

# Using Online Scientific & Engineering Databases



- ▶ Minimize cost, maximize efficiency
- ▶ Lists many major technical online databases
- ▶ Includes sample subject searches

**Harley Bjelland**

# Using Online Scientific & Engineering Databases

*Harley Bjelland*

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To my fellow engineers and scientists  
who serve mankind in so many ways,  
making this a better world for all to live in.  
May their thirst for knowledge be heightened  
and encouraged by this volume.

**Other books by Harley Bjelland**

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# Introduction

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I wrote this book to be used by researchers, scientists, managers, technical writers, physicists, engineers, chemists, designers, students, technicians, professors, computer designers/programmers . . . virtually everyone involved in any aspect of the engineering and science professions.

You need not be a computer expert to use this book. The computer is but a tool that will help you acquire the knowledge you seek. This book shows you—in a step-by-step, easy-to-follow manner—how to use this modern miracle to search through hundreds of thousands of articles and books in minutes and locate precisely what you need.

## More information than knowledge

Today we have much more information than knowledge. This book is dedicated to helping you locate and acquire the knowledge you need from the huge mountains of information stored in databases.

You are about to glimpse into the electronic libraries of the future, libraries that are not only here today, but libraries that will become a more and more vital part of your day-to-day activities.

No longer will you have to struggle, lost and frustrated, paging through outdated texts and printed material. No longer will you have to search for an obscure chemical formula or engineering data. No longer will you be discouraged by the fact that the book you want is checked out of the library, or is out of print. Now most engineering and scientific information is completely up-to-date, electrified, instantly available, and as near as the keyboard of your computer.

This is the age of the computer. But the computer is not a magician, it is merely an assistant, a valuable tool that can help you advance in your professional career. It cannot perform a single function without someone telling it what to do. This book will show you how to make it work for you.

## How to read this book

I designed *Using Online Scientific & Engineering Databases* to be read from beginning to end. The chapters form a sequence of logical activities that show you, step-by-step, what databases are, how they are constructed and what information they contain. Examples are given of how to access and search each of these types of databases to obtain specific engineering, scientific, or related information. Emphasis is on efficiency, minimizing jargon, and simplifying the procedures as much as possible.

To use this book most efficiently, first scan the Table of Contents for a quick outline of the book. Note the various topics covered. A variety of techniques is used to present the information in an easily readable manner. Look over some of the examples in the text. See what topics they cover.

Then begin with Chapter 1 and read the entire chapter. It gives you a good summary of the topics that will be covered and introduces you to the concept of online databases, what they are and what they can do for you.

The subsequent chapters introduce and explain the two basic types of databases that are available: Consumer and Technology.

Using this background, the book then covers specific databases and provides examples of accessing and navigating inside them, listing the information they provide, and how to respond to this information to obtain the data you seek.

When you read through this manual, be an active reader. Keep a marking pen nearby and underline or highlight the points you would particularly like to reinforce and download into your personal memory bank. This also helps you locate the important points that you may want to return to and review later.

This book was written not just to be read but—importantly—to *be used*. So, use it well and you'll find that your searches for knowledge will be easier, more thorough, and rewarding in many ways.

Let's get started.

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## Engineers and scientists meet your new assistants

*Man is a tool-using animal.*

Thomas Carlyle

How would you like to have a dedicated and competent technical assistant who

- has an infallible memory (is capable of total recall)?
- is accurate, up-to-date, and completely knowledgeable in all branches of science and engineering?
- remembers all the details of millions of documents and has memorized all science and engineering formulas and data?
- is on call 24 hours a day, seven days a week, 365 days a year?
- is never ill and never tires?
- is not temperamental and is always willing and ready to do your bidding?
- works for a few dollars an hour?
- is as close as your telephone?

Sound impossible? Not if you take advantage of the many online databases that are available to every engineer and scientist with a computer, a modem, and a telephone line.

### A flood of information

The last decade of the twentieth century has seen 95 percent of all the scientific breakthroughs of human history. All of these vital breakthroughs have been thoroughly documented in writing, resulting in millions of articles, manuscripts, reports, documents, and books being published. More than one million books alone are published annually. The collections of large research libraries have doubled in the past 14 years.

Researchers at Bell Labs estimate that more information is printed in one weekday edition of the New York Times than a person in the sixteenth century processed in an entire lifetime.

We are, indeed, being inundated with information. But it is not information that we need. What we need is knowledge, facts, data. So the problem becomes how to locate those few kilobytes of knowledge you need in those bega-billion pyramids of information.

Modern computer technology has provided the solution and the means for making this important connection.