

## A Guide To Greenscreens



One of the most important parts of movie magic is making people see things that aren't there. In the early days of special effects, artisans had to work with clumsy setups involving detailed models and flaky, unreliable optical effects to place actors in fantastic environments or have them interact with otherworldly beasts. However, one of the most major breakthroughs in FX history occurred in 1964, when inventor Petro Vlahos introduced the compositing technology then known as "blue screen." Prior to that date, overlaying

one image atop another required an arduous and time-consuming process of adjusting the emulsion on the film to create what was known as a "traveling matte." The new technique made it possible to shoot actors and lay them over a new background without any ghostly afterimages or weird glitches.

As digital filmmaking exploded into Hollywood, the bluescreen method was replaced by a more advanced greenscreen, so called because digital cameras capture green color data with a higher fidelity than blue, eliminating some of the artifacting. Now that backgrounds and characters can be created entirely digitally, the synchronization issues have been all but eliminated, with computer-controlled cameras keeping everything on the same angle. The second innovation that shaped the way movies are made today is motion-capture - using a special array of computers, every move an actor makes can be transformed into three-dimensional data, which can then be used to animate a digitally-rendered character on-screen. This allows actors to really interact with each other on set, despite not knowing what their final appearance will be in the film. The image of actors outfitted in traditional mo-cap suits covered with shiny ping-pong balls has become almost synonymous with the modern moviemaking process.

As technology advances, greenscreening will become easier, more affordable, and more common. We're already seeing the technology make the transition to the small screen, with impressive results. Digital film is the way of the future, and greenscreening and mo-cap are the tools that will bring us there.

From the initial applications of the technology as a TV weatherman's tool to the completely immersive digital worlds of films like *Beowulf*, we've made quantum leaps in only a few decades. This list below is just a sampling of some of the awesome effects that dedicated filmmakers have been able to pull off using the technology, from early triumphs in matting to the latest spate of all-digital features. In this list, we not only note the most impressive applications of the technology, but also some of the most important steps along the way. After you're done, you'll have a firm grasp on how it works and what it can do, and you'll want to try it yourself.

## Forrest Gump



One of the first and most primitive uses of chromakey technology was to insert actors over a primitive filmed background, creating the illusion of one continuous world through clever composition. In the 1994 Tom Hanks vehicle *Forrest Gump*, instead of using the technology to simulate a fantastic world, they instead used it to recreate the past, taking archival footage of many famous moments in American history, including shaking hands with JFK.

But one of the most impressive effects in *Gump* involves his commanding officer Lt. Dan, played by Gary Sinise. To simulate Dan's amputated legs, they wrapped the actor's lower half in blue fabric, so the chromakey would erase it from the scene. The resultant effect had audience's jaws on the floor when they saw how bizarrely realistic it looked.

## 300



After *Sin City* proved that the comics of Frank Miller can translate pretty damned well to the big screen, director Zack Snyder was tapped to bring his tale of ancient Greek warfare to moviegoers everywhere. The resulting film of **300** was a breakthrough in using greenscreen technology to accurately simulate the gore and chaos of a massive old-world battle. When Leonidas and his troop of Spartans finally bring the battle to their Persian foes, the resultant spectacle would be impossible for a director to stage in real-time, as the amount of

swinging metal and dismembered corpses would make for a cinematographer's day in hell. But with the greenscreen, Leonidas's rampage can be sped up, slowed down, and digitally manipulated in a million brilliantly grisly ways.

### Questions:

- 1) Can you think of any other movies that utilized green screening? List 3
- 2) Who initially utilized green screen?
- 3) Explain motion capture