Contents

Preface v
References viii
Contributing Authors xv

1 Multilingual Speech Interfaces for Resource-Constrained Dialogue Systems
Martin Raab, Rainer Gruhn and Elmar Nöth
1. Introduction 2
2. Literature Review 3
3. Approach 5
4. Experimental Setup 5
5. Accent Adaptation 7
6. Scalable Architecture 15
7. Summary 24
References 25

2 Online Learning of Bayes Risk-Based Optimization
Teruhisa Misu, Komei Sugiura, Tatsuya Kawahara and Kiyonori Ohtake,
Chiori Hori, Hideki Kashioka, Satoshi Nakamura
1. Introduction 30
4. Online Learning of Bayes Risk-based Dialogue Management 42
5. Evaluation of Online Learning Methods 46
6. Conclusions 48
References 49

3 Towards Fine-Grain User-Simulation For Spoken Dialogue Systems
Ramón López-Cózar, David Griol and Gonzalo Espejo, Zoraida Callejas, Nieves Ábalos
1. Introduction 54
## 1. Introduction 164
## 2. Partially Observable Markov Decision Process 166
## 3. Dialogue Control using POMDP from Large Amounts of Data 169
## 4. Evaluation and Results 177
## 5. Discussion 179
## 6. Future Work 181
## 7. Conclusions 183

Acknowledgments 184
References 184

8

Proposal for a Practical Spoken Dialogue System Development Method

*Masahiro Araki and Takashi Hattori*

1. Introduction 187
2. Overview of the Data-Management Centered Prototyping Method 189
3. Prototyping of a Slot-Filling Dialogue System 191
4. Prototyping of a DB-Search Dialogue System 198
5. Prototyping of a Multi-Modal Interactive Presentation System 200
6. Incorporation of the User Model 207
7. Conclusions 209

Acknowledgments 210
References 210

9

Quality of Experiencing Multi-Modal Interaction 213

*Benjamin Weiss, Sebastian Möller, Ina Wechsung and Christine Kühnel*

1. Introduction 213
2. Advantages of Systems Providing Multi-Modal Interaction 214
3. Quality of Experience 216
4. Audio-Video Quality Integration in AV-Transmission Services 217
5. Quality of Embodied Conversational Agents 221
6. Quality of Systems with Multiple Input Modalities 223
7. Conclusions 226

Acknowledgments 228
References 228

10

Dialogue Acts Annotation to Construct Dialogue Systems for Consulting

*Kiyonori Ohtake, Teruhisa Misu, Chiori Hori, Hideki Kashioka, and Satoshi Nakamura*

1. Introduction 231
2. Kyoto Tour Guide Dialogue Corpus 233
3. Annotation of Communicative Function and Semantic Content in DA 236
4. SA Tags 236
5. Semantic Content Tags 245
6. Usage of the Kyoto Tour Guide Corpus 249

xiii
On the Use of N-gram Transducers for Dialogue Annotation

Vicent Tamarit, Carlos-D. Martínez-Hinarejos, and José-Miguel Benedí

1. Introduction
2. The HMM-based Annotation Model
3. The NGT Annotation Model
4. Corpora
5. Experimental Results
6. Conclusions and Future Work

Acknowledgments

References

Index
Spoken Dialogue Systems Technology and Design
Minker, W.; Lee, G.G.; Nakamura, S.; Mariani, J. (Eds.)
2011, XXIII, 277 p., Hardcover