

New York Practice Series - Evidence in New York State and Federal Courts  
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## Chapter

11. Real and Demonstrative Evidence  
VII. Computer-Generated GraphicsCorrelation Table References**§ 11:20. Computer-generated graphics: New York and federal**

Computer-generated graphics can produce an especially compelling form of demonstrative evidence that litigants with the necessary resources can be expected increasingly to exploit. Such evidence has been used successfully in conjunction with expert testimony. For example, an accident reconstruction specialist, after developing an opinion as to how an accident occurred, may work with a computer technician to develop an animated pictorial representation on videotape that reflects the expert's opinion.

To date, caselaw on the evidentiary use of such computer graphics is sparse. In one of the earliest reported opinions, a trial judge in New York likened computer graphics of this nature to a chart or diagram, which can be admitted regardless of whether it is "hand drawn or mechanically drawn by means of a computer."<sup>[1]</sup> The requirements for admissibility, said the court, consist of a showing that the presentation is relevant, that it "fairly and accurately reflects the oral testimony offered and that it be an aid to the jury's understanding of the issue."<sup>[2]</sup> A few years later, a federal district judge in New York similarly admitted a computer-generated animation that depicted an engineer's opinion as to where a fire inside an airplane engine began and how it spread.<sup>[3]</sup> The court explained to the jury that the computer animation was not intended to be a reenactment of the accident and that it was being admitted for the limited purpose of helping them to understand the expert's opinion.<sup>[4]</sup>

Error, however, was committed by a trial judge in Arizona who allowed one side's counsel to show a computer animation of an accident during summation without having connected the animation to any expert testimony during the trial.<sup>[5]</sup> The appellate court ruled that computer graphics representing an expert's theory as to how an event happened cannot be admitted under the guise of counsel's "summary" of the evidence; the expert must testify to her opinion, with an opportunity for cross-examination, and explain that the computer animation fairly and accurately depicts the expert's opinion.<sup>[6]</sup>

If the foregoing guidelines are followed, the use of computer-generated animations to illustrate expert testimony is likely to be readily accepted by New York state courts and federal courts. In the exercise of discretion, however, courts should be sensitive to the dangers that a jury may "confuse art with reality."<sup>[7]</sup> The matter becomes even more complex if the computer-generated animation does more than merely illustrate a theory that the expert has independently developed through her own use of models and principles of mathematics and physics. If the computer itself contributes to the expert's opinion by means of a program that accepts data, performs an analysis and predicts a result, the computer may be producing an independent form of scientific evidence. Courts in other states that have considered this issue have required a showing of the scientific reliability of the particular computer program and its output.<sup>[8]</sup> If this view were to take hold in New York, the proponent of expert testimony incorporating computer analysis would have to satisfy the *Frye* standard for the admissibility of scientific evidence.<sup>[9]</sup> In federal court, the

*Daubert* criteria would have to be met.[10]

Currently, most courts take the view that computer-generated images generally are not "evidence" and therefore do not become part of the record. Rather, they are "demonstrative" or "pedagogical" only, serving as aids that organize or illustrate testimony or documents that have been independently introduced into evidence. Judge Jack B. Weinstein, however, argues that such "demonstratives" or "pedagogicals" ought to be admissible in evidence in their own right if accurate, reliable and of assistance in understanding the evidence.[11]

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[FN1] People v. McHugh, 124 Misc. 2d 559, 560, 476 N.Y.S.2d 721, 722 (Sup 1984) (computer reenactment of car crash based on expert's analysis).

[FN2] People v. McHugh, 124 Misc. 2d 559, 560, 476 N.Y.S.2d 721, 723 (Sup 1984). See also Feaster v. New York City Transit Auth., 172 A.D.2d 284, 285, 568 N.Y.S.2d 380, 381 (1st Dep't 1991) (admissibility of computer-generated simulation of accident is in trial court's discretion).

[FN3] Datskow v. Teledyne Continental Motors Aircraft Products, a Div. of Teledyne Industries, Inc., 826 F. Supp. 677, 685-86 (W.D. N.Y. 1993).

[FN4] Datskow v. Teledyne Continental Motors Aircraft Products, a Div. of Teledyne Industries, Inc., 826 F. Supp. 677, 685 (W.D. N.Y. 1993). The opponent argued that the jury would be misled into thinking that the animation was an actual recreation of the event, as to which the necessary showing of similarity of conditions was lacking. See generally § 11:18 and § 11:19. The court, however, responded that its jury instructions had made clear that the jury was not seeing a repeat of the actual event, but rather was "seeing an illustration of someone else's *opinion* of what happened." 826 F. Supp. at 686 (emphasis in original). Since that distinction was made clear, "there is no reason for them to credit the illustration any more than they credit the underlying opinion." 826 F. Supp. at 686. Various differences between the conditions shown on the tape and those of the actual flight went only to the weight of the animation, not its admissibility. 826 F. Supp. at 686.

See also Kane v. Triborough Bridge & Tunnel Authority, 8 A.D.3d 239, 778 N.Y.S.2d 52 (App. Div. 2d Dep't 2004) (trial court erred by failing to instruct jury that computer-generated animation was for limited purpose of illustrating accident reconstruction expert's opinion and that jury "was not to consider the...animation itself in determining the cause of the accident"); People v. Yates, 290 A.D.2d 888, 736 N.Y.S.2d 798 (3d Dep't 2002) (computer-generated video demonstrating mechanics of "shaken baby syndrome" was properly admitted for limited purpose of helping jury understand medical concept; jury was instructed that video did not purport to show what actually happened to victim); Hinkle v. City of Clarksburg, West Virginia, 81 F.3d 416, 424-25 (4th Cir. 1996) (computer animation designed to illustrate expert's analysis of shooting incident based on eyewitnesses' version, and to demonstrate how that version was consistent with physical evidence, was properly admitted where jury was carefully instructed that they were viewing an illustration of expert's opinion rather than actual recreation).

[FN5] Bledsoe v. Salt River Valley Water Users' Ass'n, 179 Ariz. 469, 471-72, 880 P.2d 689, 691-92 (Ct. App. Div. 2 1994).

[FN6] Bledsoe v. Salt River Valley Water Users' Ass'n, 179 Ariz. 469, 472, 880 P.2d 689, 692 (Ct. App. Div. 2 1994).

[FN7] See 2 McCormick on Evidence (5th ed.) p 19 § 214 (the "extreme vividness and verisimilitude of

pictorial evidence" depicting a party's staged reproduction of events creates "the danger that the jury may confuse art with reality"). See generally § 11:12 and § 11:17 (motion pictures and videotapes), and §§ 11:18 and 11:19 (experiments and demonstrations).

In *Datskow*, the court sought to minimize the danger that the jury would mistake the animation for a reenactment by disallowing the proponent simultaneously to play the soundtrack, which consisted of the actual radio communications between the aircraft involved in the accident and the airport control tower. 826 F.Supp. at 685.

[FN8] See *Commercial Union Insurance Co. v. Boston Edison Co.*, 412 Mass. 545, 548-53, 591 N.E.2d 165, 167-70 (1992) (in building owner's action against utility for overcharges for steam usage, owner's expert relied, in part, on computer calculations to estimate actual steam usage of building during relevant time period based on architecture and location of building, operating characteristics of building's ventilation and heating equipment, and weather history); *Starr v. Campos*, 134 Ariz. 254, 256-58, 655 P.2d 794, 796-98 (Ct.App.1982) (computerized analysis of vehicular accident); *Schaeffer v. General Motors Corp.*, 372 Mass. 171, 177-78, 360 N.E.2d 1062, 1066-67 (1977) (computer-generated determination of speed of vehicles at time of impact based on operating characteristics of vehicles, friction coefficient of pavement, lengths and nature of skid marks).

*Bray v. Bi-State Development Corp.*, 949 S.W.2d 93, 96-99 (Mo. Ct. App. E.D. 1997) (accuracy of input and scientific reliability were sufficiently demonstrated to admit evidence produced by software program that predicted lighting level at particular location based on miscellaneous variables, e.g., spacing and height of lighting fixtures, wattage, age and condition of light bulbs, etc.); *State v. Clark*, 101 Ohio App.3d 389, 414-19, 655 N.E.2d 795, 811-14 (1995), appeal denied, 72 Ohio St.3d 1548, 650 N.E.2d 1367 (1995) (foundation for crime scene reconstruction produced by computer software program was sufficient upon showing that input was accurate and complete (dimensions of bathroom and bathtub and location of fixtures and bullet hole in wall) and that such programs are generally accepted in relevant engineering community); *Kudlacek v. Fiat S.p.A.*, 244 Neb. 822, 843-45, 509 N.W.2d 603, 617-18 (1994) (sufficient reliability shown for computer-simulated reconstruction of automobile accident using variables based on dimensions of automobile and physical evidence). All three of the foregoing courts made reference to the foundation guidelines adopted in the *Commercial Union Insurance Co.* case. See also *State v. Swinton*, 268 Conn. 781, 811-814, 847 A.2d 921, 942-943 (2004) (listing factors courts should consider in evaluating reliability of substantive and procedural foundation for computer-generated evidence).

[FN9] See § 7:5. In *Commercial Union Insurance Co. v. Boston Edison Co.*, 412 Mass. 545, 591 N.E.2d 165 (1992), the court provided the following *Frye*-related guidelines for the admissibility of expert testimony that relies on computer analyses:

[W]e treat computer-generated models or simulations like other scientific tests, and condition admissibility on a sufficient showing 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.

*Commercial Union Insurance Co. v. Boston Edison Co.*, 412 Mass. 545, 549, 591 N.E.2d 165, 168 (1992). See also *Starr v. Campos*, 134 Ariz. 254, 257-58, 655 P.2d 794, 797-98 (Ct.App.1982) (admissibility of computer-based analysis of automobile accident requires trial court to determine "whether the procedure used to obtain that evidence is generally accepted among scientists in relevant fields, including accident reconstruction and automotive engineering"; trial court may take judicial notice of properly programmed computer's ability to perform mathematical computations and of basic principles of physics, but must assure general acceptance of computer program's application of those principles to automobile collisions).

*Bray v. Bi-State Development Corp.*, 949 S.W.2d 93, 98-99 (Mo. Ct. App. E.D. 1997) (fact that lighting

engineers generally relied on particular software program to make lighting design decisions was sufficient to demonstrate general acceptance in relevant technical community); Kudlacek v. Fiat S.p.A., 244 Neb. 822, 843-44, 509 N.W.2d 603, 617 (1994) (computer expert's testimony established that particular software program for accident reconstruction was regularly used by largest failure analysis firm and was generally relied upon by experts in the reconstruction field).

[FN10] See § 7:11.

In Perma Research & Development v. Singer Co., 542 F.2d 111 (2d Cir.), cert. denied, 429 U.S. 987, 97 S.Ct. 507, 50 L.Ed.2d 598 (1976), the Second Circuit, on a procedural point, suggested that an expert whose opinion is based on the results of a computer analysis could be required to disclose, in advance of trial, the underlying data and the manner in which the computer was programmed in order to avoid "belabored discussion" at trial and to resolve potential disputes over the protection of proprietary secrets. Perma Research & Development v. Singer Co., 542 F.2d 111, 115 (2d Cir.), cert. denied, 429 U.S. 987, 97 S.Ct. 507, 50 L.Ed.2d 598 (1976). In the particular case, however, the court found no abuse of discretion in admitting expert testimony in the absence of such disclosure, either before or during trial, because the opponent had an adequate basis for cross-examination. Perma Research & Development v. Singer Co., 542 F.2d 111, 115 (2d Cir.), cert. denied, 429 U.S. 987, 97 S.Ct. 507, 50 L.Ed.2d 598 (1976).

[FN11] Verizon Directories Corp. v. Yellow Book USA, Inc., 331 F. Supp. 2d 136 (E.D. N.Y. 2004).

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