

PART A - IEEE GWANGJU SECTION SUMMARY

A.1 Executive Summary

In year 2013, the Section offered seven technical and social meetings. Most technical activities were given at the campus of GIST, Korea. Speakers were invited not only from all over Korea but also from abroad, including the United Kingdom of England and the United States of America.

The table below in this page is the list of Section Executive Committee members. Prof. Jong-Won Shin, GIST Korea, has joined the IEEE Gwangju Section executive committee as Secretary/Treasurer of Gwangju Section.

The Section will promote membership development by continuing to organize social and technical meetings, give student awards in local technical meetings, encourage students to form a chapter of their own, and organize local sports activities in the name of IEEE. In addition, the Section will also aim to leverage IEEE Distinguished Lecturer programs to bring world class scholars to Gwangju and give the students the opportunity to have close interaction with them.

The executive committee members of the section include:

CHAIR	Heung-No Lee	heungno@gist.ac.kr
SECRETARY/TREASURER	Jong Won Shin	jwshin@gist.ac.kr
VICE CHAIR	JONG-IN SONG	jisong@gist.ac.kr
MEMBERSHIP DEVELOPMENT	Kiseon Kim	kskim@gist.ac.kr
MEMBER-AT-LARGE	Kiseon Kim	kskim@gist.ac.kr
	Dae Jin Kim	djinkim@chonnam.chonnam.ac.kr
	Kwang Man Lee	kwangml@cheju.cheju.ac.kr
	Seong Jun Kang	sjkang@chungkye.mokpo.ac.kr
	Yo-Sung Ho	hoyo@gist.ac.kr

A.2 Financial Report

The Section had two sources of income in 2013, one is the IEEE HQ Rebate in the amount of 3,318,836 KRW and the other is the interest income of 2,013KRW. There were 952,564KRW forwarded from 2012 account. We spent 3,406,040KRW for IEEE technical meetings and social events in 2013.

The following is the tabular summary of the financial activities.

date (DD/MM/YY)	RCT No	covered	out of total	잔액	Rev. MT	비고	참석인원
2012 잔액분							
				952,564			
2013 총입금(20130516)				3,318,836			
16-Mar-13			209	952,773		이자수입	
22-Apr-13	1	400,000		552,773		APM2013학회 상금지원	송종인교수님(APM2013학회 상금사용분)
16-May-13			3,318,836	3,871,609		2013 IEEE 입금	
15-Jun-13			391	3,872,000		이자수입	
13-Sep-13		1,100,000		2,772,000		IEEE 미팅	김기선, 이흥노 외 카이스트 교수님16인
16-Sep-13			851	2,772,851		이자수입	
21-Oct-13		250,750		2,522,101		최인용 전문가활용	이흥노 외 35인
26-Oct-13		200,750		2,321,351		안수길 전문가활용	김기선교수님 외 20인
21-Dec-13			562	2,321,913		이자수입	
17-Dec-13		602,290		1,719,623		이흥노 교수님	이흥노 교수님의 35인(IEEE Sponsored Pizza Party)
17-Dec-13		220,750		1,498,873		이흥노 교수님(IEEE 미팅)	김기선, 이흥노, 외 10인
23-Dec-13		180,750		1,318,123		이흥노 교수님(IEEE 미팅)	김태수 박사 IEEE 연사후 미팅
23-Dec-13		250,000		1,068,123		김태수 전문가활용	이흥노 교수님 외 20인
05-Jan-14		300,750		767,373		손정우 전문가활용	이흥노 외 16인

- **Total amount to begin 2013 is**
3,318,836 + 952,564 = 4,271,400 KRW
- **Total amount of interest incurred in 2013 is**
209 + 391 + 851 + 562 = 2,013KRW

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

In year 2013, MD activities were continued during the seven social and technical meetings organized by IEEE Gwangju Section. See next section for details of these events. In particular, the year-farewell party organized by IEEE Gwangju Section in Dec. 17th, 2013 was a success. There was a music band formed by GIST professors. They gave a series of Gospel and Carol songs and promoted the idea of sharing for the needy.

B.2 Professional and Continuing Education Activities

There were seven social and professional technical meetings organized and held by IEEE Gwangju Section in 2013.

- **Prof. Heung-No Lee, IEEE Gwangju Section Chair gave BEST STUDENT POSTER AWARDS to two students at the conference of Asia-Pacific Microwave Photonics Conference 2013, April 22-24, 2013, Gwangju, Korea**

APMP details:

Technical Program Chair: Prof. Jong-In Song

Invited speakers:

: Keynote Speeches- Dr. Bongtae Kim, Prof. Tadao Nagatsuma, Prof. Kun Xu

: Invited Talks - Dr. Atsushi Kanno, Dr. Naoya Kukutsu, Dr. Satoru Kurokawa, Dr. Stuart Murdoch, Prof. Ikmo Park, Dr. Kyung Hyun Park, Prof. Kazuyuki Saito, Prof. Xiaoke Yi, Prof. Shangjian Zhang, Prof. Xiaoping Zheng

Presentations: Oral Presentations-34, Poster Presentations-29

Topic: Wireless and fiber-optic communications networks, radars, sensors, measurement and instrumentation

Attendees: 50 members and 47 non-members

Homepage: <http://www.apmp2013.org/>

The best student poster awards were sponsored by IEEE Gwangju Section. Recipients were Mr. Y. Takashima, who presented a paper on “Analysis of DFG-Based Millimeter-Wave Signal Generation in Rectangular Waveguides Embedded with a Nonlinear Optical Crystal and Its Applications to Optical Signal Correlator and Converter” and Mr. M. Ko, who presented a paper on “A 5-GHz CMOS Integrated Radio-Over-Fiber Receiver”.

Prof. Jong-In Song, a professor of GIST and Section’s Vice Chair, organized Asia-Pacific Microwave Photonics Conference 2013 held in GIST from 22th to 24th in April. There were three keynote speeches, 10 invited talks, 34 oral presentations and 29 poster presentations. The participants discussed microwave photonics technologies and numerous application fields such as wireless and fiber-optic communications networks, radars, sensors, measurement and instrumentation.



- September 13th, 2013, IEEE meeting

Photos at APMP 2013. The upper photos show APMP 2013. The lower left corner photo is to show Prof. Heung-No Lee, The Section Chair at IEEE Gwangju Section, with the two recipients of the awards. The lower right shows the presentation scene.

- Prof. Jong Won Shin, IEEE Gwangju Section Secretary 2014, invited Dr. Choi, a postdoc of Boston University, to give a talk at GIST, October 2th, 2013

Speaker: InYong Choi , ph. D

Topic: The brain dynamics of auditory attention

Attendees: 7 IEEE members and many students

IEEE Gwangju Section invited a special guest; Dr. Choi who is a senior post-doctoral associate of Boston University. He gave a seminar titled “the brain dynamics of auditory attention”. Related verbal communication in multi-source environments, this seminar reviews how we explore neural mechanisms of the human auditory attention using functional brain-imaging techniques (M/EEG, MRI), and introduces recent studies about individual differences in the ability to solve the cocktail party problem.

Host: Prof. Jong Won Shin/Language: English

Wednesday, October 2nd, 2013, 16:00-17:00, #203, SIC Building B

The brain dynamics of auditory attention

청각적 주의와 뇌 활동

Inyong Choi, Ph. D.

Senior Post-doctoral Associate, Center for Computational Neuroscience and Neural Technology, Boston University /

Research Affiliate, McGovern Institute for Brain Research, Massachusetts Institute of Technology

Abstract:

Selective auditory attention is an essential skill for verbal communication in multi-source environments like “cocktail parties.” However, the mechanisms controlling auditory attention are still poorly understood. Moreover, some listeners complain of communication difficulties despite having clinically normal hearing. This seminar reviews how we explore neural mechanisms of the human auditory attention using functional brain-imaging techniques (M/EEG, MRI), and introduces recent studies about individual differences in the ability to solve the cocktail party problem.



Photos at Dr. Choi's Presentation.

- **October 25th, 2013, Social Presentation**

Speaker: Prof. S. Ahn, Ex-Chair IEEE Seoul Section HMPC

Topic: On the origin of the Korean and Korean historical assets

Attendees: 7 members and 13 non-members

Gwangju Section invited a special guest; Prof. Ahn who is an emeritus Prof. of Seoul N. Univ. Prof. Ahn brought interesting issues for engineers and scientists related to old histories, on which he has been spending a lot of time after his retirement. Especially, he touched a systematic approach towards investigating, reasoning and logical interpretation of social sciences observations. Further, he has shared information as an ex-IEEE HQ officer and R10 Director and many volunteers' position holders for IEEE, and gave many encouraging comments on how to operate the local section and promote IEEE in Gwangju.

- **December 17th, 2013, Year End IEEE Pizza party**

Attendees: 20 members

Gwangju Section held a farewell year party for the member/non-member of IEEE. In this party, we have a special concert which participated by many professors of GIST including the Present of the GIST, Dr. Youngjun Kim. We introduced what we are doing and activities we have planned in 2014 at IEEE Gwangju Section. Professors, students, staffs have enjoyed the event and promoted are friendship among the Gwangju Section members.

A table scene at the Pizza party



A sing along band formed by GIST Professors gave a series of songs including Carol songs and folk songs at the party.



- **Prof. Myung Jong Lee, City University of New York, U.S.A. was invited to give a talk at GIST, December 17th, 2013. IEEE Gwangju Section sponsored a dinner meeting to discuss Internet of Things and 5G issues.**

Speaker: Prof. Myung Jong Lee , EECS , City University of New York, USA

Topic: Toward the Internet of Things

Attendees: 11 members

Gwangju Section invited Prof. Lee who is an Prof. of City University of New York with interesting topic; Internet of Things (IoT). In this seminar, he aims to introduce definition, technical enablers, applications, issues, and standardization efforts in IoT. And he gave the examples about the integration of current and emerging technologies: cloud computing, smartphone, and IoT. He also introduced some of CUNY's researches in the area of Industrial WSN and mobile cloud computing, and and major contributions to IEEE standards (IEEE 802.15.4e, and IEEE 802.15.5.) .

Wednesday, December 11, 2013, 15:00–17:00, #201, 2nd
Floor, SIC–B Bldg.

Toward the Internet of Things

Prof. Myung Jong Lee,

EECS, City University of New York, USA

Abstract

In view of the information technology, a principle appears lending itself to a good explanation for the evolution of IT/wireless communications: the law of entropy. Quantum jumps in entropy have been shown in major ICT developments which attest the trend of increasing the entropy. After the feats of the packet based communications and personalization, the ICT is currently ushering the M2M (machine to machine) and IoT (Internet of Things) into reality, however, facing enormous technical challenges ahead.

Discussion on IoT will cover definition, technical enablers, applications, issues, and standardization efforts. The talk continues to introduce an opportunity seen in the integration of current and emerging technologies: cloud computing, smartphone, and IoT. The talk introduces some of CUNY's researches in the area of Industrial WSN and mobile cloud computing, and and major contributions to IEEE standards (IEEE 802.15.4e, and IEEE 802.15.5.) .

Prof. Myung Jong Lee received a B.S and an MS from Seoul National University in Korea and Ph.D degree from Columbia University, 1990, in electrical/electronics engineering. He is a professor of the Dept of Electrical & Computer Engineering and computer science of the graduate center at City University of New York. He is also an adjunct professor at GIST. His research interests include various aspects of wireless sensor networks, wireless mesh/ad hoc networks, and Internet of Things. His researches have been funded by government agencies and leading industries, including, NSF, Army Research Lab, AT&T, Telcordia, Samsung, ETRI, KIAT. He authored and co-authored over 150 international journals, a book (Green IT: Technologies and Applications, eds, Springer Verlag), book chapters, and conference papers, 25 U.S & International Patents, and numerous contributions to IEEE standards and Zigbee. He is a technical editor for IEEE communications magazine. In particular, Dr. Lee actively contributes to international standard organizations (the chair of IEEE 802.15.8 (Peer Aware Communications), the former chair of IEEE 802.15.5 (WPAN Mesh), and vice Chair of ZigBee NWK WG). His research group contributed the network simulator NS-2 for IEEE 802.15.4, a standard NS-2 distribution widely used for wireless sensor network researches. He received the best paper award from IEEE CCNC 2005 and CUNY Excellence Performance Award. He is currently the president of KSEA (Korean-American Scientists and Engineers Association).



At the Dinner Table with Prof. Myung Jong Lee

- Dr. Taesu Kim, Qualcomm Research, Korea, was invited to give a talk on Dec. 23rd, 2013.

- Speaker : Taesu Kim , Staff Engineer/Manager , Qualcomm Research Korea
- Topic : Digital Sixth Sense Augmenting possibilities
- Attendees : 17 members

Dr. Kim gave a seminar with interesting topic about mobile computing environments. In this seminar, he aims to introduce the changes of technical trends in mobile environments. Firstly, he presented how to utilize the convergence technology between sensor technology and machine learning technique in personalized mobile computing environments. And He discussed demanded technology in future mobile environments.

Host: Prof. Jong Won Shin / Language: Korean

Tuesday, December 23, 2013, 11:00-12:00, #203, 2nd Floor, SIC-B Bldg.

Digital Sixth Sense: Augmenting possibilities

Taesu Kim, Ph.D.

Qualcomm Research Korea

Abstract

본 세미나에서는 최근 모바일 기술의 발전에 따른 산업계의 변화와 기술 트렌드의 변화를 소개하고자 한다. 특히 개인화된 모바일 컴퓨팅에서 중요시 되는 센서 기술과 기계 학습 기술이 어떻게 통신기술과 융합이 되어 모바일에서 활용되고 있는지 소개하고 앞으로 어떤 기술들이 더 요구되는지 논하고자 한다

The following two pictures are taken at Dr. Kim's talk.



- **Dr. Sohn, Principal Researcher at Deagu-Gyeongbuk Medical Institute, gave a talk at GIST, January 20th, 2014**

-Speaker: Jeong-Woo Sohn, Ph.D , Principal Researcher at DGMIF

-Topic: Several Modalities of Neuronal Signal for Brain Machine Interface

-Attendees:

Gwangju Section invited Dr. Jeong-Woo Sohn who is a researcher at DGMIF. He is a principal researcher in the area of Brain machine interface (BMI). BMI is a term indicating methodological effort to bypass the brain signal to machines or outer input to the brain. About BMI, he aim to introduce the successful cases of control of actuators including robot arms exploded with BMI approach. In this seminar, firstly, he presented features and limit of several methods to record neuronal signal regarding on BMI. And he showed neuronal principle for high-degree freedom of movement BMI.

Host: Prof. Heungno Lee / Language: Korean

Monday, January 20, 2014, 14:00-15:00, #201, 2nd Floor, SIC-B Bldg.

Several Modalities of Neuronal Signal for Brain Machine Interface

Jeong-Woo Sohn, Ph.D.

Principal Researcher at DGMIF

Abstract

Brain machine interface (BMI) is a term indicating methodological effort to bypass the brain signal to machines or outer input to the brain. Last decade or so, we have observed that successful cases of control of actuators including robot arms exploded with BMI approach.

In terms of level of control, it varies from high degree freedom of movements to an on-and-off type of control for movement intention. The level of control is highly dependent on the modalities of recording of neuronal signal. Therefore, understanding of feature and limit of recording modality is essential to realization of BMI.

In this talk, firstly, I will present features and limit of several methods to record neuronal signal regarding on BMI. Secondly, I will show neuronal principle for high-degree freedom of movement BMI.

B.3 Students Activities

There are no items to be reported in this section.

PART C - OTHERS

There are no items to be reported in this section.

PART D - GOALS AND PLANS

In year 2014, IEEE Gwangju Section aims at inviting IEEE Distinguished Lecturers from IEEE Signal Processing, Information Theory, and Communications Societies. The list of speakers we are interested in contacting have been compiled and they are given as follows:

IEEE Signal Processing Society Distinguished Lecturer Programs

- ✓ Adali Tulay (UMBC, USA), Joint Blind Source Separation: Applications in Medical Image Analysis
- ✓ Eldar, Yonina C. (Tel-Aviv University (TAU), Tel-Aviv, Israel), Compressed Sensing: The Next Generation

The Section will also plan to do student membership developments 1) by encouraging the students to organize a student chapter at Gwangju, 2) by supporting students' sport activities.

- ✓ IEEE Soccer Game Day (planned for May, 2014)
- ✓ IEEE Student Organization (student representative has been selected in Feb. 27th, 2014)

END of Section Report