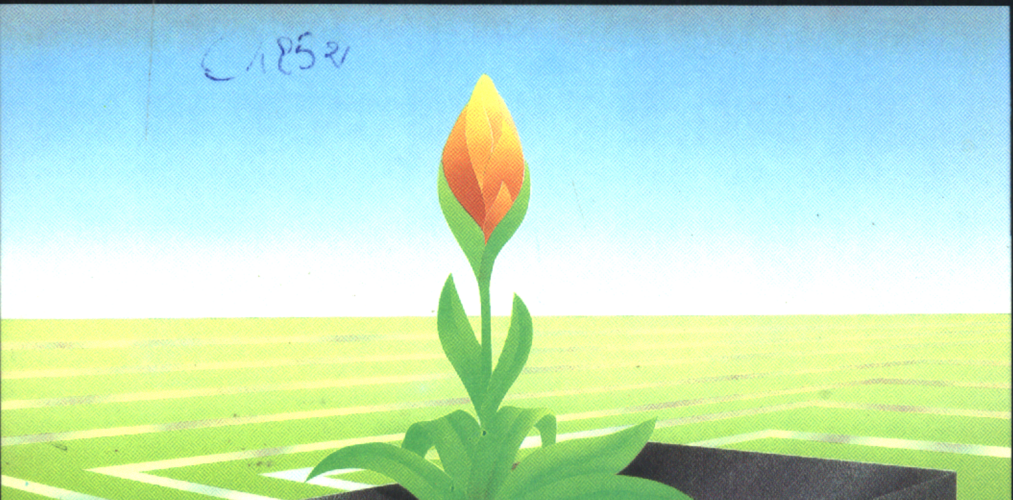
BUILD YOUR OWN

Expert System

CHRIS NAYLOR



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for the IBM PC and Compatibles

Chris Naylor

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Preface

A potential reader is standing in a bookshop with a copy of a possible purchase in his or her hand. Having looked at the front cover, and looked at the back cover, he or she now reads the Preface to determine whether or not the book should be purchased. The Preface, says the Theory, clinches the sale.

So much for theory. The real reason you should buy this book is because, for a book on computers, it is relatively cheap. It also contains working examples in BASIC for the IBM PC and close compatibles so you get some 'free' programs thrown in for your money. Actually though, the BASIC used is so basic that it could be pretty readily converted to most other computers if you don't happen to have a PC.

It tells you a moderate amount about Expert Systems, but, frankly, to disclose exactly what it does tell about Expert Systems would rather annihilate the reason for buying it. After all, you could just stand there, in the bookshop, reading the Preface and hang onto your money. But it will (just as a sort of appetiser) enable you to build your own expert system for medical diagnosis. Or an expert system to work out why your car won't start in the morning. Or it will enable you to build a learn-by-example expert system which can be taught expertise in a wide range of areas.

It will also teach you a fair amount about statistics and inferencing systems but, despite that, you should still shell out the necessary and buy a copy.

I know money is tight these days and you could usefully spend it on something else, like drink, which would give *you* greater pleasure but I have to make a living too you know and the cost of printer ribbons alone was pretty enormous when it came to bashing this lot out.

Well, after all that, maybe you've had the heart to fork out on a copy and you're actually planning to read the thing now. What you do is start at the beginning and carry on until you get to the Technical Overview. Then think of something you'd like to try out – such as a machine learning system or a bit of diagnosis – and dig out the relevant parts using the Contents pages, the Index, and the Technical Overview to tie it together.

Alternatively, you could have your computer switched on as you read the book and key in the examples as you go along, that way seeing how they work as an aid to understanding. If you do this it could take you ages to get to the end, of course.

The big point to note though is that this book is not arranged like a normal text book. The chapters are not isolated entities. One way or another you do have to churn right through from front to back to get the ideas in the proper sequence. A few people have commented that it reads more like a novel than a text book in the way it's arranged – which is a fair point, but it's probably as well to warn you that it's like that.

Prior to publication this book was read by Graham Beech, Phil Bradley, Bill Hudspith and Phil Manchester (in alphabetical order).

They all chipped in with comments of one sort or another and they each have caused some improvements to be made to the final version. Which was nice of them.

If anyone, having read the book, has any comments which might lead to useful alterations, then drop the publisher a line and let him know.

A Note on the Programs

All of the programs in this book have been written in Basic to run on the IBM PC and close compatibles.

They have been tested under IBM's Advanced Basic (Basica), GW Basic and Locomotive Basic 2 (as supplied with the Amstrad PC 1512).

However, they have all been written using a very simple sub-set of Basic which should enable the average Basic programmer to readily convert the programs to some other dialect to suit their particular machine or individual preferences.
Where examples of actual run-time output are given these were obtained using an IBM PC running Basica. Readers using other machines or other Basic interpreters can expect to obtain similar results at run-time to those shown but minor variations may arise. This is usually due to such things as the different methods used by other machine/interpreter combinations when rounding numeric variables and the differing behaviour of their random number generators and other built-in functions. Any variations in run-time performance due to these factors are usually of little practical consequence.

All of the program code shown in this book has been printed in upper case text except in the case of string constants where a combination of upper and lower case text is sometimes used. Depending on the Basic interpreter you use you may find that the program code displayed on your screen is not in the same combination of upper and lower case. For instance, users of the Amstrad PC 1512 running Locomotive Basic 2 will notice that their screen only displays Basic 2 key words in upper case whilst variable names are displayed in lower case. This is quite normal and is not a program fault.

Also, where a program line extends over more than one line on the printed page the line has been broken, indented, and continued in such a way as to try to make the overall program text as legible as possible to the reader. The result is that the lines as displayed on your screen may not be broken and indented in exactly the same way as shown in this book. For example, users of the IBM PC running Basica will notice that any lines extending over more than 80 characters are displayed on their screens in such a way as to continue on the next line without any indentation. Again, this is quite normal and is not a program fault.

In general, when entering programs into your machine try to maintain the sense of the code and do not try to make the physical spacing, layout or appearance exactly match that shown in the book.

Reader Convenience Disk

A 5¼″ PC-compatible disk containing all the programs in this book–including the medical knowledge base is available from Sigma Press for £11.50 including post, packing and VAT. This price is valid until September 1988 and is applicable to UK and Europe only. Other purchasers should remit the equivalent of £15.00 to include airmail despatch.

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