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From Blueprints to Billboards

Architectural rendering firm uses M-Color to transform AutoCAD drawings into illustrations.

Feb 22, 2007
By: Kenneth Wong

In Santa Rosa, California, next to the intersection of Montecito Boulevard and Benicia Drive, sits a large plot, sparsely occupied by a beauty shop, a pool cleaner, a coin laundry and a few other retail establishments. The property can accommodate a lot more, perhaps a drugstore, a hardware store, a garden center, a nursery and a few rows of townhouses on either side. The local firm Tierney/Figueiredo Architects is responsible for the expansion design. The plan has been revised more than 30 times in the past several years to comply with the city's strict guidelines and the client's demands. It was up to Jonathan Jonas, who operates the architectural rendering firm Archinature, to churn out a new set of color illustrations for city council meetings, client approvals and advertising collaterals whenever the project was modified.

Over the years, Jonathan has perfected the art of producing 3D-like color illustrations (some prefer to call them 2.5D) based on 2D AutoCAD drawings. He often imports site photos and stock images of pedestrians, vehicles, trees and bushes to the scenes to make them come alive. But a large part of his job is done in M-Color, an AutoCAD plug-in from the Finnish firm Motive Systems.

Pretty Pictures

AutoCAD, a workhorse for drafting circles and lines, offers no efficient way to add finesse to objects with gradients, color patches and patterns the way most vector illustration programs do. Nor does it provide an easy option to export drawings to common graphics programs, such as Adobe Illustrator or CorelDraw, without some loss of data. One of the most common complaints, Jonathan notes, is that often you lose line weight or quality. (Certain plug-ins, such as CADgate from Hot Door, are available for bi-directional import/export between AutoCAD and Illustrator.)

Consequently, the black-and-white architectural drawings produced in AutoCAD -- site plans, interior plans, elevations or schematics -- are rarely suitable for presentation. To make them aesthetically pleasing for meetings with prospective clients, someone in the architectural firm (rarely the principal and quite often an intern) or an expensive rendering artist hired by the firm might enhance them by hand using colored pencils and crayons. Jonathan accomplishes the same task digitally, right inside AutoCAD's interface, in a fraction of the time. Unlike the manual rendering artist, he can quickly and easily change the color scheme of the image as needed.

Adding Depth and Character

"Usually, I take [a client's] AutoCAD drawing, drop a sky in the background, drop

some people and cars into the foreground, and in about four hours, produce a nice color illustration," Jonathan said.

For the Montecito Shopping Center project, he began with an elevation drawing from his client. "The buildings are composites of the architectural drawings, with colors applied in M-Color," he explains. "A separate M-Color layer with just the shadows is done with a solid hatch in AutoCAD. This is done [instead of using M-Color's automatic shadow generating feature] so the shadows can be adjusted later to the desired level of darkness. That way, the shadows don't get in the way when selecting color fills, which are required when generating multiple variations on the color schemes. In the distance is a copy of the right-hand building, made opaque by placing a layer of pure white behind it to generate the haze of distance. The background image has also been made opaque with a layer of white behind it to fade that out. The final image is composed of several layers in Photoshop."

The original elevation drawing from the client; the same drawing with color fills and gradients added in M-Color; and the completed 2D scene with background and digital characters.

For the backdrop, he uses a site photo, but replaces the original sky with a brighter sky from elsewhere. Then he adds another layer comprising the mountains and houses in the background. The foreground consists of 2D digital images of people, plants and trees from Realworld Imagery, which sells stock CDs with digital objects ready for importing to 3D and 2D scenes.

"A typical rendering like this can be completed in four to eight hours, depending on the originating files, the amount of shadowing needed and the entourage to be added," Jonathan says. He generally charges $200 - $500, which, he points out, is "far less than what most 3D renderings would cost."

AutoCAD to PDF via M-Color

Generating PDF files is an indispensable part of Jonathan's workflow when drawing 2D CAD files. He uses this ubiquitous format to obtain approval from his clients. "Sometimes I just want to make a simple black-and-white PDF to send to somebody," he says. Previously, he relied on Adobe Acrobat to produce his PDF files, but he found it to be problematic. "If you have an image attached to your AutoCAD file [for instance, a scanned, hand-drawn sketch used for tracing], it can make Acrobat choke," he recounts.

A whole submarket has spun out of the need for AutoCAD-to-PDF conversion. Those who are in Jonathan's position often turn to freeware, shareware and commercial plug-ins, such as AnyDWG's DWG to PDF Converter ($83), CADzation's AcroPlot ($249) or Bluebeam's Bluebeam PDF Revu ($199), to name a few.

Jonathan's use of M-Color allows him to sidestep this problem, because M-Color generates PDF files with a minimum of clicking. The application also supports

EPS, BMP, GIF and JPEG output formats, among others. In Jonathan's experience, the program is also much more efficient in dealing with custom page sizes.

"M-Color will read your AutoCAD paper space setup information, so you can just leave it alone," he says. "Or you can go in and define from which point to which point you want to print." By contrast, he has found setting up custom paper sizes in Acrobat to be cumbersome and unpredictable.

Stylized Coloring

M-Color recognizes AutoCAD layers and can import CTB and PC2 files (for defining AutoCAD plotter configuration) to automatically set up M-Color's plot configuration. It allows users to set up and store different texture and gradient styles; therefore, the same style can be applied to all the objects on a certain layer with minimal effort. In addition, the program also lets users automatically cast shadows from objects and transform AutoCAD line drawings into hand-drawn objects to add an artistic touch.

More examples of M-Color illustrations from Archinature.

M-Color's tight integration to AutoCAD lets a rendering artist like Jonathan produce a highly accurate representation of the design without recreating the construction plan from scratch. Furthermore, its clean, classic treatment of the original shapes and lines results in pleasant images that are not distracting.

"M-Color is one of those tools most folks don't know about, but those of us who do praise it and couldn't do our work without it," Jonathan says.

Single licenses for M-Color cost $595. Bulk licensing costs less ($395 for 50 or more). For more on M-Color, read First Look Review: M-COLOR 9 in November 2005 *Cadalyst* magazine.

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