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Approaches and Frameworks for HCI Research

This research textbook, designed for young human–computer interaction (HCI) researchers beginning their careers, surveys the research models and methods in use today and offers a general framework to bring together the disparate concepts. HCI spans many disciplines and professions, including information science, applied psychology, computer science, informatics, software engineering and social science, making it difficult for newcomers to get a good overview of the field and the available approaches. The book's rigorous 'approach-and-framework' response is to the challenge of retaining growth and diversification in HCI research by building up a general framework from approaches for innovation, art, craft, applied, science and engineering. This general framework is compared with other HCI frameworks and theories for completeness and coherence, all within a historical perspective of dissemination success. Readers can use this as a model to design and assess their own research frameworks and theories against those reported in the literature.

John Long is Emeritus Professor of Cognitive Engineering at University College London, where he was previously Professor of Cognitive Ergonomics and Director of the Ergonomics and HCI Unit. He has served as manager at Shell Oil International in Africa and Vietnam and as senior scientist at the Medical Research Council Applied Psychology Unit (MRC/APU), Cambridge. His research includes three co-authored books, more than 200 publications, and numerous presentations, grants and consultancies. He has received the Ergonomics Society (ES) Sir Frederick Bartlett medal, the International Ergonomics Association (IEA) Outstanding Educator's Award, and recently received the Athena Swan Award, being identified as a hero of Computer Science by the University of York. An avid cyclist, he has completed the Tour de France, Giro d'Italia and other major cycling tour routes elsewhere in Europe, Australia and Asia. He is also an expressive abstractionist painter. His 'Framed Approaches' from 1989 serves as the cover for this book. He is an unreconstructed existentialist.

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JOHN LONG
University College London

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To Doris, Hadley and Ben.
And to Paola for listening.

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Frontmatter
More Information

Contents

Preface *page* xi
Acknowledgements xiii

1 Approaches and Frameworks for HCI Research 1
1.1 Why HCI? 1
1.2 State of HCI 2
1.3 State of HCI Research 2
1.4 Challenges for HCI Research 3
1.5 Aims of Research Textbook 3
1.6 HCI Research Approaches and Frameworks 4
1.7 Research Practice Assignment 5
1.8 Notes 6

2 Approaches to HCI Research 7
2.1 Approach 7
2.2 Approaches to HCI Research 8
2.3 Current Approaches to HCI Research 9
2.4 Research Practice Assignment 11
2.5 Notes 12

3 Frameworks for HCI Research 13
3.1 Framework 13
3.2 Framework for HCI 14
3.3 Framework for a Discipline 15
3.4 Core Framework for a Discipline of HCI Including HCI Research 16
3.5 Lower-Level Framework for a Discipline of HCI Including HCI Research 18
3.6 HCI Discipline and HCI Research Illustration 18

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CAMBRIDGE

Cambridge University Press
978-1-108-71907-0 — Approaches and Frameworks for HCI Research
John Long
Frontmatter
More Information

3.7 Research Practice Assignment 20
3.8 Notes 21

4 Innovation Approach and Framework for HCI Research 23
4.1 Innovation Approach to HCI Research 23
4.2 Example of an Innovation Approach to HCI Research 24
4.3 Innovation Framework for HCI Research 26
4.4 Research Practice Assignment 38

5 Art Approach and Framework for HCI Research 44
5.1 Art Approach to HCI Research 44
5.2 Example of an Art Approach to HCI Research 45
5.3 Art Framework for HCI Research 47
5.4 Research Practice Assignment 57

6 Craft Approach and Framework for HCI Research 64
6.1 Craft Approach to HCI Research 64
6.2 Example of a Craft Approach to HCI Research 65
6.3 Craft Framework for HCI Research 67
6.4 Research Practice Assignment 77

7 Applied Approach and Framework for HCI Research 83
7.1 Applied Approach to HCI Research 83
7.2 Example of an Applied Approach to HCI Research 84
7.3 Applied Framework for HCI Research 85
7.4 Research Practice Assignment 96

8 Science Approach and Framework for HCI Research 102
8.1 Science Approach to HCI Research 102
8.2 Example of a Science Approach to HCI Research 103
8.3 Science Framework for HCI Research 104
8.4 Research Practice Assignment 117

9 Engineering Approach and Framework for HCI Research 123
9.1 Engineering Approach to HCI Research 123
9.2 Example of an Engineering Approach to HCI Research 124
9.3 Engineering Framework for HCI Research 125
9.4 Research Practice Assignment 139

10 General Approach and General Framework for HCI Research 145
10.1 General Approach to HCI Research 145
10.2 General Framework for HCI Research 145

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CAMBRIDGE

Cambridge University Press
978-1-108-71907-0 — Approaches and Frameworks for HCI Research
John Long
Frontmatter
More Information

10.3 Generic Framework Critiques 152
10.4 Research Practice Assignment 154
10.5 Notes 156

11 Validating General Approach and General Framework for HCI Research 158
11.1 Validation 158
11.2 Validation of HCI Knowledge Acquired by HCI Research 159
11.3 Validation of HCI Knowledge Acquired by HCI Research Approaches 160
11.4 Validation of HCI Knowledge Supported by General Framework for HCI Research 161
11.5 Research Practice Assignment 164
11.6 Notes 168

12 Assessing General Framework against Other HCI Frameworks 169
12.1 General 169
12.2 General Framework Assessment 171
12.3 Assessment of General Framework for HCI Research against Other Frameworks 172
12.4 Dissemination of HCI Frameworks for Research 191
12.5 Summary and Observations 197
12.6 Research Practice Assignment 199
12.7 Notes 204

13 Assessing General Framework against HCI Theories 208
13.1 General 208
13.2 General Framework Assessment 209
13.3 Assessment of General Framework for HCI Research against HCI Theories 211
13.4 Summary and Observations 221
13.5 Research Practice Assignment 223
13.6 Notes 226

14 Methodological Component for General Framework 227
14.1 Methodological Framework Requirement 227
14.2 Meeting Methodological Framework Requirement 231
14.3 Research Practice Assignment 236
14.4 Notes 238

15 Case Studies for General Framework 239

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CAMBRIDGE

Cambridge University Press
978-1-108-71907-0 — Approaches and Frameworks for HCI Research
John Long
Frontmatter
More Information

15.1 Case Study Requirement 239
15.2 Meeting Case Study Requirement 241
15.3 Research Practice Assignment 249
15.4 Notes 252

16 Approaches and Frameworks for HCI Research: Lessons Learned and Lessons Remaining 254
16.1 Lessons Learned and Lessons Remaining 254
16.2 Lessons Learned 263
16.3 Lessons Remaining 264

Postscript 268
References 271
Index 278

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CAMBRIDGE

Cambridge University Press
978-1-108-71907-0 — Approaches and Frameworks for HCI Research
John Long
Frontmatter
More Information

Preface

About This Book

The title of this book, *Approaches and Frameworks for HCI Research*, makes clear its scope and content. The latter concerns both what it is and what it is not. It is about human–computer interaction (HCI) research, not just about HCI in general. However, both subjects are addressed. This distinguishes it from other attempts to address the two subjects, either as separate or as undifferentiated topics. Here, approaches are distinguished from frameworks. However, both are specified explicitly, including the relations between them.

The book presents an 'approach-and-framework' response to the HCI research challenge of addressing the increased growth and diversification of HCI. The response supports researchers building on and validating each other's work. The aim is to decrease theory fragmentation and so to increase HCI discipline progress. The contrast is with HCI community progress, which continues apace.

It is a book for researchers, especially young researchers, and so might properly be described as a research textbook. In this respect, it is unique and different from other textbooks, which are aimed primarily at supporting the HCI teaching of undergraduate and masters' students. This difference is reflected in its 'how to do research' aspects, exemplified by the research practice assignments and, in particular, the research design scenarios presented at the end of chapters. For this reason, the text is organised and written to support application of the approaches and frameworks proposed. Encouraging researchers to internalise the latter is part of that support. This is in addition to supporting researchers in their ability to understand and to reason about the approaches and frameworks.

Although intended primarily for researchers starting their careers in academia or industry, the textbook is also suitable for graduate and postgraduate

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Frontmatter
More Information

students being introduced to the world of research. It also aims to support the supervisors teaching them about HCI research and its relation to HCI more generally. In particular, the textbook supports students in learning how approaches and frameworks contribute to the planning and conduct of research in practice.

It is a good time to publish such a research textbook. It offers a clear alternative to the current 'design-an-application-for-a-good-user-experience' line of design practice research. The latter, whatever its strengths, notably fails to address the HCI research challenge identified earlier concerning poor discipline progress. It might even be said to contribute to that challenge by the very number of frameworks and theories that it has helped to engender. Indeed, it is hard, on occasion, to distinguish such design practice research from HCI design practice itself. The textbook's strength lies in its recognition of the current differences between the many types of HCI approach to research appearing in the literature. Its strength also lies in the need for frameworks to apply to such approaches and so to support researchers building on and validating each other's work.

About the Author

The author feels able to write such a research textbook. The conception underlying the proposed relationship between approaches and frameworks for HCI research was developed by colleagues, PhD students and himself during their time at University College London. The conception has been used, then and since, for MSc and PhD student teaching, also for both academic and commercial research. The latter provides an extensive source of illustrations for the book together with the HCI research literature more generally.

About the Readership

As indicated, the textbook is primarily for young HCI researchers and their supervisors, from both engineering and science academics to research and development innovators. The book is also for researchers in related disciplines seeking ways to contribute to HCI research. Such disciplines include information science, applied psychology, computer science, informatics, software engineering and social science. Researchers are expected to use the textbook for detailed and ongoing reference in support of their work.

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I wish to acknowledge the journal *Interacting with Computers* and its erstwhile editor Dianne Murray for publishing in 2010 a Special Issue, entitled 'Festschrift for John Long'. The idea originated with the guest editors, Alistair Sutcliffe and Ann Blandford.

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