2009 Third International Universal Communication Symposium

IUCS 2009

Table of Contents

Demonstration List ................................................................. x
Message from the General Chair ............................................ xvi
Preface ................................................................................ xvi
Conference Committees ....................................................... xvii
Sponsors, Co-Sponsors, Supporters ........................................ xx

Keynote Papers

• Language Technology Infrastructures in support to Multilingualism.(Invited Paper) ......................................................... 3
  Joseph Mariani
• Communications and Open Systems (Invited Paper) .................. 12
  Mario Tokoro
• A Computer Scientist Looks at the Energy Problem (Invited Paper) .......................................................... 14
  Randy H. Katz

Session 1: Machine Translation

• Discarding Monotone Composed Rule for Hierarchical Phrase-based Statistical Machine Translation .................. 25
  Zhongjun He, Yao Meng and Hao Yu
• Accuracy Evaluation of Sentences Translated to Intermediate Language in Back Translation .......................... 30
  Mai Miyabe and Takashi Yoshino
• Language Independent Word Segmentation for Statistical Machine Translation ........................................ 36
  Michael Paul, Andrew Finch and Eiichiro Sumita
• Automatic Extraction of Bilingual Terms From A Chinese-Japanese Parallel Corpus .................................. 41
  Xiaorong Fan, Nobuyuki Shimizu and Hiroshi Nakagawa
• Utilizing Semantic Equivalence Classes of Japanese Functional Expressions in Machine Translation ............. 46
  Akiko Sakamoto, Takehito Utsuro and Suguru Matsuyoshi
Session 2: Ultra-Realistic Image Technology I

- 3-D Display and Communication Technology (Invited Paper) ................................................. 57
  Min-Chul Park and Jung-Young Son
- Analysis and Compensation of Spatial Distortion in Integral Three-dimensional Imaging .................. 64
  Hisayuki Sasaki, Masahiro Kawakita, Jun Arai, Makoto Okui, Fumio Okano,
  Yasuyuki Haino, Makoto Yoshimura and Masahito Sato
- Electronic holography generated from integral photography ............................................... 70
  Ryutaro Oi, Kenji Yamamoto, Tomoyuki Mishina, Takanori Senoh and Tatichiro Kurita
- An Improved Optical Device for Floating Displays ......................................................... 74
  Sandor Markon and Satoshi Maekawa

Session 3: Human Analysis

- Wearable Robotics as a Behavioral Assist Interface like Oneness between Horse
  and Rider (Invited Paper) ........................................................................................................... 81
  Taro Maeda, Hideyuki Ando and Hiroyuki Iizuka
- Drowsy Driving Detection Based on Human Pulse Wave by Photoplethysmography
  Signal Processing ....................................................................................................................... 89
  Hanbit Park, Seungwon Oh and Minsoo Hahn
- Use of Active RFID and Environment-Embedded Sensors for Indoor Object
  Location Estimation ..................................................................................................................... 93
  Ming Li, Taketoshi Mori, Hiroshi Noguchi, Masamichi Shimosaka and Tomomasa Sato
- 3D hand posture estimation with single camera by two-stage searches from database .................. 100
  Motomasa Tomida and Kiyoshi Hoshino

Session 4: Language Resources

- Proposal for a Multilanguage Text Input Support System that is Easy
  for Beginner Language Learners ............................................................................................. 109
  Kayo Ikeda, Hideho Numata, Masakatsu Kaneko and Kazuhiko Machida
- QRpotato: A System that Exhaustively Collects Bilingual Technical Term Pairs
  from the Web .............................................................................................................................. 115
  Takeshi Abeokawa and Kyo Kageura
- Topic relatedness in evaluative information extraction .......................................................... 120
  Takaya Kawada, Tetsuji Nakagawa, Kentaro Inui and Sadao Kurohashi
- Development of a Large-scale Web Crawler and Search Engine Infrastructure ...................... 126
  Susumu Akamine, Yoshikiyo Kato, Daisuke Kawahara, Keiji Shinzato,
  Kentaro Inui, Sadao Kurohashi and Yutaka Kidawara
- A Web Service for Automatic Word Class Acquisition ....................................................... 132
  Stijn De Saeger, Jun'ichi Kazama, Kentaro Torisawa, Masaki Murata, Ichiro Yamada
  and Kow Kuroda
Session 5: Ultra-Realistic Image Technology II

- One-dimensional integral imaging 3D display systems (Invited Paper) .......................................................... 141
  Yozo Hirayama

- Surrounding Image Projection with Convex Mirrors ......................................................................................... 146
  Naoki Hashimoto, Yuki Ishiwata and Makoto Sato

- Video-based telemedicine with reliable color: Field experiments of natural vision technology ......................... 150
  Masahiro Yamaguchi, Junko Kishimoto, Yasuhiro Komiya, Yoshifumi Kanno, Yuri Murakami, Hiroyuki Hashizume, Ryouji Yamada, Kosuke Miyajima and Hideaki Haneishi

- Modeling the Spatial Behavior of Virtual Agents in Groups for Non-verbal Communication in Virtual Worlds ........................................................................................................ 154
  Hamid Laga and Toshitaka Amaoka

Session 6: Organized Session: Real-World Application

- Implicit Interaction with Daily Objects: Applications and Issues (Invited Paper) .............................................. 163
  Kaori Fujinami

- A Preliminary Exploration of Augmented Social Landscapes (Invited Paper) .................................................... 169
  Shin'ichi Konomi

- Network Management Architecture Toward Universal Communication (Invited Paper) ................................... 172
  Yoshihiro Kawahara, Ahmad Kamil Abdul Hamid, Tae Young Song, Kei Wada and Tohru Asami

Session 7: Information Analysis

- People, Clouds, and Interaction for Information Access (Invited Paper) ............................................................. 179
  Tetsuya Sakai

- Using Web Page Layout for Extraction of Sender Names ..................................................................................... 181
  Rintaro Miyazaki, Ryo Momose, Hideyuki Shibuki and Tatsunori Mori

- Summarizing Evaluative Information on the Web for Information Credibility Analysis .................................... 187
  Daisuke Kawahara, Tetsuji Nakagawa, Takuya Kawada, Kentaro Inui and Sadao Kurohashi

- Web Information Credibility Analysis by Geographical Social Support .............................................................. 193
  Hiroki Ohshima, Satoshi Oyama, Hiroyuki Kondo, and Katsumi Tanaka

Session 8: Ultra-Realistic Sound Technology

- Application of 3D Sound Technology to Intelligent Robots (Invited Paper) ......................................................... 199
  Youngjin Park

- Headphone Calibration for 3D-Audio Listening ....................................................................................................... 205
  Ryouichi Nishimura, Parham Mokhtari, Hironori Takemoto and Hiroaki Kato

- Representation and comparison of HRTF in spatio-temporal frequency domain .............................................. 211
  Yasuko Morimoto, Tokanori Nishino and Kazuya Takeda

- Subjective Effect of Synthesis Conditions in 3D Sound Field Reproduction System Using a Few Transducers and Wave Field Synthesis ................................................................. 215
  Toshiyuki Kimura, Munenori Naoe, Yoko Yamakata and Michiaki Katsumoto
Session 9: Visual Information Processing

• Multi-sensor Based Human Activity Detection for Smart Homes (Invited Paper) ........................................... 223
  Liyanage C De Silva

• Human shape reconstruction via graph cuts for voxel-based markerless motion capture in intelligent environment .......................................................... 230
  Masamichi Shimosaka, Kazuhiko Murasaki, Takanori Mori, and Tomomasa Sato

• Stereo Camera Model of Feed Homs in Focal Plane Array ............................................................. 237
  Jung-Young Son, Seokwon Yeom, V.P. Guschin, Yuriy Vashpanov, Dong-Su Lee, and Shin-Hwan Kim

• A Context-adaptive Haptic Interaction and Its Application ................................................. 241
  Youngjae Kim, Youmin Kim, and Minsoo Hahn

Session 10: Search and Interface

• Normalization on the modulation spectrum of the subband temporal envelopes for automatic speech recognition in reverberant environments ........................................... 247
  X. Lu, M. Unoki, and S. Nakamura

• Evaluation for WFST-based Dialog Management .......................................................... 255
  Chiori Hori, Kiyonori Ohtake, Teruhisa Misu, Hideki Kashioka, and Satoshi Nakamura

• SOBEX: Distributed Service Search Engine that Exploits Service Collaboration Context ......................... 261
  Rong Zhang, Koji Zettu, Takafumi Nakanishi, Yutaka Kidawara, and Yasushi Kiyoki

• Towards Moving Phenomena Data Management ........................................................................................................ 269
  Koji Zettu, Kyoung-Sook Kim, Yutaka Kidawara, and Yasushi Kiyoki

• Support tools for literature-based information access in molecular biology ......................................................... 273
  Fabio Rinaldi and Dietrich Rebholz-Schuhmann

Session 11: Multisensory Interfaces and Cognitive Dynamics

• Usage of change-related non-invasive imaging paradigms to investigate the representation of sound in the human brain (Invited Paper) ........................................... 281
  Christian F. Altmann

• Measurements of vergence and accommodation while viewing a real 3D scene and its 2D image on a display ........................................................................................................ 285
  Haruki Mizushina, Hiroshi Ando, Takanori Kochiyama, and Shinobu Masaki

• Method for Identifying Aromas Using Adjective Characteristics to Enhance the Reality of Visual Images ........................................................................................................ 289
  Chika Oshima, Koici Nakayama, and Hiroshi Ando

• Neural Correlates of Externalized Auditory Motion Perception under Reverberation ........................................ 296
  Akiko Callan and Hiroshi Ando

Session 12: Human Computer Interaction

• Eye-gaze Experiments for Conversation Monitoring ........................................................................................................ 303
  Kristiina Jokinen, Masafumi Nishida, and Seiichi Yamamoto

• A Speech-Driven Embodied Entrainment Wall Picture System for Supporting Virtual Communication .................. 309
  Yoshihiro Sefjina, and Tomio Watanabe
Sensing Web: To Globally Share Sensory Data Avoiding Privacy Invasion ........................................... 315
Ikuhisa Mitsugami, Michihiko Minoh, Tsuneo Ajisaka and Noboru Babaguchi

An Agent-based Management Scheme of Context Information for Context-aware Service ............................ 319
Hideyuki Takahashi, Tokuo Suganuma and Norio Shiratori

The utilization method of idle PC resources ......................................................................................... 325
Yutaka Hirakawa and Yoshifumi Matsuda

Poster Session

Analysis of Hand Movement Variation Related to Speed in Japanese Sign Language ........................................... 331
Yuta Yasugahira, Yasuo Horiuchi and Shingo Kuroiwa

High Resolution Computer-Generated Cylindrical Hologram .................................................................. 335
Tomohisa Ito, Takeshi Yamaguchi and Hiroshi Yoshikawa

Spatial memorization aid system .............................................................................................................. 339
Ken Ishigaki and Yasushi Ikei

Searching for Comparison Points between Two Objects from the Web .................................................. 344
Shinya Aoki, Takayuki Yumoto, Manabu Nii and Yutaka Takahashi

How-to Information Search by Lightweight Analysis of Web Pages ....................................................... 350
Ryosuke Nonaka, Takayuki Yumoto, Manabu Nii and Yutaka Takahashi

Linking Wikipedia Entries to Blog Feeds by Machine Learning ............................................................. 355
Mariko Kawaba, Hiroyuki Nakasaki, Daisuke Yokomoto, Takehito Utsuro and Tomohiro Fukuhara

JSPad - A Sign Language Writing Tool Using SignWriting ......................................................................... 363
Tadahiro Matsumoto, Mihoko Kato and Takashi Ikeda

Resources for Mongolian Language ......................................................................................................... 368
Purev Jaimai and Odbayar Chimeddorj

Dialogue Act Annotation for Consulting Dialogue Corpus ........................................................................... 372
Kiyonori Ohtake, Teruhisa Miu, Chiori Hori, Hideki Kashioka and Satoshi Nakamura

Unit Selection Using k-Nearest Neighbor Search for Concatenative Speech Synthesis ............................. 379
Hideyuki Mizuno and Satoshi Takahashi

Dynamic Selection Method of The Best Search Engine for A User's Query ........................................... 383
Kodai Mizuno and Koichi Kawagoe

Hyperbolic structure of fundamental frequency contour ........................................................................ 389
Jinfu Ni, Shinsuke Sakai, Hisashi Kawai and Satoshi Nakamura

Automatic Plagiarism Detection among Term Papers ............................................................................. 395
Takahisa Ota and Shigeru Masuyama

Spoken Document Retrieval Using Topic Models ...................................................................................... 400
Xinhui Hu, Ryosuke Isotani and Satoshi Nakamura

Soft Margin Estimation on Improving Environment Structures for Ensemble Speaker and Speaking Environment Modeling ............................................................................................................................ 404
Yu Tsao, Jinyu Li, Chin-Hui Lee and Satoshi Nakamura

A Method for Helpdesk-oriented Question Answering .............................................................................. 409
Satoru Sasaki and Atsushi Fujii

Author Index .................................................................................................................................................. 417