

VIDEO AND THE NIKON D90

Changing the Rules?

by David Speranza

When aspiring filmmakers watch a Hollywood movie, they don't just see actors, camerawork, editing and effects. They see the dreamy richness of images shot on film. They see a depth of color and space that goes beyond the mantra of "progressive imaging, 24-frames-per-second" so often whispered, siren-like, in their ears.

High-def images flicker past, buttery smooth yet tack sharp. Colors pulsate and pop, each plane of focus inhabiting its own sliver of reality, a shimmering slice they could press their finger through, if they could just reach into the screen...

"If only," they think longingly, "I could afford a camera that could do that."



If the buzz is to be believed, now they can. The [Nikon D90](#), with its D-Movie mode, is the first digital SLR with the ability to shoot not only video, but 720p HD video at 24 frames per second—the gold standard of frame rates for moviemaking. But can a \$999 still camera (body only) really be a secret back door into the world of film-like imagery?

It's not as crazy as it sounds. With the advent of the D90 (and Canon's upcoming [5D Mark II](#)), the wall that once separated the worlds of professional photography and video is buckling inward. The rulebook is not only changing, it's being scribbled over in thick marker with every new camera release. Want a large imaging sensor? Interchangeable film lenses? Extreme low light sensitivity? 24p? All for under a grand? Who wouldn't be interested?

I certainly was. I'd read the hype. I'd seen the online footage. I was aware of the many limitations of capturing video with a DSLR. But the allure of HD video with 35mm lenses and a large, APS-C size sensor was impossible to resist. And at such a low base price, the D90 promised an ideal solution for not only low-budget filmmakers, but photojournalists, travel photographers—even the ambitious soccer mom.

High-End Cinema on a Budget

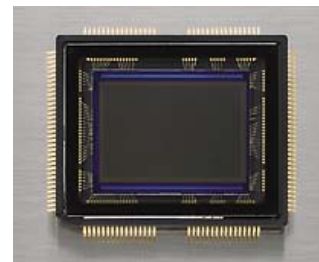
As all good aspiring filmmakers know, achieving a true, honest-to-goodness film look on video requires a large imaging sensor and the ability to use interchangeable, professional-grade lenses. High-definition, 24p capture is also necessary, but if that

were enough then Steven Spielberg would be shooting his next feature with a \$799 [Canon HV30](#).

Not that there's anything wrong with the HV30. It's a fine consumer-grade HD camera, with a well-deserved reputation for great imagery and handling. Many videographers combine it with [Letus 35](#) and [Brevis](#) 35mm adapters in order to use professional lenses and achieve exceptional film-like quality and depth of field.

But what if you can't afford the adapter and lenses on top of your initial camera investment? Or what if, despite the control that the HV30 (or many other camcorders) give you, your Frankenstein-like melding of camera, adapter and lens is too unwieldy for a particular shoot? Plus you're still dealing with a small sensor that, no matter how many pixels are crammed onto it, won't give you the dynamic range and low-light sensitivity of its larger brethren.

The Nikon D90, then, makes for a tempting solution. Its 1.8"-type sensor dwarfs even the 2/3" sensors of higher-end video cameras like the \$6,449 [Sony PMW-EX1](#) and Panasonic's \$11,500 [AG-HPX500](#) (the HV30's sensor, by comparison, is only 1/2.7"). Combine that with Nikon's wide range of F-mount lenses (both past and present), and you suddenly have access to a level of image quality unprecedented in a prosumer camcorder.



D90 Image Sensor

But does it really work?

The D90 In Action

Having spent several days with the D90, I can attest to the good and the bad of shooting video with a still camera. The images, once I grew more familiar with the camera, could indeed be breathtaking (see accompanying video). For instance, using a manual 50mm f/1.4 lens under low light, I was able to achieve a razor-thin depth of field that would make a 1970s maverick film director proud. The colors, when properly white-balanced, were rich and full, and the dynamic range—courtesy of Nikon's Active D-Lighting function, which retains detail in shadows and keeps highlights from washing out—went well beyond anything you'll get in a sub-\$10K camcorder. Even the [18-105mm kit lens](#), it turned out, was able to produce exceptional images on my 26" HDTV screen (via the camera's HDMI port).

-EMBED D90 VIDEO HERE-

(I also tried a 24mm f/2.8 lens and a 28–70mm f/2.8 zoom—which, like all 35mm lenses coupled with an APS-C size sensor, are subject to a 1.5x crop factor. This means that a standard 50mm lens actually magnifies to 75mm, a loss of wide angle well-known to photographers who don't use cameras with full, 35mm-sized sensors.)

Shooting video on the D90 is fairly straightforward, and is done exclusively via the high-resolution LCD screen that functions as a live view when capturing stills. This means you won't have access to the optical viewfinder when recording video (which can be a problem under harsh sunlight), but otherwise the 3-inch, 920K-pixel screen is bright and sharp. Video can be captured at three different resolutions (1280 x 720, 640 x 424, or 320 x 216) depending on your final output and the size of your SD card. I used two 8GB SDHC cards, each of which held at least 90 minutes of full 720p video (only an estimate, since I didn't add up all the times of my numerous clips).

Carried over from the photo side of the camera are some impressive picture controls. The six image presets (Standard, Neutral, Vivid, Monochrome, Portrait and



Landscape) can be further customized, with incremental adjustments possible to sharpness, contrast, brightness, saturation and hue, plus additional monochrome controls. Add to this an adjustable dynamic range (in the form of D-Lighting) and a formidable set of white balance settings, and you've got more flexibility over the look of your video than pretty much any camcorder under \$3,300.

Overcoming Limitations

There are limits, however, as you might expect in such a hybrid piece of equipment—especially once you hit “record.” Many of the manual controls available for shooting stills are disabled in video mode, so there are a few things you need to master for better picture quality. The most important for me was AE-L, or Auto Exposure Lock, since using the camera’s Auto mode results in a “stair-stepping” effect as light levels change within shots (okay for photos, but not for serious video). You can set aperture manually with the Aperture Priority mode, but the camera still automatically adjusts ISO and shutter speed. To remedy this, exposure needs to be locked prior to shooting. This is done by pre-setting the AE-L to Hold via the menus, then pressing AE-L when the exposure looks right and you’re ready to shoot. Online articles point out that adjustments to ISO and shutter range can be made using the +/- Exposure Compensation button, but this is less a science than an art, and may take some trial and error.

Also bear in mind: An SLR is not the ideal form factor for shooting video, especially during handheld shots; there’s no microphone input; autofocus is disabled; full-quality video can only be shot in 5-minute bursts due to file-size limitations; and, as many people have pointed out, the rolling shutter of the camera’s CMOS sensor can produce some queasy-looking vertical lines (“jell-o”) when the camera bounces around or is panned too quickly, especially in telephoto shots.

But none of these are deal-killers. If you want better audio, then shoot dual-system like the professionals do (you could even use your spare camcorder to record the sound). Autofocus? It’s far less precise than manual focus—especially on 35mm lenses—which is why manual is still the method of choice on movie sets. Need a shot longer than five minutes? Consider this: the average shot duration in most current Hollywood movies is around five seconds.

As for the dreaded “jell-o effect,” there’s a very simple solution: keep the camera steady (tripods are good) and stay away from whip pans!

Putting It In Perspective

Is this ideal? No. Are there tradeoffs? Of course. There’s a reason high-end camcorders cost as much as they do. Along with outstanding video imagery, they offer an enormous amount of precision and control. Their designs are elegant and time-tested, having evolved over the years to serve the very specific needs of professional videomakers. By comparison, the Nikon D90



in video mode is more of a blunt instrument: it sneaks in where larger cameras can't go, waves its giant sensor and high-quality glass around like a super-absorbent video sponge, then rewards you with a collection of images whose occasional crudeness is more than made up for by their underlying beauty.

Of course, you probably won't be shooting a feature film with the D90. The lack of precise, repeatable ISO and shutter settings alone would make continuity difficult at best. Likewise the 5-minute shot limit won't lend itself to most documentary or interview subjects. But there are many other uses this camera can be put to: shorts, music videos, Web journalism, 'B' camera shots, and just about any situation requiring both high-quality video and photos with the least hassle and equipment.

What's important to remember is that the D90 is, first and foremost, a still camera—and a very good one at that. It's light, it's easy to use, it incorporates Nikon's latest DSLR technology to produce amazing 12.1-megapixel images, and it's very affordable (\$1,299 with the [18–105mm kit lens](#)).

The fact that it also shoots high-definition video is a clear bonus, which is exactly how it should be treated—as a bonus. (There's a reason the camera's user manual includes only two references to the video mode.) Is it lacking features that can be found on most video camcorders? Yes. But the larger point is, here's an affordable, potentially game-changing tool that offers low-budget filmmakers access to new levels of cinematic imagery.

That means smooth, rich, 720p images. Colors that shimmer and pop. And shallow, artfully designed depth-of-field. As bonuses go, that's something aspiring filmmakers can take to the bank.

[EQUIPMENT NOTE: Most of the accompanying video was shot using the 18–105mm kit lens. Exceptions were the Times Square footage (24mm f/2.8 lens); the pool table shots (50mm f/1.4 lens); and midtown (28–70mm f/2.8 zoom). Footage was edited with Sony Vegas 8.0c, the only version of Vegas compatible with the D90's M-JPEG video (which comes in an AVI shell). Other non-linear editing software, such as Final Cut Pro, will also accommodate D90 video. Check your latest software upgrades for compatibility.]