It is a muggy summer day in 2004. I am driving my new car—an FEV (full entertainment vehicle)—along the traffic-clogged highway that leads to the kids’ summer camp. Glancing into the rearview mirror, I notice a BMW convertible quickly gaining on us. I grumble to myself and pull into the slow lane to let it pass by. For me, driving is the usual tedious task. But for my kids, Jamie and Joy, the trip is an adventure of their own choosing.

From their position in the back seat, the kids see the speeding sports car as a *Tyranosaurus rex* on the run, legs thrashing and tongue flailing. As the dinosaur roars past the holographic side “window,” Joy slaps it with her lollipop, which sticks to the screen. The FEV’s onboard computer responds to her assertive gesture by sending a message to the speeder’s dashboard display: “Hey, slow down.”

Suddenly, a police car in hot pursuit appears on the holo-window as a screeching pterodactyl chasing the thunder lizard. The *T. rex* looks over its shoulder, stops and exhales a steamy sigh as the flying reptile perches on its tail. “Got him!” Jamie yells in satisfaction, as lightning and dark clouds invigorate the scene of Jurassic capture.

Does a family car that entertains passengers with

True interactive entertainment will arise once engineers and artists create virtual realities that can unfold improvisationally by Glorianna Davenport
Evolution of Interactive Entertainment

Electronic entertainment has been inviting us to interact since the 1950s, but most forms still lack the capacity for improvisation or serendipity. Merging elements such as smart stages and synthetic actors with sophisticated graphics will give rise to virtual storyworlds that go far beyond anything we see today.

1967
- Winky Dink and You (CBS)
  Early experiment in interactive TV. Viewers place plastic sheet over the monitor, and cartoon characters lead them through drawing exercises.

1972
- Pong (Atari)
  Passive viewer becomes interactive player. Uses a hand held dial to control a graphical Ping-Pong paddle on a TV screen.

1977
- Adventure (Will Crowther and Don Woods)
  Pioneering example of interactive fiction. Text-based story unfolds on the computer screen as player types commands to initiate the next action in puzzle-solving game.

1983
- Dragon’s Lair (Don Bluth, Cinematronics)
  Laser-disk technology enables the step to the visually stunning illusion of a 3-D world. Player controls a human-like character rather than an inanimate object.

An interactive fantasy world seem far-fetched? The technology is almost at hand. Global Positioning System (GPS) receivers, which employ a network of satellites to locate precise latitude and longitude, are available in many new vehicles, and automobile manufacturers are scrambling to connect drivers to the Internet. Within the next 10 years ultrathin, holographic monitors could replace windows, and miniature video cameras could track events on the road and inside the car. Special software would then translate the vehicles’ relative movements, and the passengers’ actions, into digital fantasy—a virtual storyworld. Although it is only one possible future scenario, the FEV heralds a new era of interactive d-entertainment.

Engineers have attempted to create interactive entertainment since the 1950s [see timeline above], but most of today’s choices still force some kind of undesirable trade-off. If you want a compelling narrative, you must usually accept the passive experience of cinema or television. If you prefer to make decisions, as with computer and video games, you generally sacrifice a good story line. The future of interactive d-entertainment will bring convergence of fixed narrative and personal choice, combined with the computer graphics capabilities it takes to render the story in real time.

Several innovations are key to these imminent advances. Increasing bandwidth is beginning to allow people to choose personalized entertainment from central distribution networks, such as movies-on-demand. Novel input devices, such as touch screens and speech-recognition tools, are changing the way we can communicate with the Internet or other networks. New types of audio and visual displays are enabling ever more realistic sensory environments. And miniaturized wireless technologies are making computing and communications mobile, bringing d-entertainment to your handheld computer, your watch and even your car windows. As media technology moves from the specialized spaces of the theater and living room into the total surround of everyday life, d-entertainment will be available wherever we are, whenever we are receptive and on whatever devices are present.

By its nature, interactive technology will also offer a wealth of choices about how a story unfolds, so no two people’s entertainment experience need ever be the same. Writers will not have to script entire tales ahead of time, because the people who enter the story will become the characters whose decisions move the story along. A writer may shape the initial circumstances, but the story will unfold improvisationally. The story environment—and characters within it—will respond to personal messages, news and other forms of information. What this kind of virtual storyworld will require is a database network that is embedded with enough story elements and decision-making algorithms to generate various serendipitous actions with unique content.

Smart Stages and Animated Actors

Another necessary component of the virtual storyworld is an interactive stage where the action can take place. This stage is where content can be found, made and shared as needed; where informational messages can be sent and received; and where virtual characters can engage in their own business or interact with the audience. No such milieu exists, but a new type of cyberspace portal—currently under development at the Massachusetts Institute of Technology Media Laboratory—may be a promising first step. Called Happenstance, it is an animated computer graphics landscape that manages information according to the preferences and situation of a particular user.

As we know from cinema, landscapes provide...
the illusion of continuity in space and time. Graphical representations of weather, plants and other features of the natural environment provide the same illusion in the cybersurround of Happenstance. Your window into this world is your computer monitor, and you use a mouse and keypad to navigate and send commands, but the similarity to current graphical interfaces ends there. This ecological interface translates common computer activities, such as conducting Internet searches, into movement through the landscape.

If you decide, for instance, that you’re hungry for Chinese food, you could type a query that gets attached to an icon of a tree seed. You could then plant the seed in the cybergarden of Happenstance to begin a search for nearby restaurants. Today’s Internet browsers would list the query results as hyperlinked blocks of text, but inside Happenstance the results appear as leaves sprouting on a tree. Before you can examine the leaves, a volcano begins erupting in the distance—a signal that news relevant to your search is about to arrive. Happenstance is programmed to search for serendipity; the query for Chinese food has also brought you documentary film elements about China. A cinematic editor-in-software directs a graphical sequence that pans away from the tree and zooms in on the cloud of smoke that is emerging from the volcano. The cloud moves overhead, and details from the film rain down into a river that identifies the illusion of continuity in space and time.

People who enter the story become characters whose decisions move the story along.
A convincing interactive character must convey emotion and improvise actions.

A virtual storyworld where interactive d-entertainment waits for us around each bend of our daily lives might be years off. But projects like Duncan and Happenstance, as well as near-term possibilities such as the FEV, are beginning to take us there. Along the way, we get to enjoy the ride.