Vectorworks for Entertainment Design, 2nd Edition, by Kevin Lee Allen

Reviewed by Richard Cadena

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If you have some extra time on your hands—and these days, who doesn't?—and want to take the opportunity to learn or brush up on your Vectorworks skills, you're in luck. Kevin Lee Allen's *Vectorworks for Entertainment Design: Using Vectorworks to Design and Document Scenery, Lighting, Rigging, and Audio Visual Systems, Second Edition,* has arrived just in time for a nice long pandemic deep dive.

Like the original edition, which was published in 2015, the second edition covers best practices for using Vectorworks, from basic drafting principles and standards to advanced topics like file sharing, augmented reality, and generating 3D models from photography. It starts with the assumption that the reader has little or no knowledge of drafting or CAD, and it works through an entire course on drawing and modeling, documentation, rendering, and more.

"I think there are probably two primary audiences," Allen says. "One is graduate and undergraduate students in theatre, and the other is professionals that are looking to either move from hand drafting or some other application to Vectorworks. I make the assumption that you don't know how to draft, and I also make the assumption that, somewhere along the way, the emphasis on hand drafting will go away."
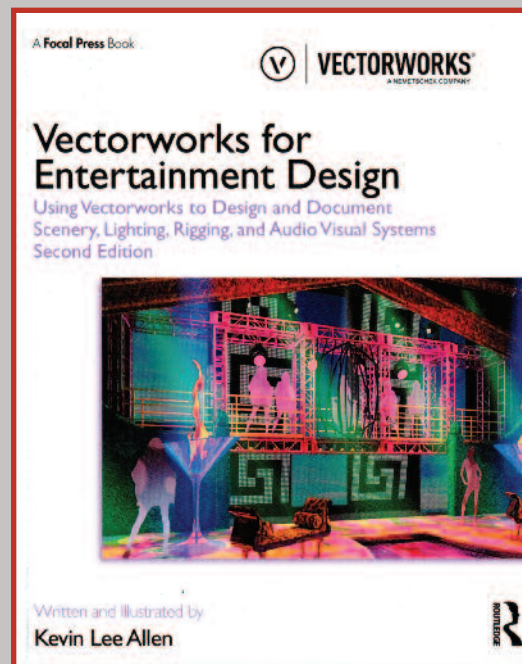
But the need for hand drafting will never completely go away.

"You need to have some ability to hand draft," he jokes, "because you might find yourself in a field with a bunch of Sky Trackers and you need to draw in the dirt with the heel of your boot where the Sky Tracker should be placed."

The book is one of the only complete courses in Vectorworks designed to develop or hone the skills of newbies and professionals alike. Allen says that one approach to reading his book is simply to "pick it up and work your way through it," although it's also a great resource for anyone looking to brush up on particular skills.

"Some teachers have people work through it, or another teacher could use it as a foundation to lecture and provide a variety of exercises," he says. "I think to work your way through it in a university might take a full year. But you can certainly pick and choose to get a semester out of it."

The text is beautifully written and amply illustrated, and each step along the way is reinforced with real-world examples from Allen's long career as an award-winning designer in theatre, television, film, and corporate events. Not surprisingly, he has also taught and lectured students at various colleges and universities including Carnegie-Mellon, which gives him unique insight to the teaching approach.

"The chapters are divided by what I hope are inspirational work," Allen says. "I think a lot of the audience are students of theatre, so I try to put things in there that will inspire them to see that their career could be a broader path than just stage plays. I hope that those projects say to people, 'Hey, I could design for the ballet,' or 'I could do this huge meeting,' or a huge arena show.

"There are more examples of work and they appear primarily between chapters," Allen says. "And there are more chapters. For example, one person who teaches from the book recommended a chapter where I had modeling and advanced modeling in the same chapter, and I pulled that into two chapters, so it was a little more easy to grasp."

The second edition is larger, by approximately 25%, than the first. According to Allen, that's because there's more to cover. The software has more features, like Braceworks, the rigging analysis module, and other features, like Vectorworks Cloud Services, have been made more powerful, which is why he paid more attention to it throughout the book. He also covers some topics, like connectCAD, more thoroughly.

The book was "pretty much" written before the pandemic, Allen says, but the final edits took place at the beginning of the lockdown. And the pandemic brought with it a new perspective, one in which virtual events were suddenly a much higher priority.

"[When the pandemic started] I went through and I added information about how you could use Vectorworks to create virtual events," Allen says, "and work with Vectorworks to tie into programs like Unity (the gaming engine), mostly as inspirational ideas."

These days, virtual reality (VR) and augmented reality (AR) are not only buzz words; they are viable tools that open an entirely new scope of possibilities in entertainment. Although the book mostly covers the core fundamentals of drawing and modeling, rendering, creating, and applying textures, and documentation, it also touches on more advanced topics like file sharing and VR.

"In Vectorworks, when you are using the cloud services," Allen adds, "you can create a certain amount of virtual reality or augmented reality.

You can use Google Cardboard (VR glasses) where you can drop your phone into and walk through a space. (VR glasses) are pretty inexpensive— about 300 bucks a pair. And if you export to Unity, you can create a whole virtual reality experience. You can have [clients] literally walk through their meetings or events by exporting Vectorworks to Unity and using stock scripts to create a virtual experience. On a simple level, you can present that to corporate clients who might not be able to totally perceive what the event is going to look like in the ballroom or the arena."

Beyond the basics, the book also covers topics such as subdivision modeling, which didn't exist in Vectorworks when the first edition was published, and Marionette, the visual scripting language. Subdivision modeling is an advanced modeling technique that uses a polygon mesh and subdivides the surfaces to create smoother curves and surfaces. It was originally developed at Pixar, and the book has a primer to help you get started.

Marionette is a visual scripting interface that enables more advanced techniques like articulation, which allows you to develop design iterations and move nodes. You could, for example, make a circle, and add nodes that move and morph it into a star by running a script. The book illustrates the capabilities with an example of a Condor lift. Using Marionette, you can build a plug-in object with an articulating boom.

Vectorworks has evolved into the premier CAD software in the event industry, and whether CAD is your full-time job or you only need it to read someone else's drawings, chances are you're going to be using it one way or another. This book is a great resource for the entire spectrum of users, including power users.

"Obviously," Allen says, "it's not like you read the book and suddenly you're an expert and you go out and get a job. But if you read the book and practice, it does complete your knowledge as a working professional. My most successful former students, people that I trained, are usually people that went home at night and drew things."

Allen speaks from experience. He once worked for a guy named Peter Wexler, who wouldn't let Allen do any lettering because Wexler didn't think his lettering skills were passable.

"I had to put a note on the drawing and give it to somebody else. So I went home at night and I would sit in front of the television at my drawing board and make twos until I got a two that I liked, and then I'd make a three. Eventually I became the letterer; everybody else had to give me their drawings and I was doing all the labeling and dimensioning and all that other stuff because my handwriting was the clearest and easiest to read."

The lesson is, regardless of where you start, with some effort you can end up at the top of the heap. But you have to be willing to put in the effort, and this book is a great place to start. 🔖