

Region 10 Section Report – Gwangju Section

PART A - SECTION SUMMARY

A.1 Executive Summary

- Section Executive Committee Member List

CHAIR	Minjae Lee	minjae@gist.ac.kr
SECRETARY	Sung-Min Hong	smhong@gist.ac.kr
TREASURER	Jong Won Shin	jwshin@gist.ac.kr
VICE CHAIR	Jong-In Song	jisong@gist.ac.kr
MEMBERSHIP DEVELOPMENT	Euseok Hwang	euseokh@gist.ac.kr
MEMBER-AT-LARGE	Kiseon Kim	kskim@gist.ac.kr
	Heung-No Lee	heungno@gist.ac.kr
	Myoung Jin Lee	mjlee@chonnam.ac.kr

- Section Highlights

In year 2020, the Section offered eight technical (6) and administrative (2) meetings. Most technical activities were given at the campus of GIST, Korea or online.

- Major Events (International, National)

The Gwangju section was introduced as “R10 Small Section of the Month” in the R10 Newsletter.

- Major Chapter Activities

N/A

- Major Student and Affinity Group Activities

In this year, in order to enhance the membership development, the student membership fee was partially reimbursed.

- Awards

N/A

A.2 Financial Report

- Summary (as per submitted on NetSuite)

2018 잔액분	5,737,306						
2019 총입금							
date (DD/MM/YY)	RCT No	covered	out of total	잔액	Rev. MT	비고	참석인원
30-Jan-19		48,000		5,689,306		IEEE Meeting	19.1.28일 김기선, 이흥노, 신종원, 홍성민
16-Mar-19			1,224	5,690,530		이자수입 (interest)	
15-Jun-19			1,218	5,691,748		이자수입 (interest)	
04-Sep-19		334,980		5,356,768		이명종 전문가활용	19.08.28 14:00~15:00 Toward Secure Intelligent IoT
21-Sep-19			1,282	5,358,050		이자수입 (interest)	
26-Sep-19		119,000		5,239,050		IEEE Meeting	19.9.24. 이민재, 신종원, 석태준, 이명진, 홍성민
17-Oct-19		300,000		4,939,050		이육재 전문가활용	19.10.17 16:00-17:00 Integrated photonics towards Quantum Computing

- Total amount left in the beginning of 2019 was 5,737,306KRW.

- Total deposit in 2019 was 0 KRW.

- Total amount of interest incurred in 2019 was 1,224 + 1,218 + 1,282 = 3,724 KRW.

2019 잔액분	4,260,060						
2020 총입금	4,802,593						
date (DD/MM/YY)	RCT No	covered	out of total	잔액	Rev. MT	비고	기타
28-1-20			1,155,100	5,415,160		2019 IEEE 입금	우리은행, 1002-754-402392
21-3-20			1,050	5,416,210		이자수입 (interest)	
20-6-20			1,160	5,417,370		이자수입 (interest)	
22-7-20			3,647,493	9,064,863		2020 IEEE 입금	우리은행, 1002-754-402392
10-8-20		72,000		8,992,863		IEEE Meeting	20.7.31. 이민재, 신종원, 홍성민, 황의석
19-9-20			1,642	8,994,505		이자수입 (interest)	
09-11-20		143,900		8,850,605		IEEE Meeting	20.11.3. 이민재, 신종원, 홍성민, 황의석, 이흥노
09-11-20		300,000		8,550,605		정근호 전문가활용	20.11.6. 14:30-15:30 Researches on hyperpolarization via parahydrogen for maximizing quantum magnetic sensing on molecules
16-11-20		300,000		8,250,605		노영태 전문가활용	20.11.13. 14:30~15:30 DARCA: Dynamic Association Regulator Considering Airtime over SDN-enabled WiFi
24-11-20		300,000		7,950,605		유선규 전문가활용	20.11.24 10:30~11:30 Disordered photonics:Engineering the intermediate regime between order and uncorrelated disorder
01-12-20		300,000		7,650,605		강동엽 전문가활용	20.11.27 14:30-16:30 Toward human-like language generation
08-12-20		300,000		7,350,605		주한별 전문가활용	20.12.4 14:30-16:30 Perceiving and Understanding Humans in 3D
19-12-20			1,812	7,352,417		이자수입 (interest)	

- Total amount left in the beginning of 2020 was 4,260,060KRW.

- Total deposit in 2020 was 4,802,593 KRW.

- Total amount of interest incurred in 2020 was 1,050 + 1,160 + 1,642 + 1,812 = 5,664 KRW.

- Any other financial activities

N/A

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

- Total number of active members in the past 3 years.

The number of active members is 250 for the Gwangju Section. (Checked by the Membership Development officer, Prof. Euseok Hwang.)

- Summary and evidence of work done to improve the value of membership, which leads to retention and growth of members

In this year, in order to enhance the membership development, the student membership fee was partially reimbursed.

B.2 Chapter Activities

- Total number of Chapters in the Section

N/A

- Number of Chapters formed in the current year

N/A

- Number of active Chapters (Chapters who have reported required number of meetings during the year)

N/A

- Summary of Chapter activities (Chapter wise with attachment table/information)

N/A

B.3 Professional and Continuing Education Activities

There have been 6 seminars supported by IEEE Gwangju Section.

Number	Seminar
1	<ul style="list-style-type: none"> ● Jan. 31, 2020, IEEE Seminar <p>- Speaker: Dr. Jinho Park, CEO, Point2 Technology, United States</p> <p>- Topic: Where do we go from here?: IC design trend and our effort to meet this trend</p> <p>- Attendees: 15 members and 15 non-members (offline)</p> <p>Gwangju Section invited Dr. Jinho Park from Point2 Technology. The state-of-arts mixed-signal wireless transceiver has more than 10 million gates on the same die and the size of the chip scales down 30% or more in every generation. The mixed-signal SOC faces more challenges in this case since the physical distance between analog devices and digital circuitries gets closer and the digital circuitries start to act as aggressors to analog performance. In order to tackle this difficulties, analog and mixed-signal design requires more robust architecture and systematic solutions. In this talk, Dr. Park introduced the past, current and the future trend of analog and mixed-signal circuits and systems for wireless application.</p>
2	<ul style="list-style-type: none"> ● Nov. 6, 2020, IEEE Seminar <p>- Speaker: Prof. Keunhong Jeong, Associate Professor, Department of Chemistry, Korea Military Academy, South Korea</p> <p>- Topic: Researches on hyperpolarization via parahydrogen for maximizing quantum magnetic sensing on molecules</p> <p>- Attendees: 10 members and 20 non-members (online)</p> <p>Gwangju Section invited Prof. Keunhong Jeong from Korea Military Academy. In this talk, Prof. Jeong introduced hyperpolarization effect that leads to the beyond the Boltzmann distribution for efficient quantum sensing in nano-NMR (Nuclear Magnetic Resonance) /nano-MRI (Magnetic Resonance Imaging).</p>
3	<ul style="list-style-type: none"> ● Nov. 13, 2020, IEEE Seminar <p>- Speaker: Prof. Youngtae Noh, Assistant Professor, Dept. of Computer Science and Engineering, Inha University, South Korea</p> <p>- Topic: DARCA: Dynamic Association Regulator Considering Airtime over SDN-enabled WiFi</p> <p>- Attendees: 5 members and 20 non-members (online)</p> <p>Gwangju Section invited Prof. Youngtae Noh from Inha University. In this talk, he introduced DARCA (Dynamic Association Regulator Considering Airtime over SDN-enabled WiFi), adopting a notion of Bandwidth Satisfaction Ratio (BSR), which is closely related to user experience (UX), to maximize BSR with an exact measure: airtime (i.e., channel occupancy time). With the fine-tuned settings, DARCA shows up to 80% of BSR gain compared to existing solutions.</p>

4	<ul style="list-style-type: none"> ● Nov. 24, 2020, IEEE Seminar <p>- Speaker: Prof. Sunkyu Yu, Assistant Professor, Dept. of Electrical and Computer Engineering, Seoul National University (SNU), South Korea</p> <p>- Topic: Disordered photonics: Engineering the intermediate regime between order and uncorrelated disorder</p> <p>- Attendees: 5 members and 5 non-members (offline)</p> <p>Gwangju Section invited Prof. Sunkyu Yu from Seoul National University (SNU). In this talk, Prof. Yu introduced the concept of disordered optics and independent control of variables through it, the design of a bandgap disordered medium, and enhancement of transmission characteristics in a complex medium as examples. He also discussed how the internal structure characteristics of deep learning artificial neural networks can be utilized in the field of disordered optics, and additionally, the motion of light in non-Euclidean geometry and non-Hermitian systems, including brief usage.</p>
5	<ul style="list-style-type: none"> ● Nov. 27, 2020, IEEE Seminar <p>- Speaker: Dr. Dongyeop Kang, Postdoctoral scholar, University of California, Berkeley, Unites States</p> <p>- Topic: Toward human-like language generation</p> <p>- Attendees: 10 members and 15 non-members (online)</p> <p>Gwangju Section invited Dr. Dongyeop Kang from University of California, Berkeley. In this talk, Dr. Kang introduced three steps to develop human-like language generation systems: (i) studying linguistic theories, (ii) developing theory-informed models, and (iii) building human-machine cooperative frameworks. And he explained his research lies at the intersection of three fields: computational linguistics as a theoretical basis, modern machine learning as a powerful technical tool, and human-computer interaction as a robust test bed for interacting with humans.</p>
6	<ul style="list-style-type: none"> ● Dec. 4, 2020, IEEE Seminar <p>- Speaker: Dr. Hanbyul Joo, Research Scientist, Facebook AI Research (FAIR), United States</p> <p>- Topic: Perceiving and Understanding Humans in 3D</p> <p>- Attendees: 15 members and 15 non-members (online)</p> <p>Gwangju Section invited Dr. Joo from Facebook AI Research (FAIR). In this talk, Dr. Joo introduced his exploration in building a sensor system, the Panoptic Studio equipped with more than 500 synchronized cameras, that can capture the wide spectrum of human social signaling---from voice, to facial expressions, to hand gestures, to body posture. He</p>

	also discussed on his ongoing effort to build a system to perceive human behaviors in 3D from a large-scale Internet videos.
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- Jan. 31, 2020, IEEE Seminar

- Speaker: Dr. Jinho Park, CEO, Point2 Technology, United States

- Topic: Where do we go from here?: IC design trend and our effort to meet this trend

- Attendees: 15 members and 15 non-members (offline)

Gwangju Section invited Dr. Jinho Park from Point2 Technology. The state-of-arts mixed-signal wireless transceiver has more than 10 million gates on the same die and the size of the chip scales down 30% or more in every generation. The mixed-signal SOC faces more challenges in this case since the physical distance between analog devices and digital circuitries gets closer and the digital circuitries start to act as aggressors to analog performance. In order to tackle this difficulties, analog and mixed-signal design requires more robust architecture and systematic solutions. In this talk, Dr. Park introduced the past, current and the future trend of analog and mixed-signal circuits and systems for wireless application.

IEEE Gwangju Section Seminar

Host: Jae-Hyung Jang / Language: English

Friday, January 31, 2020, 11:00~12:00

#206, EECS-B Bldg. 2nd Floor, GIST

Where do we go from here?: IC design trend and our effort to meet this trend

Jinho Park, Ph.D.

President

CEO of Point2 Technology

[Abstract]

The world's first wireless telephone conversation occurred in 1880, when Alexander Graham Bell and Charles Sumner Tainter invented and patented the photophone, a telephone that conducted audio conversations wirelessly over modulated light beams. Today, one of the best-known examples of wireless technology is the mobile phone, also known as a cellular phone, with more than 5.5 billion cellular subscriptions worldwide as of the end of 2019. This massive mobile radio market drives the IC technologies in two ways: small form factor and low power consumption with multi-functions in one silicon die.

The state-of-arts mixed-signal wireless transceiver has more than 10 million gates on the same die and the size of the chip scales down 30% or more in every generation. The mixed-signal SOC faces more challenges in this case since the physical distance between analog devices and digital circuitries gets closer and the digital circuitries start to act as aggressors to analog performance. In order to tackle this difficulties, analog and mixed-signal design requires more robust architecture and systematic solutions.

This seminar deals with the past, current and the future trend of analog and mixed-signal circuits and systems for wireless application. Providing a systematic treatment of analog electronics based on industrial practice in Silicon Valley, the seminar will start with the necessary background knowledge from fundamental theories and lead the audiences to state of the art design trend widely used in Silicon Valley.

[Speaker Bio]

Jinho Park received the B.S. degree in Electrical Engineering from Seoul National University, Seoul, Korea, in 1996 and Ph.D. degree in Electrical Engineering from the University of Washington, Seattle in 2003. He joined Marvell Semiconductor in 2003. He led the analog and RF design aspects of the world's first 802.11ac mobile MIMO IC publicly announced in June, 2012. He founded 100Gbps Ethernet IC company, TeraSquare in 2013 and He is currently with Point2 Technology, San Jose, CA, USA as a President and CEO. Point2 Technology has 5G products including high-speed SerDes ICs, 5G mobile network transceivers, and 5G Big data-center E-Tube interconnects. He is a co-author of "Parasitic-Aware Optimization of CMOS RF Circuits", by Kluwer Academic Publisher and has more than 80 IEEE publications and US patents.

- Nov. 6, 2020, IEEE Seminar

- Speaker: Prof. Keunhong Jeong, Associate Professor, Department of Chemistry, Korea Military Academy, South Korea

- Topic: Researches on hyperpolarization via parahydrogen for maximizing quantum magnetic sensing on molecules

- Attendees: 10 members and 20 non-members (online)

Gwangju Section invited Prof. Keunhong Jeong from Korea Military Academy. In this talk, Prof. Jeong introduced hyperpolarization effect that leads to the beyond the Boltzmann distribution for efficient quantum sensing in nano-NMR (Nuclear Magnetic Resonance) /nano-MRI (Magnetic Resonance Imaging).

IEEE Gwangju Section Seminar

Host: Byoung Seung Ham / Language: Korean
Friday, November 6, 2020, 14:30~
Real-time lecture using ZOOM
 * <https://zoom.us/j/97566512632?pwd=WUNFZ085dW5LR3dJUnlJdDVRZEZoUT09>
 (Meeting ID: 975 6651 2632 / PW: 566546)

양자자기장센싱 극대화를 위한 파라수소 기반 초분극기술
Researches on hyperpolarization via parahydrogen
for maximizing quantum magnetic sensing on molecules

Keunhong Jeong, Ph.D.
 Associate Professor
 Department of Chemistry
 Korea Military Academy

[Abstract]
 NMR (Nuclear Magnetic Resonance) has been harnessed as the key spectroscopic technology in both industry and science field. However, the high cost and effort of implementation and maintenance of NMR/MRI (Magnetic Resonance Imaging) due to the difficulty in maintaining strong magnetic field and cryogenic condition were the problematic even those great advantages. For the molecular detecting in low concentration, quantum magnetic sensors have been pursued as the key components to be used for developing nano-NMR/nano-MRI. Due to the low polarization of the molecules in the low magnetic field (e.g. earth magnetic field), quantum sensors are not efficient in terms of sensitivity. The best way to overcome these drawbacks is to take advantage of hyperpolarization effect that leads to the beyond the Boltzmann distribution, allowing lowered demand for strong magnetic field and higher concentration. Dynamic nuclear polarization (DNP) has been one of the most widely used method to induce hyperpolarization on target materials. However, DNP exhibits low efficiency and poor stability due to its harsh condition such as strong magnetic field and cryogenic condition. Therefore, there has been much efforts to induce hyperpolarization on targets using safe materials at room temperature. Among several emerging tools (NV Center in diamond, ¹²⁹Xe) parahydrogen system has strong merits on its application in various areas. I will introduce recent research results, which have been carried on in KMA and share some interesting results, which are not reported, too.

[Bio]
 Attachment

- Nov. 13, 2020, IEEE Seminar

- Speaker: Prof. Youngtae Noh, Assistant Professor, Dept. of Computer Science and Engineering, Inha University, South Korea

- Topic: DARCA: Dynamic Association Regulator Considering Airtime over SDN-enabled WiFi

- Attendees: 5 members and 20 non-members (online)

Gwangju Section invited Prof. Youngtae Noh from Inha University. In this talk, he introduced DARCA (Dynamic Association Regulator Considering Airtime over SDN-enabled WiFi), adopting a notion of Bandwidth Satisfaction Ratio (BSR), which is closely related to user experience (UX), to maximize BSR

with an exact measure: airtime (i.e., channel occupancy time). With the fine-tuned settings, DARCA shows up to 80% of BSR gain compared to existing solutions.

IEEE Gwangju Section Seminar

Host: Euseok Hwang / Language: English
Friday, November 13, 2020, 14:30~
Real-time lecture using Zoom
* <https://zoom.us/j/97566512632?pwd=WUNFZ085dW5LR3dJUnJdDVrZEZzUT09>
(Meeting ID: 975 6651 2632 / PW: 566546)

DARCA: Dynamic Association Regulator Considering Airtime over SDN-enabled WiFi

Youngtae Noh, Ph.D.
Assistant Professor
Dept. of Computer Science and Engineering
Inha University

[Abstract]
The massive influx of mobile devices and their increasing use in recent years have resulted in the over-provision of access points in networks. Unlike in residential environments, network administrators in enterprises and universities make every endeavor to enhance the user experience (UX) of WiFi networks where the network dynamics (e.g., traffic load and user mobility) are usually unexpected. However, existing WiFi services can incur user dissatisfaction due to their client-driven association, causing the sticky client problem; therefore, the users move toward a more reliable LTE (or 5G) service without hesitation. To cope with this challenge, we propose DARCA, an SDN-enabled WiFi system. DARCA adopts a notion of Bandwidth Satisfaction Ratio (BSR), which is closely related to UX. It maximizes BSR with an exact measure: airtime (i.e., channel occupancy time). We use this idea in a meta-heuristic genetic algorithm called DARCA-GA that effectively finds the sub-optimal association distribution of the maximum BSRs in polynomial time. We implement DARCA system on off-the-shelf wireless routers and SDN controller. We report real-life experimental results in considered scenarios and conducted extensive simulations on NS-3 simulator to examine its performance with scalability. With the fine-tuned settings, DARCA shows up to 80% of BSR gain compared to existing solutions.

[Bio]
Attachment

- Nov. 24, 2020, IEEE Seminar

- Speaker: Prof. Sunkyu Yu, Assistant Professor, Dept. of Electrical and Computer Engineering, Seoul National University (SNU), South Korea

- Topic: Disordered photonics: Engineering the intermediate regime between order and uncorrelated disorder

- Attendees: 5 members and 5 non-members (offline)

Gwangju Section invited Prof. Sunkyu Yu from Seoul National University (SNU). In this talk, Prof. Yu introduced the concept of disordered optics and independent control of variables through it, the design of a bandgap disordered medium, and enhancement of transmission characteristics in a complex medium as examples. He also discussed how the internal structure characteristics of deep learning artificial neural networks can be utilized in the field of disordered optics, and additionally, the motion of light in non-Euclidean geometry and non-Hermitian systems, including brief usage.

IEEE Gwangju Section Seminar

Host: Young Min Song / Language: English
Tuesday, November 24th, 2020, 10:30~11:30
#201, EECS-B Bldg. 2nd Floor (C2), GIST

Disordered photonics: Engineering the intermediate regime between order and uncorrelated disorder

Sunkyu Yu, Ph.D.

Assistant Professor
Dept. of Electrical and Computer Engineering
Seoul National University (SNU)

[Abstract]

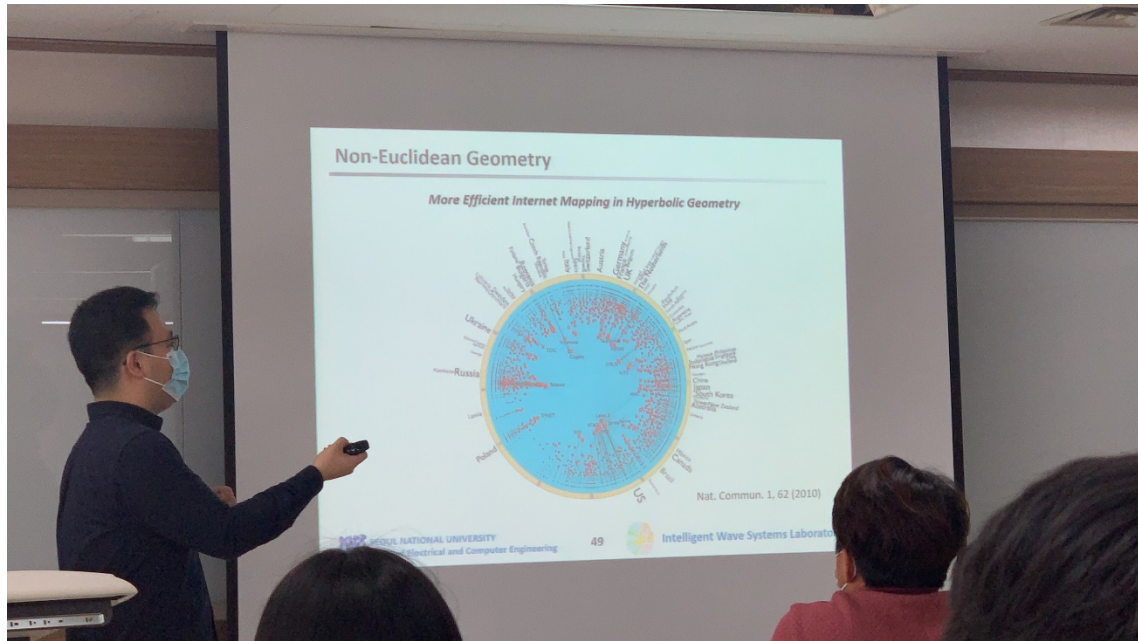
This seminar introduces the concept of disordered optics and the independent control of variables through it, and deals with the design of a bandgap disordered medium and enhancement of transmission characteristics in a complex medium as examples.

In addition, it discusses how the internal structure characteristics of deep learning artificial neural networks can be utilized in the field of disordered optics. It also briefly introduces its use.

[Short Bio]

- * B.S. in EE, Seoul National University / Mar. 2003 - Feb.2007
- * Ph.D. in EECS, Seoul National University
Dissertation: Symmetry Breaking in Complex, Disordered, and Nonlinear Optical Potentials for the Manipulation of the Flow of Light (Advisor: Prof. Namkyoo Park) / Mar. 2007 - Aug. 2015
- * Postdoctoral Fellow in Dept. of ECE, Seoul National University BK21 Creative Research Engineer Development Program / Sep. 2015 - May. 2016
- * Postdoctoral Fellow in Dept. of ECE, Seoul National University Presidential Postdoc Fellowship Project (5 years) / Jun. 2016 - Aug. 2020
- * Assistant Professor, Dept. of Electrical and Computer Engineering, Seoul National University / Sep. 2020 - Present





- Nov. 27, 2020, IEEE Seminar
- Speaker: Dr. Dongyeop Kang, Postdoctoral scholar, University of California, Berkeley, Unites States
- Topic: Toward human-like language generation
- Attendees: 10 members and 15 non-members (online)

Gwangju Section invited Dr. Dongyeop Kang from University of California, Berkeley. In this talk, Dr. Kang introduced three steps to develop human-like language generation systems: (i) studying linguistic theories, (ii) developing theory-informed models, and (iii) building human-machine cooperative frameworks. And he explained his research lies at the intersection of three fields: computational linguistics as a theoretical basis, modern machine learning as a powerful technical tool, and human-computer interaction as a robust test bed for interacting with humans.

IEEE Gwangju Section Seminar

Host: Jonghyun Choi / Language: English
Friday, November 27, 2020, 14:30~16:30

Watch live video screening using Zoom

* <https://zoom.us/j/97566512632?pwd=WUNFZ085dW5LR3dJUnlJdDVRZEFoUT09>
(Meeting ID: 975 6651 2632 / PW: 566546)

Toward human-like language generation

Dongyeop Kang, Ph.D.

Postdoctoral scholar
University of California, Berkeley

[Abstract]

Natural language generation (NLG) is a key component of many language-based AI technologies, such as dialogue systems, news summarization, automatic email replies, and more.

Developing a system that can produce human-like language is a basis for general artificial intelligence research and its applications to various fields such as linguistics, cognitive science, psychology, and sociolinguistics. Despite the recent advances of massive language models like GPT3 (Brown et al., 2020), texts predicted by such systems are far from human-like language. They often produce non-factual text, incoherent text, or pragmatically inappropriate text. I propose three steps to develop human-like language generation systems: (i) studying linguistic theories, (ii) developing theory-informed models, and (iii) building human-machine cooperative frameworks. My research lies at the intersection of three fields: computational linguistics as a theoretical basis, modern machine learning as a powerful technical tool, and human-computer interaction as a robust test bed for interacting with humans.

[Short Bio]

I am a postdoctoral scholar at University of California, Berkeley, working with Prof. Marti A. Hearst. I obtained my Ph.D. in the Language Technologies Institute of the School of Computer Science at Carnegie Mellon University, under Prof. Eduard Hovy. I interned at Facebook AI, Allen Institute for AI (AI2), and Microsoft Research. My Ph.D. study has been supported by Allen Institute for AI (AI2) Fellowship, CMU Presidential Fellowship, and ILJU Graduate Fellowship. Before joining CMU, I obtained my BS and MS in Computer Science Engineering at KAIST, Korea.

The screenshot shows a Zoom meeting window. At the top, it says "You are screen sharing" and "Stop Share". The main content is a slide titled "IEEE Gwangju Section Seminar" with the following text: "Host: Jonghyun Choi / Language: English", "Friday, November 27, 2020, 14:30~16:30", and "Natural Language Generation (NLG) in commercial services". Below the title, there is a diagram and a video thumbnail of the speaker. A video player is overlaid on the slide, showing a video titled "Talk_GIST_20201127.mp4" with a progress bar at 01:03 / -44:50. In the bottom right corner, there is a "Participants (6)" list:

Name	Role	Audio	Video
Euseok Hwang (Host, me)	Host	On	Off
2P 20124020 Pavel Ni	Participant	Off	Off
20194046 유지선	Participant	Off	Off
cwjl	Participant	Off	Off
조교 이세원	Participant	Off	Off
조혜진	Participant	Off	Off

At the bottom of the Zoom window, there are buttons for "Invite", "Mute All", and "More".

IEEE Gwangju Section Seminar

Host: Jonghyun Choi / Language: English
Friday, December 4, 2020, 14:30~

Real-time lecture using Zoom

* <https://zoom.us/j/97566512632?pwd=WUNFZ085dW5LR3dJUmlJdDYrZEFoUT09>
(Meeting ID: 975 6651 2632 / PW: 566546)

Perceiving and Understanding Humans in 3D

Hanbyul Joo, Ph.D.

Research Scientist
Facebook AI Research (FAIR)

[Abstract]

Humans are born to move; we move for physical activities in our daily life and also for communication to convey our thoughts, emotions, and intentions through a concert of subtlest movements. However, despite advances in machine perception, machines are still unable to discern the subtle and momentary nuances of human behaviors that carry tremendous amounts of information and context. It is also unclear how to teach machines to perceive and imitate such human movements to make them our collaborative partners rather than tools. The goal of my research is to endow machines with the ability to perceive, analyze, and predict human behaviors from visual data. Ultimately, I dream of building an AI system that understands human behaviors and behaves like humans by interacting with objects and communicating with humans via conversational gestures.

In this talk, I will describe my early exploration in building a sensor system, the Panoptic Studio equipped with more than 500 synchronized cameras, that can capture the wide spectrum of human social signaling---from voice, to facial expressions, to hand gestures, to body posture. Then, I will discuss my ongoing effort to build a system to perceive human behaviors in 3D from a large-scale Internet videos.

[Bio]

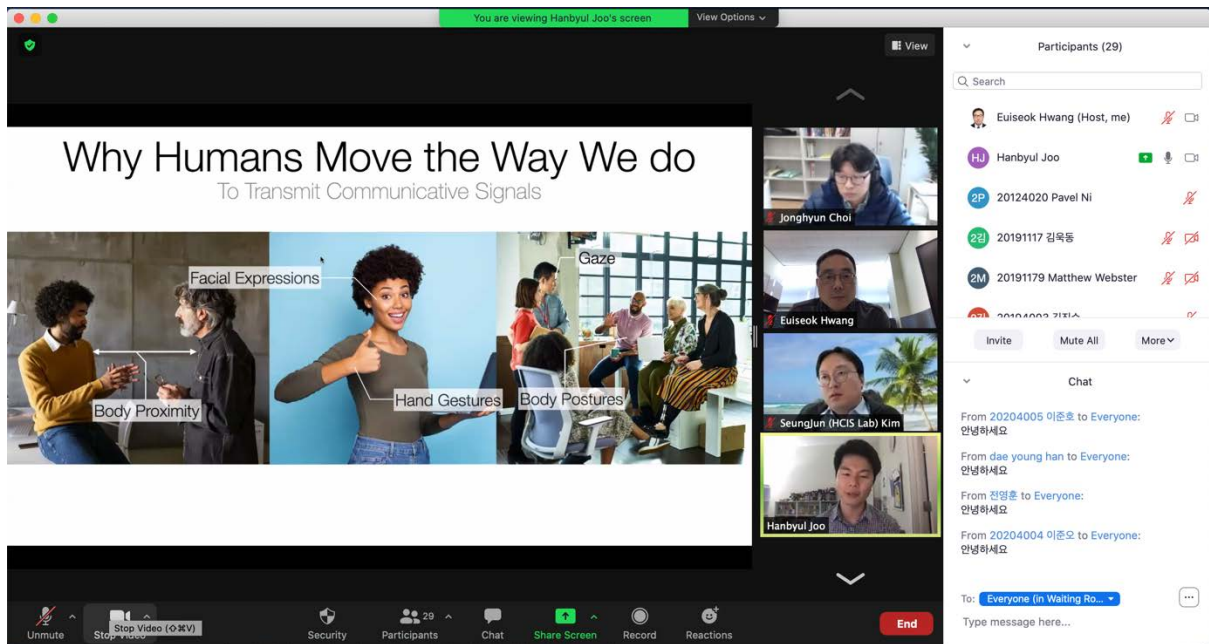
Hanbyul Joo is a Research Scientist at Facebook AI Research (FAIR), Menlo Park. His research is at the intersection of computer vision, graphics, and machine learning, focusing on building a system to perceive and understand humans in 3D from visual input. Hanbyul received his PhD from the Robotics Institute at Carnegie Mellon University, and MS and BS from KAIST. Hanbyul's research has been featured in various media outlets including Discovery, Reuters, NBC News, The Verge, and WIRED. He is a recipient of the Samsung Scholarship and the Best Student Paper Award in CVPR 2018.

A Computational Approach to Sensing, Measuring, and Modeling Humans in 3D

Hanbyul Joo

Facebook AI Research (FAIR)





B.4 Students Activities

- Total number of Student Branches in the Section
N/A
- Number of Student Branches formed in the current year
N/A
- Section level student activities (student congress, paper and other contests, awards etc)
N/A
- Number of active Student Branches (Student Branches who have reported required number of meetings during the year)
N/A
- Summary of Student Branch activities (Student Branch wise with attachment table/information)
N/A

B.5 Affinity Group Activities

- Young Professional (YP)
Mr. Azevedo Tavares Yang (A graduate student in our section chair, Prof. Minjae Lee) tried to call for the YP Affinity Group meeting on July 8, 2020. Section officers provided the e-mail list of entire section members. Unfortunately, due to the low participation rate, the YP Affinity Group meeting was not made.
- Women In Engineering (WIE)
N/A
- Life Member (LM)
N/A

B.6 Awards & Recognition Activities

- Award constituted by the Section
N/A

B.7 Communication Activities (Newsletter, Home Page, E-mail etc.)

- Newsletter (name and number of issues in the year)
The Gwangju section was introduced as “R10 Small Section of the Month” in the R10 Newsletter.
- Home Page of the Section (give the URL and how often it is updated)
N/A
- Other means of contacts with Section members including social media
N/A

B.8 Industry Relations

- Membership growth and retention
N/A
- Activities for/with industrial members
N/A

B.9 Humanitarian Technology Activities

- Humanitarian Technology related activities supported by the Section including collaboration with other OUs.
N/A
- SIGHT Activities
N/A

B.10 Community Activities

- IEEE Social activities (Family day, IEEE day, Engineers Week)
N/A

PART C - OTHERS

C.1 Special Events

- Please briefly describe the importance of special events and the outcomes achieved
N/A
- Funding secured from the IEEE and external sources including sponsorships
N/A

C.2 Relationship with National and International Societies and Non-Government Organizations (NGO)

- Nature of relationship and details of any formal agreement signed
N/A
- Details of joint activities
N/A

- Benefit to IEEE members (for example discounts, access to technical information etc.)

N/A

- Benefit to Section (for example help in membership development, venue facilities, cost saving etc.)

N/A

C3. Collaboration with other IEEE Sections

- Support extended to neighboring Sections

N/A

- Joint activities with any other Section

N/A

C.4 Support extended to Sub-sections & Society Chapters within the Section

- Support extended for organising technical, educational and professional activities

N/A

- Joint activities for membership development

N/A

- Support extended for the formation of a Sub-section or transition of a Sub-section into a full Section

N/A

C.5 Best Practices of your Section (which you would like to share with other Sections for the benefits of members)

C.6 Problems anticipated and suggestions for solutions, if any

PART D - GOALS AND PLANS

D.1 Continuation of project/activity in progress and their implementation plans

D.2 Goals and Future Plans

In 2020, due to the worldwide outbreak of COVID-19, it was difficult to invite the external experts for technical seminars. The social meeting was mostly suppressed. Instead, we provided several on-line seminars.

We hope that the situation gets better in 2021. In this case, we will try to provide more activities to our members.

D.3 Any innovative ideas to make IEEE more creative and value added for sustaining the membership retention and recruitment goals.

D.4 Business Plan for Sustainable Growth and Financial Stability.