

9th Asan International Biomedical Engineering Symposium (AIBES) 2021

New Look at the Barriers Surrounding Digital Medicine

2021. 11. 3. (Wed), 09:00~17:50

- Virtual Symposium
- Pre-registration : www.medi-webinar2.com



PLENARY SESSION | 9:00 ~ 10:40

09:00~09:10	Welcome remark	Director, BMERC Jaesoon Choi
	Congratulatory remark	Chair, AILS Chong Jai Kim
09:10~ 09:30	Medical Imaging and AI	Asan Medical Center Joon Beom Seo
09:30~ 09:50	AI application for diagnosis of head and neck cancer	Ajou University College of Medicine Chul-Ho Kim
09:50~ 10:10	Retinal based Cardiovascular Risk Assessment SW	MediWhale Kevin Choi
10:10~ 10:40	Pannel Discussion	Moderated by Jaesoon Choi

SESSION 1 | 11:00~12:30

Room 1 Peripheral Nerve Interface with Powered Limb Prosthesis

Chairperson : **Paul Stephen Cederna** (Michigan University Hospital)
Joon Pio Hong (Asan Medical Center)

11:00~11:30	Updates in TMR	Northwestern University Hospital Jason Hyunsuk Ko
11:30~12:00	Updates in RPNI	Michigan University Hospital Paul Stephen Cederna
12:00~12:30	Now in AMC	Asan Medical Center John Changsik Pak

Room 2 Physiologic Measurement and Biosignal Analysis : Theory and Application

Chairperson : **Hangsik Shin** (Chonnam National University)
Sung Hoon Kim (Asan Medical Center)

11:00~11:20	Cardiovascular monitoring in sleep	University of Washington Younghoon Kwon
11:20~11:40	Oscillometric blood pressure measurement: theory and recent advances	University of Pittsburgh Ramakrishna Mukkamala
11:40~12:00	Ballistocardiogram: theory and application to cardiovascular health monitoring	University of Maryland at College Park Jin-Oh Hahn
12:00~12:20	From Clinical Problems to New Medical Technologies: The Process of Needs-Based Innovation	Edwards Lifesciences Farzad Azimpour
12:20~12:30	Q&A	

Room 3 Understanding FDA

Chairperson : **Jaesoon Choi** (Asan Medical Center)

11:00~12:30	Strategic Approach for FDA Registration	K-Bio Solutions Kyungyoon Kang
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Room 4 AI in otolaryngology field

Chairperson : **Yoon Se Lee** (Asan Medical Center)

11:00~11:20	Application of deep learning in laryngology	Asan Medical Center Seung Ho Choi
11:20~11:40	Machine learning and radiomics for head and neck cancer prognostication	Ajou University Hospital Jeon Yeob Jang
11:40~12:00	Personalized 3D reconstruction of head & neck tumor models : from thyroid to oral cavity	National Cancer Center Jungirl Seok
12:00~12:20	Machine learning application in Rhinology field	Asan Medical Center Myeong Sang Yu
12:20~12:30	Q&A	

12:30~13:30 Lunch

SESSION 2 | 13:30~15:00

Room 2 Understanding Body-Machine Interface Technology

Chairperson : **Deok Hee Lee** (Asan Medical Center)
Sung Young Park (Asan Medical Center)

13:30~14:00	Unconventional Bio-integrated Electronics towards Human-machine Interfaces	Yonsei University Ki Jun Yu
14:00~14:30	Fiber-based Bio and Neural Interfaces	KAIST Seongjun Park
14:30~15:00	Noninvasive Brain-Computer Interfaces for Communication and Control	Hanyang University Chang-Hwan Im

Room 3 Understanding Clinical Evaluation

Chairperson : **Jaesoon Choi** (Asan Medical Center)

13:30~14:00	Clinical evaluation: Understanding IMDRF principle	Soonchunhyang University You Kyoung Lee
14:00~14:30	CER in real world	Dongguk University Ki Chang Nam
14:30~15:00	Discussion	

Room 4 Soft Rehabilitation Robots

Chairperson : **Youngjin Moon** (Asan Medical Center)

13:30~13:55	Bio-Inspired Soft Robotics for Healthcare Applications	Seoul National University Yong-Lae Park
13:55~14:20	Fabric muscle and its application to suit-type soft wearable robot	KIMM Cheol Hoon Park
14:20~14:45	Soft Wearable Sensors for Metaverse and Digital Healthcare	UNIST Joonbum Bae

SESSION 3 | 15:00~16:20

Room 1 AI Applications in AMC

Chairperson : **June-Goo Lee** (Asan Medical Center)

15:00~15:20	ENT application	Asan Medical Center Jong Woo Chung
15:20~15:40	Ophthalmology application	Asan Medical Center Yoon Jeon Kim
15:40~16:00	Endoscopy application	Asan Medical Center Do Hoon Kim
16:00~16:20	Neuroimaging application	Asan Medical Center Ji Eun Park

Room 2 The new horizons of lymphatic research

Chairperson : **Jae Yong Jeon** (Asan Medical Center)

15:00~15:20	The role of exercise in lymphedema	Asan Medical Center Ma Nessa Gelvosa
15:20~15:40	The novel lymphatic graft sheet to prevent lymphedema in axillary lymph node dissection	Asan Medical Center Hwayeong Cheon
15:40~16:00	The biological impact assessment of terahertz electromagnetic waves and biomedical optics to diagnose of lymphatic disease	Yonsei Univ. College of Medicine Seung Jae Oh
16:00~16:20	Terahertz nano-metamaterial sensor for early detection of lymphedema	Kumoh National Institute of Technology Sang-Hun Lee

Room 3 Digital Twin, the Medical Applications

Chairperson : **Jaesoon Choi** (Asan Medical Center)

15:00~15:30	In silico in treatment of chest wall deformity; patient-tailored	Busan National University Hosek Lee
15:30~16:00	Technology fusion of simulation modeling and machine learning for high reliability digital twin implementation	Pukyong National University Seon Han Choi
16:00~16:30	The value and necessity of computational modeling and simulation for digital innovation of medical technology : Medical device applications	Tae Sung S&E Hyeryung Na

Room 4 AMC-DGIST Joint Seminar

Chairperson : **Cheol Song** (DGIST)
Youngjin Moon (Asan Medical Center)

15:00~15:15	Super-resolution ultrasound imaging: Beyond the acoustic diffraction limit	DGIST Jaesok Yu
15:15~15:30	Smart Planning for Dental Implant Robot	Asan Medical Center Namkug Kim
15:30~15:45	Flexible Surgical Robots, AI-assisted Surgery	DGIST Minho Hwang
15:45~16:00	Development of Dysphagia Evaluation via Video Analysis Based on Deep Learning Method in Neonates and Infants and Correlation Between the Evaluation and the Development	Asan Medical Center Eun Jae Ko
16:00~16:15	Confocal endomicroscopy towards AI diagnosis	DGIST Cheol Song

SESSION 4 | 16:30~17:50

Room 1 AI Technical Update

Chairperson : **Namkug Kim** (Asan Medical Center)

16:30~16:50	Generative models	Promedius Inc. Hyun Jin Bae
16:50~17:10	COVID application development	KAIST Jong Chul Ye
17:10~17:30	Energy-based model for Out-of-Distribution Detection in Deep Medical Image Segmentation	Severance Hospita Hwiyoung Kim
17:30~17:50	MR sequence generation with BlochGAN	Yonsei University Dosik Hwang

Room 2 Biomedical Approach to Obesity and Metabolic Disorders

Chairperson : **Hwoon-Yong Jung** (Asan Medical Center)

16:30~16:50	Gastrointestinal intervention for treatment of obesity and metabolic diseases: Based on the mechanism	Seoul ST. Mary's Hospita Jae Myung Park
16:50~17:10	Highly functional duodenal stent with controlled radical oxygen species release for the treatment of metabolic diseases	Severance Hospita Moon Jae Chung
17:10~17:30	Endoscopic photodynamic therapy and high functional device in obesity-related metabolic syndrome	Catholic University of Korea Kun Na
17:30~17:50	Currently Available Devices for Endoscopic Bariatric Intervention	Asan Medical Center Do Hoon Kim

Room 3 Bootcamp for newcomers in BME research

Chairperson : **Ji Wan Kim** (Asan Medical Center)

16:30~16:55	Wise Ideation Life.	Seoul National University Bundang Hospital Chan Yeong Heo
16:55~17:20	Robotics crossing the border	DGIST Se Hoon Oh
17:20~17:50	The inevitable steps as a BME researcher: designing research and projects	Chonnam National University Hangsik Shin

Room 4 Surgery Robot Current Update

Chairperson : **Jaesoon Choi** (Asan Medical Center)

16:30~16:50	Flexible instruments for transoral surgery	KIST Keri Kim
16:50~17:10	Laparoscopic surgery assist robot	Pusan National University Sangrok Jin
17:10~17:30	Surgical navigation for surgical robot system	University of Ulsan Sungmin Kim
17:30~17:50	Oblique micro-injection by a handheld robotic system	DGIST Cheol Song

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