By title, I am a professor of computer science. My background is in computer programming language design and implementation, software methodology, and more recently program visualization and graphics programming. I have always implemented my ideas with programs. I am, above all, a programmer.

I retired early to have more time for my intellectual interests, which at the time were computer graphics and investigation of pattern-construction techniques.

Until a few years ago I knew virtually nothing about weaving. There were no weavers among my family and friends. I never encountered weaving in my education — not even Pot Holders 101. I have never seen a loom close hand, much less seen one being used.

I “discovered” weaving accidentally. I was exploring a computational problem related to pattern construction. In the process, I was experimenting with Painter®, an advanced program for graphic artists. I found its weaving feature fascinating and was intrigued by the patterns that could be formed within the constraints posed by weaving. But what really caught my attention was Painter’s underlying “programming language” for creating weaving drafts. The nature of this language fascinated me and touched on several professional interests of mine. With this, I was inexorably drawn into weaving.

From that time my life was changed. I dug into the few weaving books that were readily available and bought a copy of a current weaving magazine. This launched me into an intensive effort to learn about weaving.

I found learning about weaving from books more difficult than I expected. I attribute part of this to the fact that there are technical aspects in weaving that must be presented to weavers who may not have technical
backgrounds and no doubt sometimes written by weavers without technical backgrounds either. This leads to imprecision and incompleteness where I wanted precision and completeness. Another thing that I learned in this regard is that most weaving books take for granted some knowledge, such as what it means to “weave tabby” with the result that a complete novice such as I was at the time is left puzzled by apparent omissions.

On the other hand, I learned long ago that there is some benefit in coming new to a field without the preconceptions and presumptions that knowledgeable persons have acquired from others — ignorance has its advantages. Also, the critical novice can question conventional wisdom, which sometimes is misleading if not downright wrong. Accepting conventional wisdom is easy and convenient, but it also tends to make new ideas “unthinkable”. I tried to keep these things in mind when learning about weaving.

In addition to reading, I also corresponded by e-mail with several weavers who were willing to help a novice. On the recommendation of one of these weavers, I joined Complex Weavers (with considerable trepidation), initially to gain access to its excellent lending library. But soon I joined several study groups so that I could learn more about some topics from experts.

I explored weaving programs, first trying free ones and demonstration versions of commercial programs, but I finally purchased several programs to see how capable programs worked, what kinds of features they supported, and what their conceptual bases were.

I have learned a great deal about weaving in the last few years, and continually learn more. All this has revealed to me how little I know and will ever know of this vast culture and body of knowledge. But knowledge was not all I wanted. I wanted to do things. And it was and is my perception that there were contributions to be made in my areas of interest.

I had not been long into my learning endeavor when it seemed to me that almost everything I had done professionally was applicable to weaving — a hidden preparation, as it were. And that preparation was in mathematics and computation.

With a different background and at another time in my life, I probably would have bought a loom and taken up actual weaving with a vengeance. But I could not do that and also explore mathematical and computational topics in weaving. I chose the latter. I realize that by not being an actual weaver, I am missing a great deal and that there are gaps in my knowledge and understanding. I made my decision knowing this.

As mentioned earlier, throughout my professional career I have used the process of writing programs to verify my ideas and to increase the depth of my
understanding. In fact, programming is a research technique for me. It exposes hidden assumptions and flaws in reasoning, and almost always leads to new ideas. A program also makes it possible to try things that are too tedious, time consuming and error prone to do by hand.

I have written hundreds of programs related to various aspects of weaving, ranging from simple utilities to a full-blown interactive program for weave design, albeit unlike any of the existing commercial ones.

I started to write down my ideas and results. Like programming, writing is a research tool for me, and for many of the same reasons.

I published my first writings in the Icon Analyst, a newsletter for advanced computer programmers. Few of the readers, if any, knew much about weaving, so I started with tutorials, which provided an excellent way for me to clarify my own thinking. Next I described Painter's weaving language, and then went on to some of my own work.

Later I started to write short articles and publish them on the Web: easy, convenient, and readily accessible to others. I spruced up a couple of the less technical articles and published them in Complex Weavers Journal.

A couple of years ago, I started to think about writing a book containing the material I had developed. (Richard Feynman, a Nobel Laureate in physics once commented “A professor is a person who doesn’t know when to stop talking”. I would add that a professor is a person who doesn’t know when to stop writing.) I began to see the articles I was publishing on the Web as preliminary drafts of material for a book. By publishing my work in separate articles, I was free of having to worry about how things fit together. For a book, I began to worry about this, and it, not surprisingly, has been the major difficulty I’ve faced — trying to make a somewhat coherent “whole”. Of course in trying to do this, I have learned a great deal and come upon new ideas.

One of the major problems I’ve had with the whole concept was “Who could possibly use this book?”. Most weavers do not have a background or an interest in mathematics and computation. A subsidiary question was to what extent even those few weavers with the necessary background could actually apply the ideas and methods in the book to weave design? To be useful in practice, much of the material in the book requires computer programs — programs that are not supplied. Many, however, are easy for an experiences programmer to write.

Despite all these misgivings, I have decided to publish this book. If it succeeds in giving only a few weavers ideas and inspiration, the effort will have been worthwhile. And as time passes, there will be more weavers with the background to use the material in it.
I have chosen to publish this book on the Web for several reasons. The first and foremost is to make it freely and widely available. As an alternative, paper publication has its advantages and disadvantages, and self publishing is reasonably easy with the present technology. However, a printed book cannot be provided free. There also are numerous administrative problems with paper publication that I would prefer to avoid. If you are wondering why I didn’t seek a commercial publisher, the reason is that there simply is not an adequate market to make such a project financially viable.

Here it is, yours for the taking. Look through it, read it, and perhaps dream of the possibilities.

Ralph E. Griswold
Otero House
Tubac, Arizona
June 5, 2002

Tucson, Arizona
September 21, 2006