



# ICBHI2021

International Conference on Biomedical and Health Informatics 2021

## "Digital Transformation in Healthcare"

November 10 (Wed) -12 (Fri)

Virtual



[www.kosombe.or.kr](http://www.kosombe.or.kr)  
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Hosted by The Korean Society of Medical & Biological Engineering

Organized by The Korean Society of Medical & Biological Engineering YONSEI UNIVERSITY

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## Program in Detail

11 Nov. (Thursday)

Plenary Session 1 (Joint Session)

Room A (09:30~10:30)

Session Chair: Kwang Gi Kim (Gachon University, S. Korea)

Wearable Devices for Detection of Atrial Fibrillation and Seizure Prediction in Divers

Ki Chon (University of Connecticut, USA) ..... 16

Student Paper Competition

Room F (10:30~12:00)

Session Chair: Jinah Jang (POSTECH, S. Korea)

Pressure Ulcer Prediction with Deep Learning

Yeonhee Kim (Ewha Womans University, S. Korea) ..... 18

Point-of-care (POC) Blood Coagulation Test using High-frequency Ultrasound

Jinhee Yoo (POSTECH, S. Korea) ..... 19

Deep learning-based anomaly detection of bone scan images

Dongha Kim (Yonsei University, S. Korea) ..... 20

Speckle Reduction via Deep Content-Aware Image Prior for Precise Breast Tumor  
Segmentation in an Ultrasound Image

Haeyun Lee (Daegu Gyeongbuk Institute of Science & Technology, S. Korea) ..... 21

Spiking neural network with sparse lateral connection for MNIST classification

Yumin Cheong (Yonsei University, S. Korea) ..... 22

AI-based fully automatic scanning-guide algorithm for diagnosis of rotator cuff tear

Kyungsu Lee (Daegu Gyeongbuk Institute of Science & Technology, S. Korea) ..... 23

3D bioprinting of stem cell-derived  $\beta$ -cell aggregates in multi-encapsulation system

Yeonggwon Jo (POSTECH, S. Korea) ..... 24

Porous Graphene-based Pulse Wave Sensor using One-Step Laser Fabrication

Jina Lee (POSTECH, S. Korea) ..... 26

Complex valued convolutional neural network Multi task model

Junghwan Lee (Kwangwoon University, S. Korea) ..... 27

IBEC2021 ICBHI2021 The Joint Conference of the IBEC2021 and the ICBHI2021

# 3D bioprinting of stem cell-derived $\beta$ -cell aggregates in multi-encapsulation system

[2-7]

Yeonggwon Jo (POSTECH)



International Federation for Medical & Biological Engineering

- Best paper award (\$100)
  - **Yumin Cheong (Yonsei University)** “Spiking neural network with sparse lateral connection for MNIST classification”
  - **Jeewon Heo (University of Groningen)** “Classification of Human Activity Data Using Sharpened Dimensionality Reduction and Clustering”
- Paper award (\$50)
  - **Yeonggwon Jo (POSTECH)** “3D bioprinting of stem cell-derived  $\beta$ -cell aggregates in multi-encapsulation system”
  - **Haeyun Lee (DGIST)** “Speckle Reduction via Deep Content-Aware Image Prior for Precise Breast Tumor Segmentation in an Ultrasound Image”
  - **Joongho Ahn (POSTECH)** “Preclinical and Clinical Photoacoustic Microscopy and Plus: Ultrasound Imaging, Photoplethysmography, and Thermometry”
- Poster award (\$30)
  - **Tao Chen (Shenzhen Institute of Advanced Technology)** “Dedicated Photoacoustic Imaging Instrument for Human Periphery Blood Vessels”
  - **Wonju Seo (POSTECH)** “Towards Interpretation for Blood Glucose Level Prediction Models”
  - **Emily Zheng (University at Buffalo)** “Second-generation Dual Scan Mammoscope with Photoacoustic, Ultrasound, and Elastographic imaging capabilities”