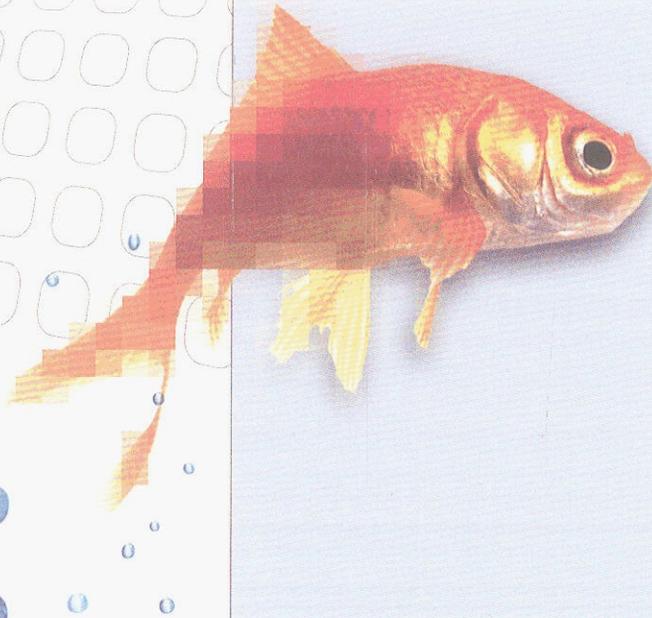
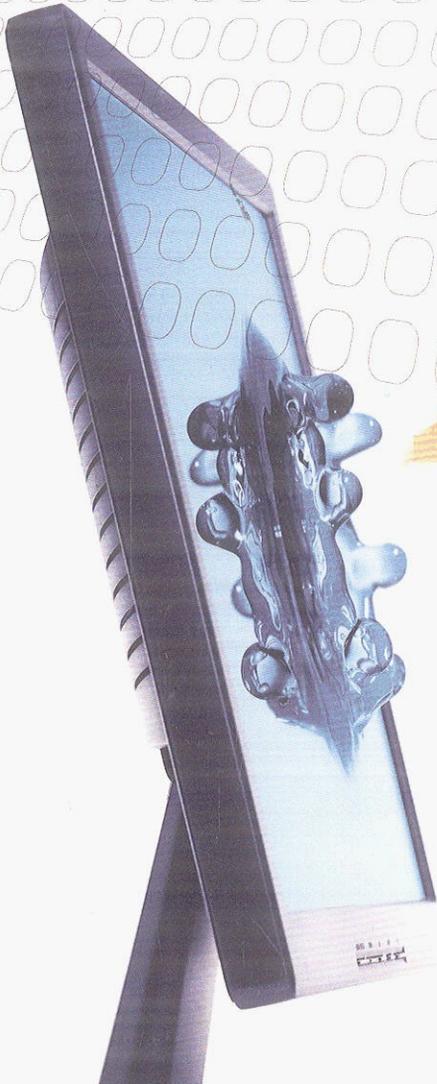


AN INTRODUCTION TO

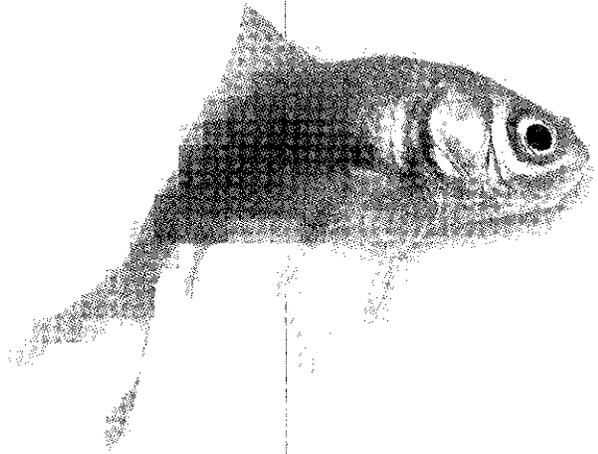
DIGITAL MULTIMEDIA



T. M. SAVAGE
K. E. VOGEL



Table of Contents



1	THE MULTIMEDIA REVOLUTION.....	1
1.1	MULTIMEDIA DEFINED	2
1.2	ORIGINS OF MULTIMEDIA	4
1.3	SECOND-GENERATION INNOVATORS	9
1.4	LEGACY OF THE MULTIMEDIA PIONEERS	15
1.5	MULTIMEDIA TODAY	15
2	DIGITAL DATA.....	19
2.1	SYMBOLS, DATA, AND INFORMATION	20
2.2	DIGITAL DATA: BITS, BYTES, AND CODES	21
2.3	DIGITAL FILES	23
2.4	DIGITIZATION	25
2.5	DIGITAL ENCODING OF MEDIA	28
2.6	FILE COMPRESSION	29
2.7	ERROR DETECTION AND CORRECTION	31
2.8	ADVANTAGES OF DIGITAL INFORMATION	32
2.9	DIGITAL CHALLENGES	33
2.10	SUMMARY	35
3	COMPUTER HARDWARE.....	39
3.1	COMPUTER SYSTEMS	40
3.2	COMPUTER PLATFORMS	42

3.3	COMPUTER HARDWARE BASICS	42
3.4	NETWORKS	72
3.5	SUMMARY	74

4 COMPUTER SOFTWARE79

4.1	CATEGORIES OF SOFTWARE	80
4.2	OPERATING SYSTEMS	80
4.3	PROGRAMMING LANGUAGES	87
4.4	APPLICATION SOFTWARE	90
4.5	SUMMARY	98

5 TEXT101

5.1	THE TEXT TRADITION	103
5.2	COMPUTER TEXT	107
5.3	FONT TECHNOLOGIES	109
5.4	MULTIMEDIA TEXT	111
5.5	ADDING TEXT TO A MULTIMEDIA APPLICATION	115
5.6	GUIDELINES FOR THE USE OF TEXT	116
5.7	SUMMARY	118

6 GRAPHICS121

6.1	TRADITIONAL GRAPHICS	123
6.2	2-D COMPUTER GRAPHICS	125
6.3	VECTOR-DRAWN GRAPHICS	137
6.4	BITMAPPED AND VECTOR GRAPHICS COMPARED	140
6.5	3-D COMPUTER GRAPHICS	140
6.6	GUIDELINES FOR THE USE OF GRAPHICS	146
6.7	SUMMARY	147

7 SOUND151

7.1	THE NATURE OF SOUND	153
7.2	TRADITIONAL SOUND REPRODUCTION	154
7.3	DIGITAL SOUND	154
7.4	SAMPLED AND SYNTHESIZED SOUND COMPARED	162
7.5	COMBINING SAMPLED AND SYNTHESIZED SOUND	164
7.6	ADVANTAGES OF DIGITAL SOUND	165
7.7	SOUND AND THE INTERNET	165
7.8	GUIDELINES FOR THE USE OF SOUND	166
7.9	SUMMARY	167

8	VIDEO.....	171
8.1	MOVING PICTURES	172
8.2	ANALOG VIDEO FORMATS	173
8.3	DIGITAL TELEVISION	177
8.4	DIGITAL VIDEO	178
8.5	SOURCES OF DIGITAL VIDEO	181
8.6	GUIDELINES FOR VIDEO	192
8.7	SUMMARY	193
9	ANIMATION.....	197
9.1	THE BRAVE NEW WORLD OF DIGITAL ANIMATION	198
9.2	ANIMATION BASICS	199
9.3	TRADITIONAL ANIMATION	200
9.4	DIGITAL ANIMATION	204
9.5	ANIMATION TIPS AND GUIDELINES	211
9.6	SUMMARY	212
10	AUTHORING.....	215
10.1	AUTHORING APPLICATIONS	216
10.2	THE AUTHORIZING PROCESS	219
10.3	CHOOSING AN AUTHORIZING APPLICATION	225
10.4	SUMMARY	226
11	MULTIMEDIA DEVELOPMENT.....	229
11.1	THE DEVELOPMENT TEAM	230
11.2	TEAM MEMBERS	231
11.3	THE DEVELOPMENT PLAN	236
11.4	SUMMARY	242
12	PROFESSIONAL ISSUES IN MULTIMEDIA DEVELOPMENT.....	245
12.1	PROFESSIONS AND PROFESSIONAL RESPONSIBILITY	246
12.2	THE COPYRIGHT TRADITION: RIGHTS, REMEDIES, AND EXCEPTIONS	251
12.3	COPYRIGHT IN THE AGE OF DIGITAL MEDIA	254
12.4	DIGITAL RIGHTS MANAGEMENT	255
12.5	CONCLUSION	264
	APPENDICES.....	271
A.	CD DATA FORMAT AND DISC STANDARDS	271
B.	THE SCANNING PROCESS	275

C. SOFTWARE ENGINEERING CODE OF ETHICS AND PROFESSIONAL PRACTICE	279
D. DIGITAL MULTIMEDIA TIMELINE	287

GLOSSARY	291
-----------------------	------------

INDEX	325
--------------------	------------