Contents

Part I The Northernmost Spoken Dialogue Workshop

DigiSami and Digital Natives: Interaction Technology for the North Sami Language .................................. 3
Kristiina Jokinen, Katri Hiovain, Niklas Laxström, Ilona Rauhala and Graham Wilcock

Part II Methods and Techniques for Spoken Dialogue Systems

A Comparative Study of Text Preprocessing Techniques for Natural Language Call Routing .............................. 23
Roman Sergienko, Muhammad Shan and Alexander Schmitt

Compact and Interpretable Dialogue State Representation with Genetic Sparse Distributed Memory ......................... 39
Layla El Asri, Romain Laroche and Olivier Pietquin

Incremental Human-Machine Dialogue Simulation .................. 53
Hatim Khouzaimi, Romain Laroche and Fabrice Lefèvre

Active Learning for Example-Based Dialog Systems .................. 67
Takuya Hiraoka, Graham Neubig, Koichiro Yoshino, Tomoki Toda and Satoshi Nakamura

Question Selection Based on Expected Utility to Acquire Information Through Dialogue ................................. 79
Kazunori Komatani, Tsugumi Otsuka, Satoshi Sato and Mikio Nakano

Separating Representation, Reasoning, and Implementation for Interaction Management: Lessons from Automated Planning ..... 93
Mary Ellen Foster and Ronald P.A. Petrick

SimpleDS: A Simple Deep Reinforcement Learning Dialogue System .................................................. 109
Heriberto Cuayáhuatl
## Breakdown Detector for Chat-Oriented Dialogue
Tomo Horii, Hideaki Mori and Masahiro Araki

119

## User Involvement in Collaborative Decision-Making
Dialog Systems
Florian Nothdurft, Pascal Bercher, Gregor Behnke and Wolfgang Minker

129

### Part III Socio-Cognitive Language Processing

## Natural Language Dialog System Considering Speaker’s Emotion Calculated from Acoustic Features
Takumi Takahashi, Kazuya Mera, Tang Ba Nhat, Yoshiaki Kurosawa and Toshiyuki Takezawa

145

## Salient Cross-Lingual Acoustic and Prosodic Features for English and German Emotion Recognition
Maxim Sidorov, Christina Brester, Stefan Ultes and Alexander Schmitt

159

## Entropy-Driven Dialog for Topic Classification: Detecting and Tackling Uncertainty
Manex Serras, Naiara Perez, María Inés Torres and Arantza del Pozo

171

## Evaluation of Question-Answering System About Conversational Agent’s Personality
Hiroaki Sugiyama, Toyomi Meguro and Ryuichiro Higashinaka

183

## Fisher Kernels on Phase-Based Features for Speech Emotion Recognition
Jun Deng, Xinzhou Xu, Zixing Zhang, Sascha Frühholz, Didier Grandjean and Björn Schuller

195

### Part IV Towards Multilingual, Multimodal, Open Domain Spoken Dialogue Systems

## Internationalisation and Localisation of Spoken Dialogue Systems
Niklas Laxström, Graham Wilcock and Kristiina Jokinen

207

## A Multi-lingual Evaluation of the vAssist Spoken Dialog System.
Comparing Disco and RavenClaw
Javier Mikel Olaso, Pierrick Milhorat, Julia Himmelsbach, Jérôme Boudy, Gérard Chollet, Stephan Schlögl and María Inés Torres

221

## Multimodal HALEF: An Open-Source Modular Web-Based Multimodal Dialog Framework
Zhou Yu, Vikram Ramanarayanan, Robert Mundkowsky, Patrick Lange, Alexei Ivanov, Alan W. Black and David Suendermann-Oeft

233
Data Collection and Synchronisation: Towards a Multiperspective Multimodal Dialogue System with Metacognitive Abilities .......................... 245
Fasih Haider, Saturnino Luz and Nick Campbell

HELP: A Framework to Break the Barrier Across Domains in Spoken Dialog Systems ................................................................. 257
Ming Sun, Yun-Nung Chen and Alexander I. Rudnicky

Towards an Open-Domain Social Dialog System ........................... 271
Maria Schmidt, Jan Niehues and Alex Waibel


Is Spoken Language All-or-Nothing? Implications for Future Speech-Based Human-Machine Interaction ........................................ 281
Roger K. Moore

Toward a Context-Based Approach to Assess Engagement in Human-Robot Social Interaction .................................................. 293
Laurence Devillers and Guillaume Dubuisson Duplessis

Extrinsic Versus Intrinsic Evaluation of Natural Language Generation for Spoken Dialogue Systems and Social Robotics ........ 303
Helen Hastie, Heriberto Cuayáhuítl, Nina Dethlefs, Simon Keizer and Xingkun Liu

Engagement in Dialogue with Social Robots ........................................ 313
Loredana Cerrato and Nick Campbell

Lend a Hand to Service Robots: Overcoming System Limitations by Asking Humans ................................................................. 321
Felix Schüssel, Marcel Walch, Katja Rogers, Frank Honold and Michael Weber

Dialogue with Robots to Support Symbiotic Autonomy .......................... 331
Andrea Vanzo, Danilo Croce, Emanuele Bastianelli, Guglielmo Gemignani, Roberto Basili and Daniele Nardi

Towards SamiTalk: A Sami-Speaking Robot Linked to Sami Wikipedia ................................................................. 343
Graham Wilcock, Niklas Laxström, Juho Leinonen, Peter Smit, Mikko Kurimo and Kristiina Jokinen

Part VI Dialogue Quality Assessment

Utterance Selection Using Discourse Relation Filter for Chat-oriented Dialogue Systems ................................................................. 355
Atsushi Otsuka, Toru Hirano, Chiaki Miyazaki, Ryuichiro Higashinaka, Toshiro Makino and Yoshihiro Matsuo
Analysis of Temporal Features for Interaction Quality Estimation .......... 367
Stefan Ultes, Alexander Schmitt and Wolfgang Minker

Recurrent Neural Network Interaction Quality Estimation ............. 381
Louisa Pragst, Stefan Ultes and Wolfgang Minker

Hideaki Mori, Atsushi Yasuda and Masahiro Araki

The Negotiation Dialogue Game ............................................. 403
Romain Laroche and Aude Genevay

Estimation of User’s Willingness to Talk About the Topic: Analysis of Interviews Between Humans ......................... 411
Yuya Chiba and Akinori Ito

Recognising Conversational Speech: What an Incremental ASR Should Do for a Dialogue System and How to Get There ............ 421
Timo Baumann, Casey Kennington, Julian Hough and David Schlangen

Part VII Dialogue State Tracking Challenge 4

The Fourth Dialog State Tracking Challenge ................................ 435
Seokhwan Kim, Luis Fernando D’Haro, Rafael E. Banchs, Jason D. Williams and Matthew Henderson

Convolutional Neural Networks for Multi-topic Dialog State Tracking ................................................................. 451
Hongjie Shi, Takashi Ushio, Mitsuru Endo, Katsuyoshi Yamagami and Noriaki Horii

The MSIIP System for Dialog State Tracking Challenge 4 ............ 465
Miao Li and Ji Wu

Robust Dialog State Tracking for Large Ontologies .................... 475
Franck Dernoncourt, Ji Young Lee, Trung H. Bui and Hung H. Bui

Erratum to: Dialogues with Social Robots .............................. E1
Kristiina Jokinen and Graham Wilcock

Author Index ................................................................. 487
Dialogues with Social Robots
Enablements, Analyses, and Evaluation
Jokinen, K.; Wilcock, G. (Eds.)
2017, XX, 489 p. 117 illus., 70 illus. in color., Hardcover
ISBN: 978-981-10-2584-6