In this issue, I look at two books that provide insight into how to solve technical design problems.

**Design appreciation**


David Kadavy is a user interface designer working in Silicon Valley. Despite the general title, he has written a book about visual design. He sets the following goal for this book:

*If you want to learn to create great design yourself, if you want to gain design literacy, there simply is no way to do so with lists of rules. Instead, I want to provide you with a new set of eyes through which you can see the world anew. This is the sort of goal that a course in art appreciation or music appreciation might aim at. Knowing you (his audience), Kadavy uses the term “reverse engineering” to get your attention. Once he has your attention, however, he gives you a tour of subjects you didn’t know you were interested in.*

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Kadavy begins with the Pantheon (not the Parthenon). Having been there, I can attest that it doesn’t look particularly distinguished as you approach it from the streets of Rome. Once inside, most visitors are taken aback. If you have never seen the building, find an online reproduction of 18th-century painter Giovanni Paolo Panini’s *The Interior of the Pantheon*, and spend some time admiring it and taking in the geometric relationships. Proportions and the harmony of geometric shapes are design elements Kadavy wants your new eyes to see.

Built in 126 by the emperor Hadrian, the Pantheon is meant as a monument to all of the Roman gods and designed to inspire awe in the mortals who enter. Its 142-foot spherical dome is the largest unreinforced concrete dome in the world. At the peak of the dome, a circular opening 30 feet in diameter provides natural lighting for the interior. As you enter, Kadavy says, “you’re enveloped by another world, complete with its own sun.” Kadavy explains how Hadrian’s objectives combined with significant engineering challenges to produce the widely admired, frequently imitated, design. For example, the square recesses in the dome not only create a striking pattern, but also help to reduce the weight of the dome to make it more supportable.

Kadavy tells how, when he was in Rome studying the origins of modern typography, he would go to the Pantheon just to watch people’s reactions as they entered. This interest in how designs affect people is one of the reasons his book is so informative. Unfortunately, his interest in the origins of typography leads him to say more on the subject than his theme requires, so you might wish to skim that chapter. My first draft of my book *Inside BASIC Games* (Sybex, 1981) started with a lot of fascinating but barely relevant material, including an elaborate metaphor for computer programming that involved a player piano. My editor, the great Salley Oberlin, persuaded me to toss out the first 130 pages, and I’ve never been sorry. I think this book could have benefited from similar advice. Kadavy has excellent points to make about type, but he didn’t have to go back to cave painting to lay the groundwork for them. Similarly, he could have gone directly to his points about color without rehashing the philosophy and physics of electromagnetic radiation or repeating information about perception that is handled more thoroughly elsewhere.

The publishers use the back cover to focus attention on Kadavy’s discussions of why designers hate the Comic Sans font and why the Golden Ratio is no more useful in laying out designs than simpler ratios like 3:4. These are interesting topics, but marginal. The book’s main topic is visual design, and Kadavy’s main point is that design occurs at all levels of a product. An elegant veneer added after the fact is not necessarily good design. It may just be lip-stick on a pig. The pattern of square recesses in the dome of the Pantheon is good design, because it arises from the building’s engineering needs and objectives. The Apple Aqua interface is good design because it exploits previously
unavailable technology and responds to cultural forces and user expectations in ways that Kadavy explains.

Kadavy uses the metaphor of learning to dance. You need to learn the basic moves before you can tie them together. Kadavy tries to teach the individual moves (for example, using white space or exploiting type characteristics) by providing examples that vary one design move while holding others constant. This can make for tedious reading, but if you persist, you can learn the moves—and then start to dance.

One topic that lives up to the promise of the book’s title is Kadavy’s discussion of search engine optimization (SEO). He ties it to visual design by saying that design has always been about conveying information to the right audience. I would have accepted that premise and gone on, but he backs it up by digressing on what Aldus Manutius was doing in 1501 and what Jan Tschichold wrote in 1928.

Despite Kadavy’s maddening propensity for cluttering his narrative with digressions—something I’m sure he would never do in a visual design—this is an interesting and informative book. I recommend it.

**Design recipes**

*101 Design Ingredients to Solve Big Tech Problems* by Eewei Chen (Pragmatic Bookshelf, 2013, 290 pp., ISBN 978-1-93778-532-1, $36.00)

The book jacket describes Eewei Chen as a digital tech strategist, former team leader at Microsoft, creative director at both Conchango and ThoughtWorks Europe, and more. Elsewhere (http://haayaa.com), he describes himself as a technology futurist, agilest, and lean design philosopher who has worked in the new media creative industry since 1993. He is apparently a very busy person, which, along with his lean design philosophy, may explain why he wrote such a concise handbook. He provides 101 ingredients, each on a two-page spread that follows a precise format. He follows these with 10 recipes. Their format is also constrained; each is four or five pages.

A key reason this book communicates effectively is its illustrator, Robert André. For each design ingredient and recipe, he provides a one-page illustration that conveys the basic idea, enabling Chen to describe it in a few words, accompanied by links to other material. Of the 266 pages in the main body of the book, 111 are devoted to André’s illustrations.

Each ingredient has a captioned illustration on the left page and four elements on the right page: a quote, a sentence labeled “The Problem,” a section labeled “The Solution,” and a section of footnotes consisting almost entirely of hyperlinks. The solution section consists of a short paragraph followed by three bullets. Each bullet contains a pithy title followed by a brief explanation. Most have a footnote.

Each recipe has an illustration, then lists six ingredients taken from the list of 101. Each ingredient is accompanied by an icon derived from its illustration. The six recipe steps correspond exactly to the six ingredients. Each recipe ends with a section titled “Tips on How to Apply This Recipe.” Each ingredient is a principle (for example, Lead by Example), not necessarily tied to a specific company. Each recipe is associated with a company. For example, the recipe for effective leadership focuses on Jeff Bezos’s leadership of Amazon. One of that recipe’s ingredients is Lead by Example. The recipe for world domination consists of Chen’s idea of the six ingredients of Google’s success, though he seems to be undecided about the sixth ingredient.

Many people have noted that a rigid format (for example, a sonnet, a limerick, or a haiku) leaves plenty of room for creativity. However, the structure Chen has chosen makes it hard to tie things together. For example, ingredient 60 is Check the Data. On the left page is an illustration of a teacup with a teabag steeping in it. The caption says “People may be taking a break, not stumbling across a barrier.” The right page begins with a quote from Albert Einstein: “Not everything that can be counted counts, and not everything that counts can be counted.” The problem is stated as “Companies don’t monitor customer usage closely enough to see what’s really going on.” The solution is stated as “Analyze and interpret data as part of the design and build process. Shed light on uncertainties, especially if you aren’t sure why they really exist.” The three bullets that elaborate on this solution are:

- Have assumptions to test. There is no point to looking at data if you do not know what you are looking for to start with. List your biggest assumptions and measure success by seeing if they have led to improvements to key performance indicators or success metrics. The footnote leads to a page on the Advanced Performance Institute website that defines and discusses key performance indicators.
- Monitor changes over time. Don’t just take one random look. Continue to monitor performance each time you make an improvement, and track changes with groups of users. This is known as batch and cohort analysis. The footnote leads to a blog post by Ash Maurya about using actionable metrics in a lean startup.
- Don’t make things up. There is no such thing as random data—there is only data you have not interpreted yet. Get to the bottom of any unusual behavior, and don’t go for the obvious, unfounded answer just because it’s easier to accept. You’d be succumbing to the false-consensus effect. The footnote leads to a blog post entitled “Why We All Stink as Intuitive Psychologists: The False Consensus Effect.”

Chen uses this ingredient in “A Recipe for Lean Startup in Large Organizations,” in which he describes techniques used by his collective, HaaYaa. He
says in the recipe instruction associated with the Check the Data ingredient:

Identify data across key experiences that indicate success and failure. Analyze the data; gain enough insight and validated learning to make improvements. To keep track of the results of these improvements, I set up customer-experience teams to work with data-analytics teams on monitoring usage stats to see each improvement’s effect on groups of cohorts. I also recommend running multivariate tests on variations of a design concept to see which one is most successful.

Chen obviously knows a lot. This book organizes a great deal of information into a concise presentation. If you like material explained in a leisurely way, this is not the best book for you. But this is a great example of a minimalist style. It might take a while to dig out everything Chen hints at, and along the way you may take some interesting side trips.

On a personal note: over the course of my career, I have alternated between periods of freelancing and working as an employee. For the past seven years I have been freelancing. It is an exciting, fast-paced life, but it doesn’t let me stay in one place long enough to go deeply into one set of products or technologies or to be part of an effective team.

So, this week I gave up freelancing to take a job with Cogility Software, a firm with a small, hard-working team. They build and use a model-driven, intelligent business process management suite based on complex event processing and pattern detection. I am looking forward to learning a great deal about that field and helping others put it to work to solve important problems.

If you have comments on my columns, you can still reach me at xrmxrm@gmail.com.

Richard Mateosian is a technical writer at Cogility Software. Contact him at xrmxrm@gmail.com.

Selected CS articles and columns are also available for free at http://ComputingNow.com.