be admitted only for use in a courtroom to explain and illustrate testimony, or admitted as an exhibit for the jury to examine and consider during deliberations.[8] A judge can help the jury understand that a graphic is illustrative by charging the jury that the animation is not meant to be a recreation of an event or accident but is simply a set of pictures to help the jury understand the witness' opinion as to what happened.[9]

A computer generated diagram, if merely illustrative of a witness' testimony, is admissible without a need for showing how the diagram was prepared, *e.g.*, how the data was gathered or inputted into the computer. However, if the diagram purports to contain exact measurements or drawn to scale, then testimony as to the collection and input of data into the computer is needed to admit the diagram into evidence.[10]

A substantive computer animation, by contrast, depicts a computer expert's opinion of events or conditions. Foundational requirements used for other evidence must be met before the animation will be introduced.[11]

A substantive computer animation or simulation is not equivalent to a chart or diagram.[12] An animation that is testimonial in nature, and whose contents are susceptible of being accepted by the jury as substantive evidence, is not a mere visual aid used to illustrate testimony or facilitate jury understanding.[13]

Substantive animation requires a foundation that is more detailed than the foundation needed for a mere visual aid.[14] A simulation, being based upon scientific principles and data entered into a computer programmed to analyze and draw conclusions from the data, is admissible only upon proof of the validity of the principles and data.[15]

A Proper Foundation Must Be Established

The offering party must lay a proper foundation for admission of the animation into evidence. The graphics should be relevant, not subject to exclusion as prejudicial, and authenticated by testimony from a person with first hand knowledge of the graphics' subject matter that the graphics are fair and accurate representations of the evidence to which the graphics relate.[16]

Animation is admissible as demonstrative evidence when shown to be authentic, relevant, a fair and accurate representation of the evidence to which it relates, and has probative value substantially outweighing any danger of unfair prejudice, confusion, or misleading of the jury.[17]

The offering party should present and qualify an expert in the field of accident investigation and reconstruction. The proponent of computer generated evidence should authenticate the animation by describing the system and showing that the program produced an accurate result. The animation must also be relevant, probative, and nearly identical to the material facts of the event at issue.[18]

The proponent may be required to show that "(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".[19]

The Animation Technique: Must It Be Generally Accepted?

Substantial disagreement among parties may exist as to the reliability of a computer simulation. The trial judge will decide if a simulation technique has achieved sufficient reliability and acceptance to warrant its use at trial. The court should conduct a hearing outside the jury's presence to decide if the tests conducted and results ascribed to the tests meet prescribed standards for admissibility.[20]

The expert for the proponent should testify about the testing of the program that shows the program to be valid. The expert can explain the development and use of the simulation program and the process of putting data and equations into computers to reach a simulation of events. Physical laws and equations used in the program, the case-specific data incorporated into the program, and the impracticability of exact re-enactment should be described by the expert.[21]

The expert should address peer reviewing of the computer simulation methodology. The known or potential error rate and general acceptance in the scientific community also should be identified.[22]

A sufficient foundation may be laid where the expert testifies as to the name of the program he or she used, the program offers an accurate depiction of the events at issue, and the expert used known facts and reliable estimates of variables to generate the simulation.[23]

The judge does not have to determine if all of the complex, underlying coding is complete and accurate. He or she only is required to determine if the program is generally accepted by the appropriate community of scientists, since it is the scientists themselves who are most qualified to assess the validity of a computer simulation. The court can accomplish its task by considering depositions and affidavits from experts and people involved in performing the simulation, articles, and computer evidence generally.[24]

The court may take judicial notice of the ability of a properly programmed computer to perform mathematical computations. The court may also take judicial notice of underlying principles of physics used in the animation. The judge must decide if experts are in general agreement that the program properly applies the scientific principles to the accident or event at issue.[25]

Some courts avoid the whole issue of whether the animation is generally accepted in the relevant scientific community by treating computer animation as demonstrative rather than scientific evidence. Those courts consider treatment of the animation as scientific evidence to be a needless complication because it confuses "the methodology of producing demonstrative evidence with its end result."[26]

Those courts "distinguish a computer animation and a computer simulation. An animation is used to illustrate a scene or process, and properly is viewed as demonstrative evidence. A simulation is based on scientific or physical principles and data entered into a computer, which is programmed to analyze the data and draw a conclusion from it. Courts require proof of the validity of the scientific principles and data before admitting a simulation as evidence."[27]

Who Can Authenticate Computer Generated Animation?

Admission of computer generated animation requires that a witness with sufficient knowledge and expertise in computers testify about the process used to generate the animation.[28]

> …considering the reliability problems arising from computer-generated exhibits and the processes by which they are created… there must be 'testimony by a person with some degree of computer expertise, who has sufficient knowledge to be examined and cross-examined about the functioning of the computer'… what is required is testimony from a witness who possesses sufficient knowledge of the technology used to create the exhibits…[29]

Testimony from an expert who prepared the underlying data and the computer technician who used that data to create the animation is proper for authentication.[30]

The authenticating witness does not have to be the actual programmer of the animation software.[31] There is no general requirement that the testifying expert himself or herself physically and personally run the computer or feed the data into the computer.[32] The witness need only have some degree of computer expertise and have sufficient knowledge to be examined and cross-examined about the reliability of the procedures involved.[33]

The less the offering party offers about the circumstances surrounding creation of video animation, the more likely the court will rule that a proper foundation for the animation's introduction into evidence has not been laid. Assurances from a witness who did not make the animation and has no knowledge as to the animation's production may be insufficient to persuade the court that the animation is an accurate reproduction of what it purports to demonstrate.[34]

A witness who has no idea who made the animation or why it was made may be incompetent to lay the foundation, especially if the animation is testimonial in nature, contains irrelevant or speculative information, and could lead the jury to accepting it as substantive evidence.[35]

What Must The Expert Explain?

Computer generated animation requires a more detailed foundation than the foundation required for mere photographs. It is not sufficient for the authenticating witness to state that the animation is a faithful representation of the subject matter – although that testimony is also required.[36]

The expert will explain what data and information has been fed into a computer by means of a software program to create the graphic presentation. The proponent must also show that the re-enactment fairly and accurately reflects oral testimony offered and the animation would be helpful to the jury's understanding of the issue.[37]

Animation can be authenticated through evidence that (a) the computer equipment is accepted in the field as standard and competent and is in good working order, (b) qualified computer operators were employed, (c) proper procedures were followed as to input and output of information with the input and underlying equations being sufficiently complete and accurate, (d) a reliable software program was used, (e) the equipment was programmed and operated correctly, and (f) the animation is identified as the output in question.[38]

The relevant technical or scientific community's use or reliance upon the software at issue may be sufficient to show the accuracy of the software.[39] The court can take steps to protect proprietary aspects of the software programs.[40]

Oftentimes the court will not require proof that the computer is functioning properly, unless another party affirmatively challenges the proponent's claim that the computer is functioning properly. If the opposing party does not *voir dire* the expert on that issue, then the court may ignore the absence of evidence that the computer was functioning properly.[41]

The authenticating witness must confirm that the animation is a fair and accurate representation of what it purports to represent. The witness should testify that there is no material distortion of pertinent objects shown on the animation.[42]

The facts or data on which the expert relies in forming an opinion expressed by computer animation must be of a type reasonably relied upon by experts in the pertinent field. The facts or data need not themselves be admissible in evidence. The reasonableness of the expert's reliance upon the facts and data may be questioned in cross-examination.[43] However, as discussed below, this professional reliability exception to the hearsay rule cannot be used as a ruse to admit otherwise incompetent proof.

The trial court will weigh and balance these factors. After giving the opposing party an opportunity to *voir dire* on the proposed animation, the judge will decide if the factors support admissibility of the animation.[44]

Hearsay Problems With Animations

Hearsay problems may arise if the witness authenticating the computer generated video graphics does not have personal knowledge of the subject matter. Unlike a photograph or drawing, which can be created by a person with first-hand knowledge, animation is usually prepared by experts who are strangers to the events at issue.

Animation is typically created from information provided to the animator by witnesses or by the parties' attorneys. The animator lacks personal knowledge of the relevant parts of the subject matter of the animation. The animator's testimony regarding the correctness of facts depicted in the animation would be inadmissible hearsay. Witnesses who have first-hand knowledge must testify as to the underlying facts before the animation can be admitted into evidence.[45]

The facts and data upon which the animation is based must be in evidence before the animation can itself be admitted. The animation cannot be used as a conduit for admission of otherwise inadmissible evidence or testimony.

Some of the information and data upon which animation is based is admissible under hearsay exceptions. Party admissions, present sense impressions, excited utterances, statements for purpose of medical diagnosis or treatment, business records, and public records may fall within exceptions to the hearsay rule.[46]

Animation That Is Duplicative Of Better Evidence

Animation can be used to acquaint the jury with the operational functions of a device, machine, or piece of equipment. Viewing of animation may be inappropriate if counsel has available for inspection and demonstration at the courthouse the actual object that plaintiff says caused the injuries and damages.[47]

Minimizing Prejudice From Computer Animation

Animation, like any video prepared exclusively for trial, has a high potential for prejudice. Animation has the potential to mislead by inaccurately portraying facts, creating lasting impressions that override other testimony or evidence, and convey editorial distortions by the preparer of the animation.[48]

Admission of computer animation that has a real capacity to mislead the jury can be prejudical error. Such imagery, if unduly influential, potentially confusing, susceptible of being accepted as substantive evidence, or capable of producing an unjust result, jeopardizes the verdict that the proponent of the animation seeks.[49]

Accident-recreation animation must portray circumstances similar to the circumstances extant at the time of plaintiff's accident. Animation that portrays a scene different than the facts as they existed at the time of the accident will be excluded from evidence.[50] Animation containing irrelevant subject material and conjecture on issues to be decided by the jury should not be played to the jury.[51]

The judge can minimize any prejudice resulting from admission of the video by giving opposing counsel an opportunity to conduct *voir dire* regarding the video, instructing the jury as to the limited purpose for which the video is being admitted, and warning the jury not to consider the video for any other purpose.[52] The court should caution the jury that the animation represents only a recreation of the proponent's version of the event, should not be viewed as

the absolute truth, and like all evidence may be accepted or rejected in whole or in part.[53]

Animation that does not reflect conditions substantially similar to those existing at the time of the accident can be admitted for a limited purpose, provided the jurors understand they are not seeing a recreation but instead are seeing an illustration of a witness' interpretation of evidence. The judge can give a limiting instruction to the jury such as the following:

> This animation is not meant to be a recreation of the events, but rather it consists of a computer picture to help you understand *[name of witness']* opinion. The video is not meant to be an exact recreation of what happened *[during the accident or other description of the event]*, but rather it represents *[name of witness']* evaluation of the evidence presented.

The jury should understand that the animation is designed merely to illustrate the witness' version of the events and to show how that version is consistent with the evidence.[54]

Accident Reconstruction Animation: Special Considerations

Reconstruction of an accident may be the topic of a computer generated animation. Conditions on the animation must be substantially similar to conditions encountered by the parties at the time of the accident. In all pertinent respects the animation should accurately reflect what was experienced by the parties.[55]

The animation "need not be exact in every detail, but the important elements must be identical or very similar to the scene as described in other testimony and evidence presented by the animation's proponent in order to constitute a fair and accurate representation". Details such as distance, terrain, relative speed, path of travel, and surroundings must be technically correct in an animation reconstructing an accident.[56]

The expert should testify about the development, testing, error rate, acceptance of the program by other experts, and peer review of the computer simulation and methodology.[57]

The jury must be informed that video tape that an expert relied upon as a reference source is designed only to assist the jury in understanding a witness' opinion, and is not intended as substantive evidence.[58] It may be error for the judge to fail to instruct the jury that computer generated accident-reenactment animation is admitted for the limited purpose of illustrating the witness' opinion and not for showing what actually caused an accident. Absent such an instruction, the jury may "confuse art with reality".[59]

Video simulation that has too many variables between the tests depicted in the video and the evidence presented at trial is not probative.[60] Extreme slow motion may give the improper impression of much less movement and thus less impact than would be the case if the video was at normal speed.[61] The judge will refuse to admit into evidence animation that seeks to recreate the accident but exaggerates or misleads the jury as to the conditions facing the parties when the accident occurred.[62]

[1] *Verizon Directories Corp. v. Yellow Book USA, Inc.*, 331 F.Supp.2d 136 (E.D.N.Y. 2004).

[2] *Robinson v. Missouri Pacific Railroad Co.*, 16 F.3d 1093 (10th Cir. 1994).

[3] *Gosser v. Commonwealth*, 31 S.W.3d 897 (Ky, 2000); *Datskow v. Teledyne*, 826 F.Supp. 677 (W.D.N.Y. 1993)(The difference between "recreating an accident and re-creating an expert's theory of the accident… is the difference between a jury believing that they are seeing a repeat of the actual event and a jury understanding that they are seeing an illustration of someone else's *opinion* of what happened"; emphasis original).

[4] *Bledsoe v. Salt River Valley Users Assoc.*, 179 Ariz. 469, 880 P.2d 689 (1994).

[5] *Macaluso v. Pleskin*, 329 N.J.Super. 346, 747 A.2d 830 (2000).

[6] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000).

[7] *Gosser v. Commonwealth,* 31 S.W.3d 897 (Ky. 2000); *but see, Verizon Directories Corp. v. Yellow Book USA, Inc.*, 331 F.Supp.2d 136 (E.D.N.Y. 2004).

[8] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000).

[9] *Datskow v. Teledyne*, 826 F.Supp. 677 (W.D.N.Y. 1993)(Products liability action against an airplane engine manufacturer; videotaped computer-generated animation that illustrated plaintiff's expert's theory of where the fire began inside the engine and how it spread was used by plaintiff).

[10] *Gosser v. Commonwealth*, 31 S.W.3d 897 (Ky, 2000).

[11] *Bledsoe v. Salt River Valley Users Assoc.*, 179 Ariz. 469, 880 P.2d 689 (1994)(Bicyclist accident case; videotaped computer simulation of the accident could not be shown to the jury during closing argument absent laying of an appropriate foundation).

[12] *Bledsoe v. Salt River Valley Users Assoc.*, 179 Ariz. 469, 880 P.2d 689 (1994).

[13] *Macaluso v. Pleskin*, 329 N.J.Super. 346, 747 A.2d 830 (2000)(A video entitled "Soft Tissue Animation" was more than a mere visual aid, as the video was a compilation of drawings and animation accompanied by a voice describing what is presented visually).

[14] *Macaluso v. Pleskin*, 329 N.J.Super. 346, 747 A.2d 830 (2000)(A video entitled "Soft Tissue Animation" was more than a mere visual aid, as the video was a

compilation of drawings and animation accompanied by a voice describing what is presented visually).

[15] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000).

[16] *Gosser v. Commonwealth*, 31 S.W.3d 897 (Ky, 2000); *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000).

[17] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000).

[18] *Sommervold v. Grevlos*, 518 N.W.2d 733 (S.D., 1994)(Action between two bicyclists for personal injuries; computer animation illustrating accident reconstruction expert's testimony was excluded, as the animation showed the wrong location of the accident, assumed speeds that were not reflected by the evidence, incorrectly depicted streetlight casts, and inaccurately depicted injuries).

[19] *Bledsoe v. Salt River Valley Users Assoc.*, 179 Ariz. 469, 880 P.2d 689 (1994)Videotaped computer simulation of plaintiff bicyclist's accident).

[20] *Schaeffer v. General Motors Corp.*, 372 Mass. 171, 360 N.E.2d 1062 (1977).

[21] *Livingston v. Isuzu Motors, Ltd.*, 910 F.Supp. 1473 (D.Mont. 1995)(Vehicle rollover accident; computer simulation of accident was admitted into evidence as the expert who developed the simulation for the case testified about the development and use of the simulation, the process of inputting data such as physics equations, vehicle dimensions, road conditions, and vehicle movements to reach a simulation of the events involved in the subject accident, and described the contents of the computer program).

[22] *Livingston v. Isuzu Motors, Ltd.*, 910 F.Supp. 1473 (D.Mont. 1995)(Vehicle rollover accident; computer simulation of accident was admitted as the expert who developed the simulation for the case testified that the peer review of the methodology included lectures and presentations to members of the scientific community, including automobile manufacturers and engineers, stated what scientific methods are available and most reliable in accident simulation, identified peers who have worked with him and evaluated his work, and testified that he presented his theories both in publications and lectures).

[23] *Deffinbaugh v. Ohio Turnpike Comm.*, 67 Ohio App.3d 692, 588 N.E.2d 189 (1990)(The expert testified as to the program's name and that the program accurately described motion of the vehicle, and the expert used known facts and a reliable estimate of speed to generate the simulation).

[24] *Commercial Union Ins. Co. v. Boston Edison Co.*, 412 Mass. 545, 591 N.E.2d 165 (1992)(Customers sued utility seeking compensation for overcharges resulting from a faulty steam motor; a computer simulation to show calculations of actual steam usage was admitted into evidence, even though the judge did not have access to the thousands of pages of coding of the program).

[25] *Starr v. Campos*, 134 Ariz. 254, 655 P.2d 794 (1982)(Automobile collision case; evidence derived from a computerized analysis of the accident was at issue).

[26] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000)(Automobile accident case; computer generated video animation purporting to show how the accident occurred was at issue).

[27] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000)(Automobile accident case; computer generated video animation purporting to show how the accident occurred was at issue).

[28] *State of Connecticut v. Swinton*, 268 Conn. 781, 847 A.2d 921 (2004).

[29] *Rodd v. Raritan Radiologic Associates, Inc.*, 373 N.J.Super. 154, 860 A.2d 1003 (2004)(Medical malpractice action; plaintiff's testifying expert did not create or direct the presentation of computerized imagery of decedent's x-ray films).

[30] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000)(Automobile accident case; computer generated video animation purporting to show how the accident occurred was at issue).

[31] *State of Connecticut v. Swinton*, 268 Conn. 781, 847 A.2d 921 (2004).

[32] *Bray v. Bi-State Development Corp.*, 949 S.W.2d 93 (Mo. Co.App. 1997).

[33] *State of Connecticut v. Swinton*, 268 Conn. 781, 847 A.2d 921 (2004).

[34] *Suanez v. Egeland*, 330 N.J.Super. 190, 749 A.2d 372 (2000)(Automobile accident case; a videotape of a car crash dummy in an automobile being struck at five miles per hour was inadmissible, even though defendant's bio-engineering expert testified that he relied on that videotape in formulating his opinion; the tape was never moved into evidence, and was supposed to only help the jury understand the expert's opinion).

[35] *Macaluso v. Pleskin*, 329 N.J.Super. 346, 747 A.2d 830 (2000)(Personal injury action; video consisting of a compilation of drawings and animation concerning soft tissue injuries, accompanied by voiceover describing what was presented visually, was not admissible as it contained irrelevant material and speculated as

to possible consequences of hypothetical injuries, and the only foundation laid was the testimony of plaintiff's treating chiropractor who had no knowledge of the production of the video).

[36] *Rodd v. Raritan Radiologic Associates, Inc.*, 373 N.J.Super. 154, 860 A.2d 1003 (2004)(Medical malpractice action).

[37] *People v. McHugh*, 124 Misc.2d 559, 476 N.Y.S.2d 721 (Sup. Bronx, 1984)(Defendant in a manslaughter case could introduce a computer re-enactment of a fatal car crash to explain that neither intoxication nor speeding but instead weather conditions caused his car to leave the roadway).

[38] *State of Connecticut v. Swinton*, 268 Conn. 781, 847 A.2d 921 (2004); *see also*, *Bray v. Bi-State Development Corp.*, 949 S.W.2d 93 (Mo. Co.App. 1997)(An exhibit produced with a computer and graphically depicting lighting conditions where plaintiff fell was admissible, an expert testified that the computer program contained data allowing production of a printout accurately predicting light levels based upon information fed into the program, engineers relied upon the program to make lighting decisions, lighting manufacturers used the software to produce printouts of light intensity levels, he [the expert] was familiar with what the software did with the data supplied to it and knew how to manually calculate the same results, and he verified the results with actual light readings).

[39] *Bray v. Bi-State Development Corp.*, 949 S.W.2d 93 (Mo. Co.App. 1997)(A color computer plot graphically depicting the intensity of light levels on the garage floor where plaintiff fell, as predicted by design software for a situation in which the alternating lights are off, was admissible).

[40] *Perma Research & Development v. Singer Co.*, 542 F.2d 111 (2d Cir. 1976).

[41] *Bray v. Bi-State Development Corp.*, 949 S.W.2d 93 (Mo. Co.App. 1997)(The objecting party did not challenge the functioning of the hardware at trial or inquire about it on *voir dire* of the expert, so the proponent was not obliged to show that that the hardware was tested for defects and the capacity, capability and reliability of the equipment was checked).

[42] *English v. State*, 205 Ga.App. 599, 422 S.E.2d 924 (1992)(Criminal conviction; videotape of cocaine sales was admitted even though all irrelevant material was deleted and frames showing an image of the seller were frozen and computer enhanced).

[43] *Pierce v. State*, 718 S.2d 806 (Fla. App., 4th Dist. 1997)(Vehicular homicide case; computer animation was admitted solely to illustrate detective's opinion of how the accident occurred; the court did not apply standards applicable to computer animation used as substantive evidence).

[44] *State of Connecticut v. Swinton*, 268 Conn. 781, 847 A.2d 921 (2004).

[45] *Gosser v. Commonwealth*, 31 S.W.3d 897 (Ky. 2000)(Criminal trial; error in admitting computer diagrams through testimony of a detective, who testified that the locations of persons and items depicted in the diagrams were supplied to him by witnesses, was harmless, as the prosecution called witnesses who were present at the time of the crime and who referred to the diagrams).

[46] *See, e.g.,* Fed.R.Evid. §§801, 803.

[47] *Mercatante v. Hyster Co.*, 159 A.D.2d 492, 552 N.Y.S.2d 364 (2d Dep't 1990)(Videotape showing the operational capabilities of a jack truck was improperly admitted into evidence where the actual jack truck involved in the lawsuit was available for inspection and demonstration).

[48] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000).

[49] *Rodd v. Raritan Radiologic Associates, Inc.*, 373 N.J.Super. 154, 860 A.2d 1003 (2004)(Medical malpractice action; plaintiff digitally scanned select portions of decedent's mammograms into a computer to produce super-magnified images, which were then projected onto a six-foot by eight-foot screen for the jury; the demonstration was purportedly offered to aid the jury in explaining the nature of the appearance of a malignancy in a mammogram, but was used in effect to simulate what defendant actually saw when he viewed the films using a magnifying lens, namely, clustered micro-calcifications indicative of breast cancer; the imagery may have improperly created the appearance of a "focal" cluster, rather than part of a small sample of a general phenomenon, by showing only a selective image instead of an all-inclusive picture, and could have created the appearance that the clusters were in the same locations by compressing the image; new trial ordered).

[50] *Mercatante v. Hyster Co.*, 159 A.D.2d 492, 552 N.Y.S.2d 364 (2d Dep't 1990)(Videotape showing the operational capabilities of a jack truck was improperly admitted into evidence where the video showed the operator of the truck "walking" the machine without incident, while the accident at issue occurred while plaintiff was "riding" the machine on the allegedly defective platform).

[51] *Macaluso v. Pleskin*, 329 N.J.Super. 346, 747 A.2d 830 (2000)(A video entitled "Soft Tissue Animation" should not have been played for the jury, since the video contained material not relevant to plaintiff's precise medical condition and included speculation as to possible consequences of hypothetical injuries).

[52] *People v. Yates*, 290 A.D.2d 888, 736 N.Y.S.2d 798 (3rd Dep't 2002)(Physician who treated shaken baby could present a computer-generated video showing the mechanics of "shaken baby syndrome"; the judge warned the jury not to consider the video in determining what actually happened to defendant's son).

[53] *Clark v. Cantrell*, 339 S.C. 369, 520 S.E.2d 528 (2000).

[54] *Hinkle v. City of Clarksburg*, 81 F.3d 416 (4th Cir. 1996)(Civil rights action involving excessive force by a police officer; a computer-animated videotape was admitted to illustrate the testimony of a forensic animation technologist regarding his interpretation of the evidence; the tape was consistent with the police officers' testimony).

[55] *DiRosario v. Havens*, 196 Cal.App.3d 1224, 242 Cal.Rptr. 423 (2d Dist. 1988)(Automobile accident case; a videotape recreation of the accident was properly shown to the jury).

[56] *Clark v. Cantrell*, 339 S.C. 369, 529 S.E.2d 528 (2000)(Automobile accident case; a computer generated video animation purporting to show how the accident occurred was properly excluded because it did not accurately reflect testimony of the proponent and her expert witness).

[57] *Livingston v. Isuzu Motors, Ltd.*, 910 F.Supp. 1473 (D. Mont. 1995)*.*

[58] *Suanez v. Egeland*, 330 N.J.Super. 190, 749 A.2d 372 (2000)(Automobile accident case; a videotape of a car crash dummy in an automobile being struck at five miles per hour was inadmissible, even though defendant's bio-engineering expert testified that he relied on that videotape in formulating his opinion; the tape was never moved into evidence, and was supposed to only help the jury understand the expert's opinion).

[59] *Kane v. TBTA*, 8 A.D.3d 239, 778 N.Y.S.2d 52 (2d Dep't 2004)(Vehicle accident case).

[60] *Crispin v. Volkswagenwerk AG*, 248 N.J.Super. 540, 591 A.2d 966, *certif. denied*, 126 N.J. 385, 599 A.2d 162 (1991)(Video simulation of a high-speed, rear-end automobile collision was inadmissible).

[61] *Suanez v. Egeland*, 330 N.J.Super. 190, 749 A.2d 372 (2000)(Automobile accident case; defendant's videotape of a car crash dummy in an automobile being struck at five miles per hour and shown in extreme slow motion was inadmissible; defendant's expert testified that the impact of defendant's moving vehicle was insufficient to cause plaintiff's herniated disc).

[62] *Mechanick v. Conradi*, 139 A.D.2d 857, 527 N.Y.S.2d 586 (3rd Dep't 1988)(Videotape of motorcycle accident scene was inadmissible as it did not fairly depict what the parties would have seen at the time of the accident).