

Contents

1	Introduction	1
	Kinds of Publication	2
	Writing, Science, and Skepticism	3
	Using This Book	4
	Spelling and Terminology	6
2	Getting Started	9
	Beginnings	10
	Shaping a Research Project	11
	Research Planning	14
	Students and Advisors	15
	A “Getting Started” Checklist	17
3	Reading and Reviewing	19
	Research Literature	20
	Finding Research Papers	21
	Critical Reading	23
	Developing a Literature Review	25
	Authors, Editors, and Referees	26
	Contribution	27
	Evaluation of Papers	28
	Content of Reviews	30
	Drafting a Review	31
	Checking Your Review	32
4	Hypotheses, Questions, and Evidence	35
	Hypotheses	36
	Defending Hypotheses	38
	Forms of Evidence	40
	Use of Evidence	42
	Approaches to Measurement	43

	Good and Bad Science	44
	Reflections on Research	47
	A “Hypotheses, Questions, and Evidence” Checklist	49
5	Writing a Paper	51
	The Scope of a Paper	51
	Telling a Story	54
	Organization	56
	The First Draft	62
	From Draft to Submission	63
	Co-authoring	65
	Theses	66
	Getting It Wrong	67
	A “Writing Up” Checklist	72
6	Good Style	75
	Economy	76
	Tone	77
	Examples	79
	Motivation	80
	Balance	81
	Voice	81
	The Upper Hand	82
	Obfuscation	83
	Analogies	84
	Straw Men	84
	Reference and Citation	86
	Quotation	90
	Acknowledgements	92
	Grammar	93
	Beauty	93
7	Style Specifics	95
	Titles and Headings	95
	The Opening Paragraphs	97
	Variation	98
	Paragraphing	99
	Ambiguity	100
	Sentence Structure	101
	Tense	105
	Repetition and Parallelism	105
	Emphasis	106
	Definitions	107
	Choice of Words	108

Qualifiers	110
Misused Words	110
Spelling Conventions	113
Jargon.	114
Cliché and Idiom	115
Foreign Words.	116
Overuse of Words	116
Padding	117
Plurals	118
Abbreviations	119
Acronyms	120
Sexism	121
8 Punctuation	123
Fonts and Formatting	123
Stops	124
Commas	124
Colons and Semicolons.	126
Apostrophes	126
Exclamations	127
Hyphenation	127
Capitalization.	128
Quotations.	128
Parentheses	129
Citations	130
9 Mathematics	131
Clarity	131
Theorems	133
Readability	134
Notation	136
Ranges and Sequences	137
Alphabets	138
Line Breaks.	138
Numbers	139
Percentages	141
Units of Measurement.	142
10 Algorithms	145
Presentation of Algorithms	145
Formalisms	147
Level of Detail.	150
Figures	151
Notation	152

Environment of Algorithms	152
Asymptotic Cost	153
11 Graphs, Figures, and Tables	157
Graphs	157
Diagrams	166
Tables.	171
Captions and Labels	176
Axes, Labels, and Headings.	178
12 Other Professional Writing	179
Scoping the Task	179
Understanding the Task.	180
Documentation.	181
Technical Reports.	182
Grant Applications	183
Non-technical Writing.	184
Structuring a Report	185
Audience.	186
Style.	187
Other Problem Areas	189
A “Professional Writing” Checklist.	190
13 Editing	191
Consistency	192
Style.	192
Proofreading	193
Choice of Word-Processor.	194
An “Editing” Checklist	195
14 Experimentation	197
Baselines.	198
Persuasive Data	199
Interpretation	203
Robustness	205
Performance of Algorithms	207
Human Studies	209
Coding for Experimentation.	211
Describing Experiments	212
An “Experimentation” Checklist.	214
15 Statistical Principles	217
Variables.	218
Samples and Populations.	219

Aggregation and Variability	220
Reporting of Variability	222
Statistical Tools	224
Randomness and Error	227
Intuition	230
Visualization of Results	231
A “Statistical Principles” Checklist	233
16 Presentations	237
Research Talks.	238
Content.	239
Organization	241
The Introduction	242
The Conclusion	243
Preparation	243
Delivery	244
Question Time	246
Slides	246
Text on Slides	249
Figures	250
Posters	251
A “Presentations and Posters” Checklist	253
17 Ethics.	255
Intellectual Creations	257
Plagiarism	257
Self-plagiarism.	260
Misrepresentation	261
Authorship	262
Confidentiality and Conflict of Interest	263
An “Ethics” Checklist.	264
Afterword	265
Exercises	267
Index	277



<http://www.springer.com/978-1-4471-6638-2>

Writing for Computer Science

Zobel, J.

2014, XIII, 284 p. 28 illus., Softcover

ISBN: 978-1-4471-6638-2