

Contents

List of Contributors	xix
Part 1. Introduction	1
1. Inhabited Information Spaces: An Introduction	
<i>Elizabeth Churchill, David Snowdon and Emmanuel Frécon</i>	3
1.1 Introduction	3
1.2 Chapters in this Volume	5
1.2.1 Pure Virtual Environments	5
1.2.2 Mixed Reality Environments	6
1.2.3 Communication	6
1.2.4 Construction	7
1.2.5 Community	8
1.3 Summary	8
Part 2. Pure Virtual Environments	9
2. WWW3D and the Web Planetarium	
<i>Mårten Stenius and David Snowdon</i>	11
2.1 Introduction	11
2.2 Producing a 3D Representation of a Web Page	12
2.3 Browsing the Web Using WWW3D	13
2.4 Improving Scalability	16
2.5 The Web Planetarium: Creating a Richer Visualisation	20
2.5.1 Visual Differentiation of Nodes	20
2.5.2 The Web as a Road Network	22
2.5.3 Hybrid Browsing	22
2.6 Conclusion	24
3. PlaceWorld, and the Evolution of Electronic Landscapes	
<i>Steve Pettifer, Jon Cook and James Marsh</i>	25
3.1 Introduction	25
3.2 Background: The Physical and the Abstract	27
3.2.1 Watching a Cityscape	28
3.2.2 The Distributed Legible City	29

3.2.3 Finding “Something to Do”	31
3.2.4 Abstract Influences: Nuzzle Afar	33
3.3 PlaceWorld	33
3.3.1 The Design of PlaceWorld	34
3.3.2 The User Interface and Presentation System	36
3.4 Technological Challenges for Electronic Landscapes	37
3.4.1 Synchronising the Behaviour of Entities	39
3.4.2 Distribution and Communications	40
3.4.3 Defining the Behaviour of Entities	41
3.4.4 Methods and Filters	43
3.4.5 The Distribution Architecture	44
3.5 System Support for PlaceWorld	46
3.5.1 Menus	46
3.5.2 Access Model	46
3.5.3 Exploiting Subjectivity	47
3.5.4 Becoming a Place Where Places Meet	48
3.6 Conclusions	
4. Using a Pond Metaphor for Information Visualisation and Exploration	
<i>Olov Ståhl and Anders Wallberg</i>	51
4.1 Introduction	51
4.2 The Pond	54
4.2.1 The Pond Ecosystem Metaphor	54
4.2.2 The Pond Example Application	55
4.2.3 The Hardware Platform	56
4.2.4 The Software Platform	57
4.3 Interaction	58
4.4 The Pond Audio Environment	63
4.5 Observations from Use	64
4.6 Discussion	65
4.7 Summary and Future Work	68
Part 3. Mixed Reality Environments	69
5. City: A Mixture of Old and New Media	
<i>Matthew Chalmers</i>	71
5.1 Introduction	71
5.2 Theory	73
5.3 System	77
5.4 Use	82
5.5 Ongoing and Future Work	86
5.6 Conclusion	88

6. Soundscapes	
<i>Tony Brooks</i>	89
6.1 Introduction	89
6.2 The Soundscapes System	89
6.3 Therapeutic Uses of Soundscapes	92
6.4 Artistic Performances Based on Soundscapes	94
6.4.1 Interactive Painting	94
6.4.2 The Four Senses	96
6.5 Conclusion	99
7. The Computational Interplay of Physical Space and Information Space	
<i>Enric Plaza</i>	101
7.1 Introduction	101
7.2 The Interplay of Physical and Information Spaces	102
7.3 A Framework for Context-aware Agents	104
7.3.1 Awareness and Delivery Services	105
7.3.2 Agents Requirements	105
7.4 The COMRIS Conference Centre	107
7.4.1 Delivery Service	107
7.4.2 Awareness Service	108
7.4.3 Tasks	109
7.5 Conclusions	110
Part 4. Communication	113
8. Communicating in an IIS: Virtual Conferencing	
<i>Adrian Bullock</i>	115
8.1 Introduction	115
8.2 Virtual Conferencing – a Historical Perspective: Past, Present and Future	116
8.2.1 What Do We Mean by Virtual Conferencing?	117
8.3 Approaches to Virtual Conferencing	117
8.3.1 Early Videoconferencing	117
8.3.2 MUDs and MOOs	118
8.3.3 The Arrival of Graphics	118
8.3.4 Video Comes of Age	120
8.3.5 Graphics Come of Age	122
8.4 Using Virtual Conferencing	124
8.4.1 Understanding Collaboration	124
8.4.2 The Importance of First Impressions	125
8.4.3 Sharing Context	125
8.4.4 Scalability	125
8.4.5 Real Versus Abstract: The Role of Video?	126

8.5	Virtual Conferencing Versus Telephony	127
8.6	Guidelines for Using Virtual Conferencing Effectively	129
8.6.1	What Is the Task at Hand?	129
8.6.2	Communication Media	130
8.6.3	Infrastructural Support	130
8.7	Final Remarks	131
9.	Getting the Picture: Enhancing Avatar Representations in Collaborative Virtual Environments	
	<i>Mike Fraser, Jon Hindmarsh, Steve Benford and Christian Heath</i>	133
9.1	Introduction	133
9.2	Method	135
9.3	Analysis	137
9.3.1	Awareness and Co-ordination	137
9.3.2	Anticipation	140
9.3.3	Occlusion	142
9.4	Summary	145
9.5	Reflections	145
9.5.1	Scaleability	146
9.5.2	Reciprocity of Perspective	147
9.5.3	Unrealism	149
9.6	Conclusions	150
10.	New Ideas on Navigation and View Control Inspired by Cultural Applications	
	<i>Kai-Mikael Jää-Aro and John Bowers</i>	151
10.1	Introduction and Overview	151
10.1.1	Challenges for Interaction Design	152
10.2	Interactive Performances	153
10.2.1	Lightwork	155
10.2.2	Blink	160
10.3	Inhabited Television	164
10.3.1	Heaven and Hell – Live	165
10.3.2	Out of This World	166
10.4	Production Management	169
10.4.1	Finding and Framing the Action	170
10.4.2	The Round Table: A Physical Interface	172
10.4.3	Conclusions	175
10.5	Discussion: Navigation, Presence and Avatars	176
10.5.1	Avatar-centred Navigation	176
10.5.2	Object-centred Navigation	177
10.5.3	Activity-oriented Navigation	178
10.5.4	Navigation as Montage, Dispersed Avatars	178
10.5.5	Accomplishing Presence and Intelligibility	179

11. Presenting Activity Information in an Inhabited Information Space

*Wolfgang Prinz, Uta Pankoke-Babatz, Wolfgang Gräther,
Tom Gross, Sabine Kolvenbach and Leonie Schäfer*

11.1	Introduction	181
11.2	Related Work and Requirements	182
11.3	User Involvement and Studies	184
11.3.1	Partner Settings and Evaluation Methods	185
11.3.2	Do Users Meet at all in a Shared Workspace?	186
11.4	The Tower Architecture	188
11.5	Personalised Overview of Activities: The Tower Portal	189
11.6	Awareness in a Working Context: Smartmaps	191
11.7	Symbolic Actions in a Context-based 3D Environment	194
11.7.1	The Tower World	194
11.7.2	User Feedback	196
11.8	DocuDrama	198
11.9	Ambient Interfaces	201
11.10	Lessons Learned About Awareness	203
11.10.1	Awareness Is Something One Is Not Aware of	203
11.10.2	Synchronicity of Awareness	204
11.10.3	Walking and Talking Are Means to Achieve Awareness	205
11.10.4	Peripheral Awareness in Electronic Settings	205
11.10.5	Awareness Is Double-situated: The Workspace's and the Observer's Situation	206
11.11	Summary and Conclusion	207

Part 5. Construction 209

12. DIVE: A Programming Architecture for the Prototyping of IIS

<i>Emmanuel Frécon</i>	211
12.1 Introduction	211
12.2 The Virtual World as a Common Interaction Medium	212
12.3 Partial, Active Database Replication	213
12.4 Programming the System	215
12.4.1 The DIVE Programming Model	216
12.4.2 Programming Interfaces	216
12.4.3 Building your Application	218
12.5 DIVE as a Component-based Architecture	223
12.5.1 System Components	223
12.5.2 User-oriented Components	224
12.5.3 The DIVE Run-time Architecture	225
12.6 The London Demonstrator: An Example Application in More Detail	226

12.6.1 Centre of London	228
12.6.2 Collaboration Services for Use by Groups	229
12.6.3 Tourist Information Data Visualisation Service	229
12.6.4 Real-time Simulations	230
12.7 Conclusion and Future Work	231
13. Communication Infrastructures for Inhabited Information Spaces	
<i>David Roberts</i>	233
13.1 Introduction	233
13.1.1 Requirements	234
13.1.2 Information	235
13.1.3 Avatars	236
13.1.4 Interaction	237
13.1.5 Communication Requirements	238
13.1.6 Resources: Computers and Networks	240
13.2 Principles	240
13.2.1 Localisation	241
13.2.2 Scaling	246
13.2.3 Persistence	251
13.2.4 Communication	252
13.3 Architecture	256
13.3.1 The DIVE Architecture	256
13.3.2 PING	260
13.4 Deployment	263
13.4.1 Point-to-point	264
13.4.2 Tunnelled Group	265
13.4.3 Hybrid	266
13.5 Conclusion	266
Part 6. Community	269
14. Peer-to-peer Networks and Communities	
<i>Mike Robinson</i>	271
14.1 Introduction	271
14.2 Early Inhabited Information Spaces in CSCW	274
14.2.1 Rendering the Invisible Visible	274
14.2.2 ClearBoard	275
14.2.3 Feather, Scent and Shaker: Supporting Simple Intimacy ..	276
14.2.4 Gesture Cam: The Nodding Robot	277
14.3 P2P Themes and Overall Direction	278
14.4 Design for Community: Inhabited Information Spaces	281
14.4.1 Communities: An Aside on Definitions	281
14.4.2 Communities: An Aside on Use	282
14.4.3 Communities: An Aside on Philosophy	284

14.5	P2P, Community and the Design of Inhabited Information Spaces	286
14.6	Concluding Remarks	288
15.	Inhabitant's Uses and Reactions to Usenet Social Accounting Data	
	<i>Byron Burkhalter and Marc Smith</i>	291
15.1	Introduction	291
15.2	Related Work	293
15.3	Netscan	294
15.4	Findings	295
	15.4.1 Social Accounting Data and Author-assessment Threads	295
	15.4.2 Social Accounting Data and Newsgroup-assessment Threads	301
15.5	Conclusion	305
References	307
Index	325

Inhabited Information Spaces

Living with your Data

Snowdon, D.N.; Churchill, E.F.; Frécon, E. (Eds.)

2004, XXIII, 329 p., Softcover

ISBN: 978-1-85233-728-5