

2016 International Workshop on Emerging ICT



Electrical, Information and Physics Engineering Building No.1, Tohoku University

**October 31-November 2, 2016
Aobayama Campus, Tohoku University
Sendai, Japan**

CHAIR'S MESSAGE

On behalf of organizing committee of 2016 International Workshop on Emerging ICT, I would like to express my sincere welcome to all of participants to this conference. This workshop was established in 2004 as an international workshop to exchange scientific and technical achievements between two universities. Since then, this workshop has incubated numerous technical inspirations and friendship among students and faculties in the universities in the East-Asian countries. The topic of interest, information and communication technology (ICT), has been one of the most important research fields to enhance our daily life. Since the ICT is an actively emerging research field, it is very important for ICT researchers to incorporate new knowledge from various research fields such as information technology, wired/wireless/optical communication, and devices. I believe this workshop is a good opportunity to discover new knowledge as well as new colleagues. Not only the technical session but also the social activity is also important. In 2nd November, we will have a lab tour in the new building of Tohoku University, which was re-built after the East Japan Great Disaster. After that, the participants will visit historic sites in Sendai, which I hope will be a good experience for all of the participating students. Finally, I want to express many thanks to the members of the organizing committee for their devoted works preparing and managing this workshop.



October, 2016

Prof. Akinori Ito, Co-Chair Tohoku University, Japan

JCK2016 STEERING COMMITTEE

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Hirohito Yamada

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IT Arrangement

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TECHNICAL PROGRAM

November 1

Oral Session: R207, Poster Session: R103
Electrical, Information and Physics Engineering Building No.1,

9:30 - 9:40

Opening address

Akinori Ito, *Tohoku University*

Byoungchul Ahn, *Yeungnam University*

Session 1 Keynote

Time 9:40 – 10:10

Chair **Jin-Ghoo Choi**, *Yeungnam University*

16-k1 New power-grid Concept Learned from Communication Networks (keynote)
Hirohito Yamada, *Tohoku University*

Session 2

Time 10:10 – 10:55

Chair **Shinichiro Omachi**, *Tohoku University*,

16-1 Effects of Difference Between the Modeling Filter and the Acoustic Path on
Steady-State Error in Active Noise Control Systems
Masumi Koseki, Masahide Abe, Masayuki Kawamata, *Tohoku University*

16-2 Hybrid Sorted Hash Join
Hyunkwang Shin, Gyu Sang Choi, *Yeungnam University*

16-3 Investigation of Convolutional Neural Network Structure for Low Resolution
Character Recognition
Kyoko Maeda, Tomo Miyazaki, Yoshihiro Sugaya, and Shinichiro Omachi,
Tohoku University

-Coffee Break-

Session 3

Time 11:05 – 12:05

Chair **JeongSik Park**, *Yeungnam University*

16-4 Detection of singing mistakes from singing voice
Isao Miyagawa, Yuya Chiba, Takashi Nose, Akinori Ito, *Tohoku University*

- 16-5 Study on Speed-limit Sign Recognition using Deep Learning
HyunJae Lee, Jang Hyun Gyu, Gyu Sang Choi, *Yeungnam University*
- 16-6 Detection of a Key String from Scene Images Using Saliency
Kota Oodaira, Tomo Miyazaki, Yoshihiro Sugaya, and Shinichiro Omachi,
Tohoku University
- 16-7 End Point Detection on Time and Spectral Domain for Real-time Voice
Detection
JungSeok Yoon, JeongSik Park, *Yeungnam University*

-Lunch-

Session 4	Poster
Time	13:30 – 14:30
Chairs	Qiang Chen , <i>Tohoku University</i> JeongSik Park , <i>Yeungnam University</i>

- 16-p1 Athermal Si photonic waveguide devices with TiO₂ hybrid polymer
vercladding
Wataru Mashiko, Tomohiro Kita, Hirohito Yamada, *Tohoku University*
- 16-p2 Design of LTCC-based high-Q coil for 2 GHz active magnetic field probe
Li, Yuchao, Ranajit Sai, Masahiro Yamaguchi, *Tohoku University*
- 16-p3 Effect of speech rate on the intelligibility of Easy Japanese speech under
reverberant environment
Jiahe Wei, Yuya Chiba, Takashi Nose, Akinori Ito, *Tohoku University*
- 16-p4 Advanced Hash Join scheme with Dynamic Hashing
KangMok Kim, Gyu Sang Choi, *Yeungnam University*
- 16-p5 Implementation of sleeping driving detection and car accident notification
systems
Min-ju Kim, Chan-song Park, KookYeol Yoo, *Yeungnam University*
- 16-p6 Traffic light detection system for an achromate
DongHee Woo, Hoyoul Jung, *Yeungnam University*
- 16-p7 Unmanned security system through recognized a person based Jetson Tk1
DongJun Park, Min-Gyu Kang, Gyu Sang Choi, *Yeungnam University*
- 16-p8 Multilateral voice transceiver using Sub-1GHz band
Dong-hoon Kang, Tae-yang Jeong, *Yeungnam University*

- 16-p9 Best Channel Selection by the Receiver for the Laser Beam Based WPT
HeeDong Son, BoRam Kim, Yongwan Park, *Yeungnam University*
- 16-p10 Multiple Access Control with Adaptive Spectrum Sensing Technique for Cognitive Radio Networks
Muhammad Shafiq, Jin-Ghoo Choi, Heejung Yu, Muhammad Khalil Afzal, *Yeungnam University, COMSATS Institute of Information Technology in Pakistan*
- 16-p11 Enhanced Indoor localization using GPS information
Taegyung Oh, Yu Jin Kim, Seung Yeob Nam, *Yeungnam University*
- 16-p12 Reduction of the Number of Complex Multiplications of Phase-Only Correlation Using Subsampled-FFT
Kenya Tanaka, Masahide Abe, Masayuki Kawamata, *Tohoku University*

Session 5

Time 14:40-15:25
Chair **Jin-Ghoo Choi**, *Yeungnam University*

- 16-8 Vehicle crash avoidance systems based on rear lamp detection
SungHyun Lee, SoonHo Shin, SeongHunSon, Hoyoul Jung, *Yeungnam University*
- 16-9 Approximate Horizon Detection Method based on VMD in Highway Environment
HyeonBo Kim, KookYeol Yoo, *Yeungnam University*
- 16-10 An Indoor positioning method using Wi-Fi signals
Hyeongrak Park, Wongi Kim, Byoungchul Ahn, *Yeungnam University*

Session 6 Keynote

Time 15:25– 15:55
Chair **JeongSik Park**, *Yeungnam University*

- 16-k2 Terahertz imaging with nanometer size Fiel Effect Transistors : from basic physics to first THz cameras and scanners
YWojciech M. Knap, *CNRS-Universite Montpellier 2 (France)*

-Coffee Break-

Session 7

Time 16:05 – 17:05

Chair **Yasuo Ohtera**, *Tohoku University*

- 16-11 Study on non-destructive measurement of sugar content of peach fruit utilizing photonic crystal-type NIR spectroscopic camera
Yuki Morishita, Takumi Omachi, Kousuke Asano, Yasuo Ohtera and Hirohito Yamada, *Tohoku University*
- 16-12 Shielding effectiveness of meltblown non-woven thin fiber noise suppression sheet
Fu Jiang, Masahiro Yamaguchi, Tohoku University
- 16-13 Estimation Error of Near Field to Far Field Transformation using Cylindrical Scanning with Small Radius
Syouhei Asano, Kunio Sawaya, Qiang Chen, Lin Wang, and Tetsu Kou
Tohoku University, Nihon Dengyo Kosaku Co., LTD.
- 16-14 Performance of Novel Two-Dimensional Communication Sheet with Slits for Smart-Shelf System
Yusuke Ozawa, Kuan-hua Chen, Qiang Chen, Kunio Sawaya, Machiko Oouchida, Yoshiaki Hirano *Tohoku University, Teijin LTD.*
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Session 8 **Keynote**

Time 17:05– 17:35

Chair **Akinori Ito**, *Tohoku University*

- 16-k3 " IT Covergence in Smart Era" - 5G & Smart Car-
Yongwan Park, *Yeungnam University*