

THIRD EDITION

Designing Interactive Systems

A comprehensive guide to HCI, UX and interaction design



David Benyon

Designing Interactive Systems



Designing Interactive Systems PDF eTextbook

Table of Contents

Cover

Cover2

Contents

Guided tour

Preface

Publishers acknowledgements

Part I: Essentials of designing interactive systems

Introduction to Part I

1 Designing interactive systems: a fusion of skills

Aims

1.1 The variety of interactive systems

1.2 The concerns of interactive systems design

1.3 Being digital

1.4 The skills of the interactive systems designer

1.5 Why being human-centred is important

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

2 PACT: a framework for designing interactive systems

Aims

2.1 Introduction

2.2 People

2.3 Activities

2.4 Contexts

2.5 Technologies

2.6 Scoping a problem with PACT

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

3 The process of human-centred interactive systems design

Aims

3.1 Introduction

3.2 Developing personas and scenarios

3.3 Using scenarios throughout design

Table of Contents

3.4 A scenario-based design method

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

4 Usability

Aims

4.1 Introduction

4.2 Accessibility

4.3 Usability

4.4 Acceptability

4.5 Design principles

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

5 Experience design

Aims

5.1 Introduction

5.2 Engagement

5.3 Designing for pleasure

5.4 Aesthetics

5.5 Service design

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

6 The Home Information Centre (HIC): a case study in designing interactive systems

Aims

6.1 Introduction

6.2 Scenarios for the HIC

6.3 Evaluating early interface prototypes

6.4 A first design

6.5 The second interface design

Summary and key points

Exercises

Further reading

Table of Contents

Web links

Comments on challenges

Part II: Techniques for designing interactive systems

Introduction to Part II

7 Understanding

Aims

7.1 Understanding requirements

7.2 Participative design

7.3 Interviews

7.4 Questionnaires

7.5 Probes

7.6 Card sorting techniques

7.7 Working with groups

7.8 Fieldwork: observing activities in situ

7.9 Artefact collection and desk work

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

8 Envisionment

Aims

8.1 Finding suitable representations

8.2 Basic techniques

8.3 Prototypes

8.4 Envisionment in practice

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

9 Design

Aims

9.1 Introduction

9.2 Conceptual design

9.3 Metaphors in design

9.4 Conceptual design using scenarios

9.5 Physical design

9.6 Designing interactions

Summary and key points

Exercises

Table of Contents

Further reading

Web links

Comments on challenges

10 Evaluation

Aims

10.1 Introduction

10.2 Expert evaluation

10.3 Participant-based evaluation

10.4 Evaluation in practice

10.5 Evaluation: further issues

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

11 Task analysis

Aims

11.1 Goals, tasks and actions

11.2 Task analysis and system design

11.3 Hierarchical task analysis

11.4 GOMS: a cognitive model of procedural knowledge

11.5 Structural knowledge

11.6 Cognitive work analysis

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

12 Visual interface design

Aims

12.1 Introduction

12.2 Graphical user interfaces

12.3 Interface design guidelines

12.4 Psychological principles and interface design

12.5 Information design

12.6 Visualization

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

Table of Contents

13 Multimodal interface design

Aims

13.1 Introduction

13.2 Interacting in mixed reality

13.3 Using sound at the interface

13.4 Tangible interaction

13.5 Gestural interaction and surface computing

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

Part III: Contexts for designing interactive systems

Introduction to Part III

14 Designing websites

Aims

14.1 Introduction

14.2 Website development

14.3 The information architecture of websites

14.4 Navigation design for websites

14.5 Case study: designing the Robert Louis Stevenson website

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

15 Social media

Aims

15.1 Introduction

15.2 Background ideas

15.3 Social networking

15.4 Sharing with others

15.5 The developing web

Summary and key points

Further reading

Web links

Comments on challenges

16 Collaborative environments

Aims

16.1 Introduction

16.2 Issues for cooperative working

Table of Contents

16.3 Technologies to support cooperativeworking
16.4 Collaborative virtual environments
16.5 Case study: developing a collaborative tabletop application
Summary and key points
Exercises
Further reading
Web links
Comments on challenges

17 Agents and avatars

Aims
17.1 Agents
17.2 Adaptive systems
17.3 An architecture for agents
17.4 Applications of agent-based interaction
17.5 Avatars and conversational agents
Summary and key points
Exercises
Further reading
Web links
Comments on challenges

18 Ubiquitous computing

Aims
18.1 Ubiquitous computing
18.2 Information spaces
18.3 Blended spaces
18.4 Home environments
18.5 Navigating in wireless sensor networks
Summary and key points
Exercises
Further reading
Web links
Comments on challenges

19 Mobile computing

Aims
19.1 Introduction
19.2 Context awareness
19.3 Understanding in mobile computing
19.4 Designing for mobiles
19.5 Evaluation for mobile computing
Summary and key points
Exercises

Table of Contents

Further reading

Web links

Comments on challenges

20 Wearable computing

Aims

20.1 Introduction

20.2 Smart materials

20.3 Material design

20.4 From materials to implants

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

Part IV: Foundations of designing interactive systems

Introduction to Part IV

21 Memory and attention

Aims

21.1 Introduction

21.2 Memory

21.3 Attention

21.4 Human error

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

22 Affect

Aims

22.1 Introduction

22.2 Psychological theories of emotion

22.3 Detecting and recognizing emotions

22.4 Expressing emotion

22.5 Potential applications and key issues for further research

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

23 Cognition and action

Aims

Table of Contents

23.1 Human information processing

23.2 Situated action

23.3 Distributed cognition

23.4 Embodied cognition

23.5 Activity theory

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

24 Social interaction

Aims

24.1 Introduction

24.2 Human communication

24.3 People in groups

24.4 Presence

24.5 Culture and identity

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

25 Perception and navigation

Aims

25.1 Introduction

25.2 Visual perception

25.3 Non-visual perception

25.4 Navigation

Summary and key points

Exercises

Further reading

Web links

Comments on challenges

References

Index