BEB
Conference on Biomedical
Engineering and Biotechnology

The 12th International Conference on Biomedical Engineering and Biotechnology (ICBEB 2023)

November 17-20, 2023   Macao, China

Conference Guide

Medinformatics
BON VIEW PUBLISHING

BMEF
A SCIENCE PARTNER JOURNAL

BioDesign Research
A SCIENCE PARTNER JOURNAL

澳 門 會 展 旅 遊 業 協 會
ASSOCIACAO DOS SECTORES DE CONVENCOES,EXPOSICOES E TURISMO DE MACAU
MACAO ASSOCIATION OF CONVERTION ,EXHIBITION &TOURISM SECTORS

C.Clairaudience

Table of Content

Part I Conference Schedule Summary

Friday, November 17th, 2023	**Lobby of Regency Art Hotel**
14:00-19:00	Offline Registration
15:00-17:00	Online MS Teams Testing *http://www.academicconf.com/teamslink?confname=icbeb2023*

Note for offline registration:

* Please show us your name or paper ID for registration.
* Please take the Name Card during the conference, Macao Pass[1] for meals and Field Visit Ticket while joining the field visit.

Saturday, November 18th, 2023	**Ballroom I (1F), Regency Art Hotel**
Online MS Teams Link: http://www.academicconf.com/teamslink?confname=icbeb2023	
Opening Speech and Keynote Speeches Chaired by: *Prof. Lung-Kwang Pan, Central Taiwan University of Science and Technology, Chinese Taichung*	
09:00-09:05	**WELCOME SPEECH** *Prof. Simon James Fong, Technical Program Committee Co-Chair, University of Macau, China*
09:05-09:45	**Keynote Speech 1: Study of Advanced AI Techniques for the Detection of Myocardial Infarction ECG Signals in Clinical Settings** *Prof. Eddie Y. K. Ng, Nanyang Technological University, Singapore*
09:45-10:25	**Keynote Speech 2: Wearable and AI Technologies in Intelligent Medicine** *Prof. Chengyu Liu, Southeast University, China*
10:25-10:50	**GROUP PHOTO & COFFEE BREAK**
10:50-11:30	**Keynote Speech 3: The Road Ahead: Exciting Prospects in Precision Oncology** *Dr. William C.S. Cho, Queen Elizabeth Hospital, Hong Kong, China*
11:30-12:10	**Keynote Speech 4: Imaging Gene Therapies to Brain Tumors across the Blood-Brain Barrier** *Prof. Bakhos A. Tannous, AstraZenec/Former Harvard Medical School, USA*
12:10-12:40	**Poster Presentations**

---

[1] Macao Pass will be provided during registration for dinner on November 19th and Lunch on November 20th. Macao Pass can be used in Public Transit, Convenience Store, Supermarket, Cafe and Self-service Vending Machine in Macao.

12:40-13:40	**LUNCH BREAK - A Pousada Café 玲瓏閣餐廳 (Ground Floor)**
13:40-18:10	**Oral Session 1: Medical Imaging Technology and Biomedical Signal Processing**
18:30	Gather at the Lobby of Regency Art Hotel, **Set off on time at 18:30** to Macao Tower
18:30-21:00	**Buffet Dinner at Macao Tower (With Buffet Dinner Ticket)**
21:00	Gather at the Ground Floor of Macao Tower, **Set off on time at 21:00**, Back to Regency Art Hotel

Sunday, November 19th, 2023	**Ballroom I (1F), Regency Art Hotel**
Online MS Teams Link: http://www.academicconf.com/teamslink?confname=icbeb2023	
09:00-12:15	**Oral Session 2: Cell Biology & Medicinal Chemistry**
12:15-14:00	**LUNCH BREAK - A Pousada Café 玲瓏閣餐廳 (Ground Floor)**
14:00-17:50	**Oral Session 3: Biomechanical Engineering & Biotechnology**

Monday, November 20th, 2023	**Macao City, China**
09:00	Gather at the Lobby of Regency Art Hotel, **Set off on time at 09:00**
09:00-16:00	**One Day Field Visit of Macao City (with Field Visit Ticket)**
16:00	Gather at the Ground floor of Venetian Macao, **Set off on time at 16:00,** Back to Regency Art Hotel

Part II Keynote Speeches

Keynote Speech 1: Study of Advanced AI Techniques for the Detection of Myocardial Infarction ECG Signals in Clinical Settings

Prof. Eddie Y. K. Ng

PhD, PGDTHE, FEUAS [GR], FNAT [USA], AEASA [EU], FASME [USA], FIET [UK], FIETI [HK], DFIDSAI [CN], AAPL [USA]

Nanyang Technological University, Singapore

Biography: Eddie is elected as:
* Academician for European Academy of Sciences (FEUAS, Greece);
* Fellow (inaugural) for National Academy of Technology (FNAT, USA);
*Academician for European Academy of Sciences and Arts (AEASA, EU-Austria);
* Fellow of the American Society of Mechanical Engineers (FASME, USA);
* Fellow of Institute of Engineering and Technology (FIET, United Kingdom);
* Fellow of International Engineering and Technology Institute (FIETI, Hong Kong);
* Distinguished Fellow for Institute of Data Science and Artificial Intelligence (DFIDSAI, China);
* Academician for Academy of Pedagogy and Learning (USA).

He has published numerous papers in SCI-IF int. journal (530); int. conf. proceedings (140), textbook chapters (>110) and others (32) over the 31 years and co-edited 14 books in STEM areas.

He is in the Stanford list of the World's top 2% Scientists since 2019 (ranked 173 as top 0.001% in the field of Biomedical Engineering), and ranked #6 (Worldwide) in Google Scholar under Biomedical, cited by 18,050 (h-index: 68).

He is the:
* Lead Editor-in-Chief for the ISI Journal of Mechanics in Medicine and Biology for dissemination of original research in all fields of mechanics in medicine and biology since 2000;
* Founding Editor-in-Chief for the ISI indexed Journal of Medical Imaging and Health Informatics (2011-2021);
* Associate editor or EAB of various referred international journals such as Applied Intelligence, BioMedical Engineering OnLine, Sensors, Computers in Biology & Medicine, and, Journal of Advanced Thermal Science Research.
More details can be found in: Cv: https://dr.ntu.edu.sg/cris/rp/rp00847.

Ng obtained a Ph.D. at Cambridge University and was elected as an Academician for European Academy of Sciences and Arts (Austria); an Academician for European Academy of Sciences (Greece); a Fellow of The American Society of Mechanical Engineers; The Institution of Engineering and Technology [UK], and International Engineering & Technology Institute [HK]. He researches in numerical simulation in the biomedical engineering, thermal-fluids and health-related diagnosis fields. He is Editor-in-Chief for 2 ISI-journals which were captured by the JCR within 2-

years of their inauguration. He has been recognized internationally for academic excellence. He received numerous best papers, service awards and has graduated 26 PhD and 26 Master students. He was awarded the SPRING-Singapore Merit Award for his work in thermal imagers to screen SARS fever and contributions to the Singapore Standardization Program. Twenty-one of his papers have been adopted as references in Singapore Standard (SS-582, Parts 1&2: 2020) and ISO/IEC 80601-2-59: 2017. He serves as a panel member for Singapore Biomedical and Health Standards Committee since 2011. Being a co-inventor of 3 US patents on software classifiers to identify the different stages of breast cancer development in iTBra-system, he was accoladed with equity in a listed company. His ongoing work on non-contact screening for carotid artery stenosis, superficial vein-finder and dual-point Photoplethysmogram (2PPG) has resulted in 4 TDs and another patent on "IoT enabled EPCG-device-unit for nursing heart-health-distantly" with AusPat. Office. He has notable citations in the field of infrared physics & technology.

Abstract. Coronary artery disease occurs when plaque is accumulated in the walls of the artery. This causes the artery to narrow, reducing blood flow to the heart. Coronary artery disease is globally identified as the most predominant and lethal cardiovascular disease. Furthermore, undiagnosed coronary artery disease may progress and lead to complications such as myocardial infarction and congestive heart failure. Hence there is a compelling need for the prompt and unerring detection of coronary artery disease, myocardial infarction, and congestive heart failure using automated systems. The electrocardiogram (ECG) is the most preferred method of detecting cardiovascular diseases as it is easily available and economical compared to imaging methods. Hence, this talk summarizes the development of advanced models using ECG signals for the detection of coronary artery disease, myocardial infarction, and congestive heart failure, focusing on the detection of myocardial infarction. This work contributes to the medical field as it offers some level of explainability of the inner workings of the deep models that clinicians may relate to. The reliability of the developed deep model used in healthcare applications such as emergency diagnosis of different types of myocardial infarction contributes significantly to clinicians. The presentation will include 3 parts:

1) The development of convolutional neural network (CNN) and GaborCNN (with a unique Gabor layer) models for rapidly classifying coronary artery disease, myocardial infarction, congestive heart failure, and healthy ECG signals is discussed. The ECG signals which were acquired from the Physikalisch- Technische Bundesanstalt (PTB) database were fed to the two models for classification. The GaborCNN was affirmed to be the better model for the classification task due to its high overall accuracy of 98.74% and lower computational demand. We believe this is the first study to integrate the Gabor filter into the CNN model to automatically classify normal, coronary artery disease, myocardial infarction, and congestive heart failure classes using ECG signals.

Despite the surge in the development of robust models for the automated detection of cardiovascular diseases, these are often not trusted by clinicians due to the lack of explainability of models' mechanisms. Hence,

2) The development of the CNN and DenseNet models with the application of an advanced and unique GRAD-CAM technique to both models' output will be briefly discussed. ECG beats were extracted from the healthy and ten myocardial infarction classes using the R peak detection algorithm and fed to the developed CNN and DenseNet models. Application of the GRAD-CAM technique enabled visualization of ECG leads and portions of ECG waves that influenced the models' predictive decisions. DenseNet was identified as a better model due to its low computational complexity and higher classification accuracy of 98.9% due to feature reusability. Lead V4 was the most activated lead in both models. The DenseNet model with the Grad-CAM technique enables

clinicians to determine the type of myocardial infarction based on explainability and, thus, has the potential to boost clinicians' confidence in using it in hospital settings. This is exciting to report features that influenced the classification decisions of deep models for multiclass classification of myocardial infarction and healthy ECGs.

Current diagnostic models for cardiovascular diseases have been primarily developed using public databases and are thus unsuitable for hospital settings, where the uncertainty of models is predominant.

3) A unique Dirichlet DenseNet model was trained with pre-processed myocardial infarction ECG signals and tested with noisy myocardial infarction signals. The predictive entropy was used as an uncertainty measure to determine the misclassification of normal and myocardial infarction signals. The misclassification of signals was determined based on the computation of four uncertainty metrics; uncertainty sensitivity, specificity, accuracy and precision. The proposed method demonstrates that the developed model is reliable as it is able to convey when it is not confident in the diagnostic information it's presenting, having the potential to make a significant contribution to clinicians, especially in emergencies such as urgent diagnosis of myocardial infarction. We have explored uncertainty quantification of a deep model using multi-class myocardial infarction ECG signals.

In summary, we believe the models proposed in the above 3 parts have great potential to contribute significantly to healthcare in areas such as the emergency diagnosis of acute myocardial infarction.

Keynote Speech 2: Wearable and AI Technologies in Intelligent Medicine

Prof. Chengyu Liu

Professor, Dean of School of Instrument Science and Engineering, Southeast University, Nanjing, China
Director, Wearable Heart-Sleep-Emotion Intelligent Monitoring Lab, Southeast University, Nanjing, China

Biography: Dr. Liu received his B.S. and Ph.D. degrees in Biomedical Engineering from Shandong University, China, in 2005 and 2010 respectively. Dr. Liu has completed the Postdoctoral trainings at Shandong University, Newcastle University in UK (2013-2014) and Emory University in USA (2015-2017). He is now the Dean of the School of Instrument Science and Engineering in Southeast University, a Professor of the State Key Laboratory of Digital Medical Engineering, and the founding Director of Wearable Heart-Sleep-Emotion Intelligent Monitoring Lab in Southeast University, leading the research works on medical big-data processing, medical device development and clinical applications. He is now a member of Federation Journal Committee of International Federation for Medical and Biological Engineering (IFMBE), a Council member of Chinese Society of Biomedical Engineering (CSBME), and serve as an Executive Editorial Board member for Physiological Measurement, an Deputy Editor for Medical & Biological Engineering & Computing, an International Advisory Editorial Board member for Journal of Medical and Biological Engineering, an Associate Editor for IEEE Transactions on Instrumentation and Measurement, etc. He has published more than 300 original Journal/Conference papers, and holds more than 30 patents as an inventor. His research topics include: mHealth and intelligent monitoring, machine learning and big data processing for physiological signals, early detection and device development for cardiovascular diseases, sleep quality and emotion status monitoring.

Abstract. Real-time, long-term wearable monitoring and AI technologies are essential for early detecting the cardiovascular diseases, emotional and sleep health risks in clinic. This talk presents several important aspects about wearable and AI technologies, and summarizes the technology challenges exist in each aspect, and talks about some new improvements in the intelligent monitoring, machine learning and big data processing for physiological signals, early detection and device development for cardiovascular diseases, sleep quality and emotion status monitoring.

Keynote Speech 3: The Road Ahead: Exciting Prospects in Precision Oncology

Dr. William C.S. Cho
Ph.D., RCMP, FHKIMLS, FHKSMDS, Chartered Scientist (UK), FIBMS (UK)
Queen Elizabeth Hospital, Hong Kong, China

Biography: Dr. William Cho primarily focused on cancer studies with the aim of identifying biomarkers for cancer diagnosis, treatment prediction, and prognosis. As a seasoned researcher, I have employed various disciplines such as molecular biology, proteomics, genomics, immunology, and bioinformatics to conduct cancer research. I am proud to have contributed over 600 peer-reviewed papers to reputable journals including Lancet, Lancet Oncology, Annals of Oncology, Advanced Science, Nature Communications, Cancer Communications, PNAS, Science Advances, Journal of the National Cancer Institute, Journal of Extracellular Vesicles, Clinical Cancer Research, Molecular Cancer, and Theranostics, among others. These publications cover a wide range of topics including cancer biomarkers, non-coding RNAs, extracellular vesicles, drug repurposing and Chinese medicine. Additionally, I am an editor of over two dozen books, including "MicroRNAs in Cancer Translational Research", "An Omics Perspective on Cancer Research", "Supportive Cancer Care with Chinese Medicine", "Drug Repurposing in Cancer Therapy: Approaches and Applications", and "Resistance to Anti-CD20 Antibodies and Approaches for Their Reversal" to name a few.

Dr. Cho published papers have garnered more than 25,000 citations and Dr. Cho is being listed in the top 2% most influential scientists in the world.

Abstract. Precision oncology has revolutionized cancer treatment by tailoring therapies to individual patients based on their unique molecular profiles. This presentation explores the promising prospects in precision oncology, with a particular focus on liquid biopsy and hallmarks of cancer.

Liquid biopsy has emerged as a non-invasive method for monitoring tumor dynamics and detecting genetic alterations. It enables the analysis of circulating tumor DNA, RNA, and proteins, providing real-time information on tumor evolution, treatment response, and the emergence of resistance. The potential of liquid biopsy extends to early cancer detection, treatment monitoring, and personalized therapy selection. Furthermore, the diagnostic and therapeutic potential of extracellular vesicles, which serve as carriers of nucleic acids, proteins, and metabolites reflecting the molecular characteristics of tumors, holds significant promise for precision oncology.

Precision oncology capitalizes on the significant targets presented by the hallmarks of cancer, which include sustained proliferation, evasion of growth suppressors, resistance to cell death, and attainment of replicative immortality. Therapeutic interventions aimed at disrupting these hallmarks have demonstrated promising outcomes, prompting ongoing research to identify novel targets and develop effective treatments. Within this evolving landscape, the microbiome has emerged as a novel dimension within the hallmarks of cancer. Comprising trillions of microorganisms inhabiting the human body, the microbiome exerts influence over diverse aspects of cancer development and contributes to the discovery of new therapeutic targets.

In conclusion, precision oncology holds immense promise in transforming cancer care. Advances in liquid biopsy, exploration of the hallmarks of cancer, and targeting specific mutations pave the way for more effective and personalized cancer treatments.

Keynote Speech 4: Imaging Gene Therapies to Brain Tumors across the Blood-Brain Barrier

Prof. Bakhos A. Tannous

Head of NeuroOncology Discovery, AstraZeneca, USA

Former Professor of Neurology Harvard Medical School, USA

Biography: Dr. Bakhos Tannous is an internationally renowned scientist, educator and administrative leader. Dr. Tannous has created a legacy of multidisciplinary team to tackle some of the most pressing challenges in cancer in general and brain tumors in particular including new views for diagnosis with >150 publications and review articles. He is a former Professor of Neurology at Harvard Medical School and acted as the Director for the Interdepartmental Neuroscience Center, the Experimental Therapeutics Unit, and the Postdoctoral Division at the Massachusetts General Hospital. He was a member of the Dana Farber/Harvard Cancer Center and served as Co-Director of the Molecular Neurogenetics Unit-East and Director of the MGH Viral Vector Production Facility. His research interest includes imaging, high throughput discovery of gene/cell/drug therapies for pediatric and adult malignant tumors, as well as blood-based cancer diagnostics. He recently joined AstraZeneca as the Head of NeuroOncology Discovery.

Dr. Tannous received many prestigious awards such as Honorary Degree from Harvard University, Outstanding Investigator Award from the American Society for Gene and Cell Therapy, Several Excellence in Research, Leadership, and Innovation Awards, Beirut Golden Award for outstanding achievement in medicine, the Young Investigator Award from the Society for Molecular Imaging for 3 years in a row, National Cancer Institute Pathway to Independence Award in cancer research, and several Outstanding Mentor Awards. He is a member of many national and international organizing committees and societies and has served as a member on many national institute of health and department of defense review board as well as different foundations.

Abstract. In this presentation we will discuss viral vector-based gene delivery across the blood-brain barrier. We will discuss different approaches to arm these Trojan horses to combat malignant brain tumors and activate anti-tumor immunity. We will also introduce multiplex non-invasive imaging techniques to monitor targeting, delivery, and activation at the tumor site.

Part III Poster Presentations

Materials Provided by the Conference Organizer:
+ X Racks & Base Fabric Canvases
+ Adhesive Tapes or Clamps

Materials Provided by the Presenters:
+ Home-Made Posters
+ Posters Printed by ICBEB 2023 Committee

Requirement for the Posters:
+ Material: not limited, can be posted on the Canvases
+ Size: 160cm (height) ×60cm (width)
+ Horizontal Head: please make the conference name 'ICBEB 2023' and
  the paper number 'BEB****' as the head of the poster in order to make all the posters unified.

X-Rack

****

Best Poster Presentation Selection Procedure

Samples of Stickers

Selection Criteria:
➢ Research Quality
➢ Presentation Skill
➢ Design

Selection Procedure:
➢ Professors and experienced researchers selected by Technical Program Committee (TPC) will be invited to serve as the judges to review the posters (Note: A judge would not have a poster or know the participant exhibiting a poster).
➢ 2 red stickers and 2 green stickers will be provided to each judge. The red sticker stands for "Research Quality" with a value of 2 points; the green sticker stands for "Presentation Skill and Design" with a value of 1 point.
➢ Each judge will go around the poster session and give the stickers to the poster they think is of high quality or well designed and well presented. Please be noticed that one judge cannot give 2 red or 2 green stickers to the same poster (one red and one green sticker are acceptable).
➢ After the poster session, the conference secretary will count the points from each poster, and TWO best poster presentations with more points will be selected. If there is a tie, the one with more red (Research Quality) stickers wins; if there is still a tie, the Chair will make the final decision.

Nature of the Award
➢ **Best Poster Presentations** will be selected after the session finishes and announced on the

ICBEB website after the conference.

➢ **Best Poster Presenters** will be awarded certificates and free registration to the ICBEB 2024.

List of Judges: (in alphabetical order)

Prof. Chengyu Liu, Southeast University, China

Prof. Eddie Y. K. Ng, Nanyang Technological University, Singapore

Prof. Jyung Hyun Lee, Kyungpook National University, South Korea

Prof. Lung-Kwang Pan, Central Taiwan University of Science and Technology, Chinese Taichung

Prof. Simon James Fong, University of Macau, China

Dr. William C.S. Cho, Queen Elizabeth Hospital, Hong Kong, China

Prof. Xufeng Yao, Shanghai University of Medicine and Health Sciences, China

List of Posters

Time: 12:10-12:40 Saturday, November 18th, 2023
Conference Room: Ballroom I, 1F

BEB7040	Clinical Effect Analysis of Suile Ointment Wound Dressing on Pressure Injury Wound Healing *Prof. Shuang Zhang, People's Hospital of Zhongjiang County, China*
BEB7052	Neural Networks Prediction of the Protein-ligand Binding Affinity with Circular Fingerprints *Mr. Zuode Yin and Mr. Baiyi Li, Jiangsu University of Technology, China*
BEB7053	High-performance Reconstruction of Undersampled MR Images with Combined Optimization Algorithm and CNN *Assoc. Prof. Qingyuan Zheng, Southeast University, China*
BEB7059	Photobiomodulation Therapy: An Emerging Paradigm for Tissue Repair and Regeneration *Dr. Lu Huang, Shanghai Jiao Tong University, China*
BEB7070	Comparison of Resting Tremor at the Upper Limb Joints between Patients with Parkinson's disease and SWEDD *Prof. Ji-Won Kim, Konkuk University, South Korea*
BEB7130	A Study on the Non-Invasive Glucose Measurement Sensor Combining Arrayed Waveguide Grating and Artificial Intelligence Technology *Mr. Jangshik Jeong, Chonnam National University Hwasun Hospital, South Korea*
BEB7169	Emergence of Multiple Carbapenemases-producing Klebsiella Pneumoniae Isolates from a Multicenter Study in China *Ms. Xiaofang Xie, The Second Affiliated Hospital of Soochow University, China*
BEB7193	Neuro-cranio-vertebral Syndrome Related to Coccygeal Dislocation: a Preliminary Study *Dr. Miguel B. Royo-Salvador, Institut Chiari & Siringomielia & Escoliosis de Barcelona, Spain*
BEB7240	Global Warming Analysis Based on LSTM and XGBoost Feature Engineering Models *Mr. Haoxuan Liu, Shandong First Medical University and Shandong Academy of Medical Sciences, China*
BEB7241	Extracellular Vesicles from Adipose-derived Stem Cells Ameliorate Allergic Rhinitis Mice by Immunomodulatory *Ms. Wenhan Yang, Tongji University, China*
BEB7242	Modeling Early Human Cortical Development and Neurotoxicity with a Forebrain Organoid System *Ms. Yuanqing Cao, Tongji University, China*
BEB7245	Contribution Value: A Indicator for Measuring the Contribution of ncRNAs to Transcriptome *Dr. Xinyi Gu, Peking University People's Hospital, China*

BEB7258	Effect on Muscle Strength during Lifting Tasks with Wearable Suit Using Wire and Elastic Bands *Mr. Kwang-Hee Lee, Jeonbuk National University, South Korea*
BEB7320	Development of Sarcopenia Assessment System Using Balance and Gait Ability: Preliminary Test in the Elderly *Ms. Miyeon Shin, Jeonbuk National University, South Korea*
BEB7339	Network Traffic Recognition and Classification Based on Deep Learning *Mr. Zhihao Song, Shandong First Medical University and Shandong Academy of Medical Sciences, China*
BEB7341	Output Signals Phase Control System of Hybrid Hearing Aids *Dr. Chang Gyu Park, Kyungpook National University, South Korea*
BEB7342	Computational Study of Blood Flow through Normal and Stenosed Carotid Artery *Dr. Guojie Li, Yulin University, China*
BEB7344	A Simple REM/Non-REM Classification Using Two Channel EOG Signals *Prof. Rayoung Park, Chonnam National University, South Korea*
BEB7366	Dual-branch Artificial Intelligence Model Reflecting Phase Information for Effective Speech Enhancement *Ms. Hyeong il Koh, Kyungpook National University, South Korea*
BEB7367	Rapid Discrimination of Shigella spp. and Escherichia Coli via SERS Paired with Machine learning *Mr. Jiawei Tang, Guangdong Provincial People's Hospital of Southern Medical University, China*
BEB7368	Development of a Hand Rehabilitation Robot for Carpal Tunnel Syndrome Patients *Mr. W.A.K.C. Weerasoory, University of Moratuwa, Sri Lanka*
BEB7391	Cardiac-adaptive Conductive Hydrogel Patch Enabling Construction of Mechanical–electrical Anisotropic Microenvironment for Heart Repair *Prof. Xiaoping Song, The Fifth Affiliated Hospital of Southern Medical University, China*
BEB7392	Application of Artificial Intelligence in the Diagnosis of Thyroid Cancer with Enhanced Computed Tomography *Dr. Na Han, Macao Polytechnic University, Macao, China*
BEB7325	Intrinsic Feature Consistent Learning between CNN and Transformer for Semi-supervised Medical Image Segmentation *Mr. Chaohao Yu, Nanchang University, China*

Part IV Oral Presentations

+ All presentation times are shown in China Standard Time (GMT+8:00);
+ Duration for Invited Oral Presentation: 20 Minutes of Presentation including 3-5 Minutes of Q&A;
+ Duration for Regular Oral Presentation: 15 Minutes of Presentation including 2-3 Minutes of Q&A;
+ All presenters are requested to reach the Session Room 15 minutes prior to the schedule time and complete their presentation on time;
+ Pre-recorded Video Presentations will be posted to the conference website during the conference dates, please access them via **http://www.academicconf.com/video?confname=icbeb2023**.
+ Presenters are required to prepare Power Pointer or PDF Files for Presentation with Paper ID (**BEB****)** marked on the first/last page;
+ Signed and stamped presentation certificates would be issued after the presentations.

Offline Oral Presentation Guidelines

Devices Provided by the Conference Organizer:

+ Laptops (with MS-Office & Adobe Reader)
+ Projectors & Screen: Ratio 4:3
+ Laser Sticks
+ Microphones
+ Please send us the PowerPoint once it is ready and have the PPT back up in a U-disk. For presenters who do not send the PowerPoint, please save it in the laptop of the corresponding session 15 mins in advance. Kindly tell the Session Chair (before the start of your session) that you are a presenter.

Online Oral Presentation Guidelines

+ Online Oral Presentation will be conducted via Microsoft Teams Meeting.
+ If a presenter cannot show up on time or has problem with internet connection, the session chair has the right to rearrange his/her presentation, and move to the next presentation.

Best Oral Presentations Selection Guidelines

Selection Criteria:

ONE best presentation will be selected from EACH session based on the following criteria:
✓ Research Quality
✓ Presentation Performance
✓ Presentation Language
✓ Interaction with Listeners
✓ PowerPoint Design
✓ Effective Communications

Selection Procedure:

✓ An assessment sheet will be delivered to listeners before the session;

- ✓ Write the numbers of two best presentations and submit the filled assessment sheet (with the listener's name and signature) to the Session Chair before the session termination.
- ✓ The Session Chair will count the votes for each presentation and name the winner based on the maximal number of votes. The Session Chair has three votes but can use only one in favor of his/her own presentation (if any). To avoid any conflict of interests, only registered listeners are entitled to vote.

Nature of the Award:
- ✓ This award consists of free registration to the next conference ICBEB 2024 and a certificate;
- ✓ The awards will be announced at the official website after the conference.

<div align="center">

Assessment Sheet Sample

ICBEB 2023 Oral Presentation Assessment

</div>

Dear participants,

After carefully listening to the presentations of this session, please kindly recommend two excellent Oral Presentations with reference to the following evaluation criteria.

The Session Chair will count the votes from each presentation and select **ONE** Best Oral Presentation in this session. If there is a tie, the Session Chair will make the final decision.

The winner will be announced at the official website after the conference.

You can refer to the following Criteria:

Items	Assessment
Content	Right, Logical, Original, Well-Structured
Language	Standard, Clear, Fluent, Natural
Performance	Spirited Appearance, Dress Appropriately, Behaves Naturally
PPT	Layout, Structure, Typeset, Animation, Multimedia
Reaction	Build a Good Atmosphere, Speech Time Control Properly

Please write down paper ID and give reasons for your recommendation:

Paper ID	Reasons

Evaluated by: _____ (Paper ID: _____)

Note: When the session finished, please fill it out and give it to the Session Chair so that the Best Oral Presentation in this session can be selected.

Oral Session 1: Medical Imaging Technology and Biomedical Signal Processing

Time: 13:40-18:10 Saturday, November 18th, 2023
Conference Room: Ballroom I, 1F
Session Chairs:
(13:40-15:55) Prof. Chien-Hung Yeh, Beijing Institute of Technology, China
(16:10-18:10) Prof. Qun Wei, Keimyung University, South Korea
Online Room Link: http://www.academicconf.com/teamslink?confname=icbeb2023

13:40-14:00	BEB7380	A Personal Multimodal Smart Stethoscope for Daily Cardiovascular Health Monitoring *Prof. Qun Wei, Keimyung University, South Korea*
14:00-14:20	BEB6944	Classification of Alzheimer's Disease Using Robust Tabnet Neural Networks on Genetic Data *Prof. Xufeng Yao, Shanghai University of Medicine and Health Sciences, China*
14:20-14:35	BEB7299	Accurate Localization of Focal Epileptic Zone Based on Electromagnetic Source Imaging and Cerebral Cortex Network *Dr. Ruowei Qu, Hebei University of Technology, China*
14:35-14:50	BEB7235	The Production/Crucial Applications and the Precise Measurement Techniques of Virtual Source Position in Carbon Ion Radiation Therapy Beams *Prof. Jia-Ming Wu, Heavy Ion Center of Wuwei Cancer Hospital, China*
14:50-15:10	BEB7161	Intersectional Mapping of Glutamate/GABA Co-transmission Neurons in the Brain *Asst. Prof. Yongling Zhu, Northwestern University, USA*
15:10-15:25	BEB7303	A Novel Personalized Incremental Arrhythmias Classification Method for ECG Monitoring *Dr. Zhiyuan Li, Shanghai Jiao Tong University, China*
15:25-15:40	BEB7361	FPGA-based Hardware Architecture for Real-time H-scan Ultrasound Imaging System *Ms. Zhanjie Zhang, University of Macau, China*
15:40-15:55	BEB7306	Interpretable Deep Learning Model for Identifying the Immediate Risk of Myocardial Infarction Complications *Dr. Mengxiao Wang, Shanghai Jiao Tong University, China*
15:55-16:10		**Coffee Break**
16:10-16:30	BEB7256	Brain-states Decoding Based on Nonlinear Decomposition and Hidden Markov Model for Patients with Parkinson's Disease during Stepping *Prof. Chien-Hung Yeh, Beijing Institute of Technology, China*
16:30-16:45	BEB7208	A Novel Breast Cancer Image Classification Model Based on Multiscale Texture Feature Analysis and Dynamic Learning *Dr. Jia Guo, Hubei University of Economics, China*

16:45-17:00	BEB7267	**A New Method for Human Activity Recognition of Photoplethysmography Signals Using Wavelet Scattering Transform** *Mr. Ziyu Wang, Shandong Jianzhu University, China*
17:00-17:15	BEB7305	**Evaluate the Correlation between Electrocardiogram Age and Cardiovascular Disease Using a 12-Lead Clinical ECG Dataset** *Dr. Yuanyuan Tian, aShanghai Jiao Tong University, China*
17:15-17:30	BEB7309	**An Interpretable Residual Neural Network for the Diagnosis of Myocardial Infarction** *Dr. Xiaoyang Wei, Shanghai Jiao Tong University, China*
17:30-17:50	BEB7292 (online)	**Artificial Intelligence Approaches Based on Support Vector Machine Models in Contemporary Medical Physiology Research** *Prof. Igor Pantić, University of Belgrade, Serbia*
17:50-18:10	BEB7294 (online)	**Analytical Approaches for Circadian Rest-activity Rhythms and New Insights into Cognitive Aging** *Asst. Prof. Peng Li, Harvard Medical School, USA*
Video	BEB7401 (online)	**Imaging and Robotics for Cyber-Physical Systems in Biomedicine** *Asst. Prof. Liangjing Yang, Zhejiang University/University of Illinois at Urbana-Champaign (ZJU-UIUC) Institute, China*
Video	BEB7237 (online)	**Visual Three-dimensional Spatial Distribution of Motoneurons Innervating Deep Limb Muscles in Mice and the "Messenger Zone Hypothesis"** *Ms. Chen Huang, Peking University People's Hospital, China*
Video	BEB7304 (online)	**ECG Quality Assessment Framework by Using Attentional Convolution Neural Network** *Dr. Yanrui Jin, Shanghai Jiao Tong University, China*
Video	BEB7358 (online)	**BiFormer: An End-to-end Deep Learning Approach for Enhanced Image-based Photoplethysmography and Heart Rate Accuracy** *Mr. Yuchong Yang, Beijing University of Posts and Telecommunications, China*

Oral Session 2: Cell Biology & Medicinal Chemistry

Time: 09:00-12:15 Sunday, November 19th, 2023
Conference Room: Ballroom I, 1F
Session Chair:
Dr. William C.S. Cho, Queen Elizabeth Hospital, Hong Kong, China
Online Room Link: http://www.academicconf.com/teamslink?confname=icbeb2023

09:00-09:20	BEB7315	**Breaking Cellular Cortical Actin Barrier to Enhance Gene and Drug Delivery through Viral Vectors and Exosomes** *Prof. Yuntao Wu, George Mason University, USA*
09:20-09:40	BEB7158	**Patch Grafting of Stem Cell Organoids into the Liver and Pancreas to Rescue the Diseases States** *Assoc. Prof. Wencheng Zhang, Shanghai East Hospital Affiliated to Tongji University, China*
09:40-09:55	BEB7160	**Global Transcriptomic Study of circRNAs Expression Profile in Osteoclasts Infected by Intracellular *Staphylococcus Aureus*** *Prof. Haifang Zhang, The Second Affifiliated Hospital of Soochow University, China*
09:55-10:10	BEB7166	**Trojan Horse-like Bimetallic Fe-Cu Metal-organic Frameworks Activate Synergistic Cuproptosis and Ferroptosis to Improve Cancer Treatment** *Dr. Kerong Chen, Nanjing University, China*
10:10-10:25	BEB7184	**Towards the Eradication of Helicobacter Pylori: Rapid Diagnosis and Precision Treatment** *Prof. Liang Wang, Guangdong Provincial People's Hospital of Southern Medical University, China*
10:25-10:45		**Coffee Break**
10:45-11:00	BEB7153	**Single Cell Dynamics and Drug Discovery in Lung Cancer Microenvironment** *Asst. Prof. Patrick Ming-Kuen Tang, The Chinese University of Hong Kong, Hong Kong, China*
11:00-11:15	BEB7110	**Emerging and Re-emerging KPC-producing Hypervirulent Pseudomonas Aeruginosa ST697 and ST463 between 2010 and 2021** *Prof. Hong Du, The Second Affiliated Hospital of Soochow University, China*
11:15-11:30	BEB7156	**Curcumin Assists Anti-EV71 Activity of IFN-α via Different Mechanisms during the Effector and Inducer Phases of IFN-α in SH-SY5Y Cells** *Dr. Cheng Chen, Chongqing University Cancer Hospital, China*
11:30-11:45	BEB7373	**TFAP2A1 Recruits the Histone Acetyltransferase pCAF to Promote the Expression of THY1 and Exacerbate the Symptoms of Osteoarthritis** *Dr. Xinyue Hu, Southeast University, China*

11:45-12:00	BEB7162	A Responsive Nanorobot Modulates Intracellular Zinc Homeostasis to Amplify Mitochondria-targeted Phototherapy *Mr. Xinyuan Zhou, Nanjing University, China*
12:00-12:15	BEB7308	Controllable Thrombolysis Using a Nanobubble Imaging Guided rtPA Targeted Delivery Strategy *Mr. Jian Tang, Southeast University, China*
Video	BEB7244 (online)	Function Analysis and Validation of Long Noncoding RNA Gm12319 in Myoblasts *Dr. Xinyi Gu, Peking University People's Hospital, China*
Video	BEB7397 (online)	Multi-target Anti-infective Agents Based on Salicylic Scaffold *Prof. Josef Jampilek, Comenius University in Bratislava, Slovakia*

Oral Session 3: Biotechnology & Biomechanical Engineering

Time: 14:00-17:50 Sunday, November 19th, 2023
Conference Room: Ballroom I, 1F
Session Chairs:
(14:00-16:00) Prof. Hanmin Peng, Nanjing University of Aeronautics and Astronautics, China
(16:15-17:50) Assoc. Prof. Chi Zhang, Beihang University, China
Online Room Link: http://www.academicconf.com/teamslink?confname=icbeb2023

14:00-14:15	BEB7102	Investigation on Aortic Hemodynamics Based on Physics-informed Neural Network *Assoc. Prof. Chi Zhang, Beihang University, China*
14:15-14:30	BEB7167	Bioengineered Neutrophil Extinguisher Targets Cascade Immune Pathways of Macrophages for Alleviating Cytokine Storm in Pneumonia *Ms. Anwei Zhou, Nanjing University, China*
14:30-14:45	BEB7175	Effect of Film Gap and Surface Treatment of Film-stacked Structures on a Rapid Open-well Bioassay *Mr. Yuta Ukawa, Tokyo Metropolitan University, Japan*
14:45-15:00	BEB7322	A Comprehensive Characterization of Cell-Free RNA in Spent Blastocyst Medium and Quality Prediction for Blastocyst *Ms. Huajuan Shi, Southeast University, China*
15:00-15:15	BEB7262	sEMG-based Sarcopenia Risk Classification Using Empirical Mode Decomposition and Machine Learning Algorithms *Dr. Konki Sravan Kumar, Korea Institute of Science and Technology, South Korea*

15:15-15:30	BEB7065	**Comparison between Direct Anterior Approach and Minimally Invasive Posterolateral Approach for Bipolar Hemiarthroplasty in Elderly Patients with Femoral Neck Fracture** *Dr. Wei Liu, Tianjin Medical University, China*
15:30-15:45	BEB7171	**Light-activated Chemically Reactive Fibrous Patch Revolutionizes Wound Repair through the Prevention of Postoperative Adhesion** *Mr. Xiaotong Wu, Nanjing University, China*
15:45-16:00	BEB7316	**Photothermal and SERS Properties of PEGylated Silver Nanotriangles with Different Sizes** *Ms. Yuyu Cao, Southeast University, China*
16:00-16:15		**Coffee Break**
16:15-16:35	BEB7229	**Controlled Sonophoresis on Drug Delivery Utilizing Ultrasonic Devices** *Prof. Hanmin Peng, Nanjing University of Aeronautics and Astronautics, China*
16:35-16:50	BEB7330	**Study of Cell Differentiation on Adjustable VACNTs Lateral Stiffness** *Mr. Alfi Eko Putra, Tokyo Metropolitan University, Japan*
16:50-17:05	BEB7332	**Will Antibiotic Use Deprive the Ability to Reproduce?** *Dr. Na Li, Southeast University, China*
17:05-17:20	BEB7326	**Species-specific Molecular Responses to Prolonged Heat Stress in Coral Reefs: Implications for Resilience and Conservation** *Dr. Tingyu Han, Southeast University, China*
17:20-17:35	BEB7317 (Online)	**Development of a Circular External Fixator to Enhance the Wire Tension Stability** *Prof. R.A.R.C. Gopura and Mr. H.M.J. De Silva, University of Moratuwa, Sri Lanka*
17:35-17:50	BEB7349	**Persistent Spectral Simplicial Complex-based Machine Learning (PerSpectSC-ML) Reveals Principles of Chromosomal Structure in Cellular Differentiation** *Dr. Weikang Gong, Chinese Academy of Medical Sciences, China*
Video	BEB7205 (online)	**Investigating Mechanical Properties of 3D-Printed Grid Scaffolds for Orthopedic Applications** *Mr. Zhenjiang Yu, Beijing Institution of Technology, China*

Part V Conference Venue

Venue: Regency Art Hotel
麗景灣藝術酒店

Address: 2 Estrada Almirante Marques Esparteiro, Taipa, Macau
澳门史伯泰海军将军马路 2 号
Telephone: 853 2883 1234
Website: www.regencyarthotel.com.mo/index.php/

Booking link: https://icbeb2023.scimeeting.cn/en/web/index/
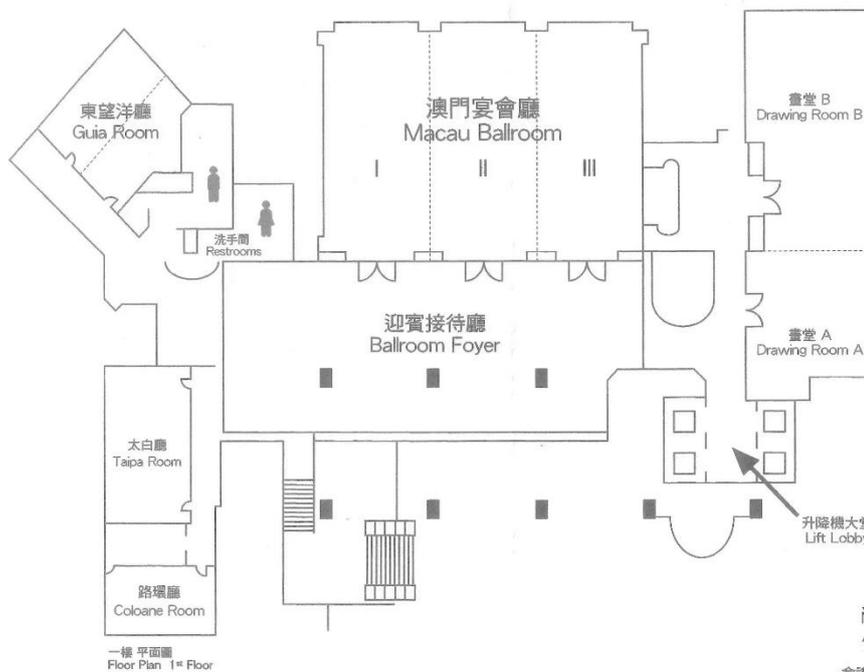
Access to Regency Art Hotel

1. Macau International Airport (澳门国际机场) & Taipa Ferry Terminal (澳门凼仔客运码头) — Regency Art Hotel

• About 4 KM
• Approx. 8 minutes by taxi
• Approx. 20 – 30 minutes by bus No. MT1

2. Border Gate Terminal (澳门关闸)（注：大陆方向为拱北口岸） — Regency Art Hotel

• About 10 KM
• Approx. 20 - 30 minutes by taxi
• Approx. 45 - 60 minutes by bus No. 25B or No. 25.

3. Hong Kong- Zhuhai-Macau Bridge Frontier Port (港珠澳大桥澳门口岸) — Regency Art Hotel

• About 16 KM
• Approx. 30 - 35 minutes by taxi
• Approx. 40 - 50 minutes. Take bus No. 102X, get off at Chun Lai Garden (泉澧花园), walk about 380m to Regency Art Hotel.

4. Cotai Frontier Post (路凼边检大楼)（莲花口岸）— Regency Art Hotel

• About 4 KM
• Approx. 8 - 15 minutes by taxi
• Approx. 40 - 45 minutes by bus No.25, No.25B or No.26A

Please download the following picture if you need to take a taxi:

Show to the Taxi Driver

請送我到麗景灣藝術酒店

Please Take me to Regency Art Hotel

地址：凼仔凼仔史伯泰海军将军马路 2 号

Address: 2 Estrada Almirante Marques Esparteiro, Taipa

Part VI Acknowledgements

On behalf of the ICBEB 2023 Organizing Committee, we would like to take this opportunity to express our sincere gratitude to our participants. Without their support and contributions, we would not be able to hold the conference successfully. We also would like to express our acknowledgements to the Technical Program Committee members who have given their professional guidance and valuable advice as reviewers. Special thanks are also expressed to the sponsors, the scientific journals *BMEF, BioDesign Research* and *Medinformatics*.

Technical Program Committee

Technical Program Committee Chairs
Prof. Eddie Yin-Kwee NG, PhD, PGDTHE, FEUAS [GR], FNAT [USA], AEASA [EU], FASME [USA], FIET [UK], FIETI [HK], DFIDSAI [CN], Nanyang Technological University, Singapore
Prof. Chengyu Liu, School of Instrument Science and Engineering, Southeast University, China

Technical Program Committee Co-Chairs
Dr. William Cho, Queen Elizabeth Hospital, Hong Kong, China
Prof. Fengfeng Zhou, BioKnow Health Informatics Lab, College of Computer Science and Technology, Jilin University, China
Prof. Simon James Fong, Data Analytics and Collaborative Computing Laboratory, University of Macau, Macau SAR, China
Prof. Qun Wei, Department of Biomedical Engineering, School of Medicine, Keimyung University, South Korea

Technical Program Committee
Prof. António Miguel Morgado, Department of Physics, University of Coimbra, Portugal
Dr. Andrea Scribante, Section of Dentistry, Department of Clinical, Surgical, Diagnostic and Paediatric Sciences, University of Pavia, Italy
Dr. Ayush Dogra, CSIR-NPDF, Biomedical Instrumentation Unit, CSIR-CSIO (Research Lab-Government of India), India
Dr. Ahmad Esmaili Torshabi, Department of Sciences and Modern Technologies, Graduate University of Advanced Technology, Iran
Prof. Baihua Li, Department of Computer Science, Loughborough University, UK
Dr. Bruno Rizzuti, Institute of Nanotechnology, National Research Council, Italy
Asst. Prof. B. Surendiran, National Institute of Technology Puducherry, India
Assoc. Prof. Changsheng Li, School of Mechatronical Engineering, Beijing Institute of Technology, China
Dr. Chelli Devi, School of Electronics Engineering, VIT University, India
Dr. Ching Yee Yong, University College of Technology Sarawak, Malaysia
Asst. Prof. Dong-Hoon Lee, Department of Radiation Convergence Engineering, Yonsei University, South Korea
Prof. Esteban Peña Pitarch, Department of Mechanical Engineering, Universitat Politècnica de Catalunya, Spain
Prof. E. Priya, Department of ECE, Sri Sairam Engineering College, India
Assoc. Prof. Evgin Goceri, Biomedical Engineering Department, Akdeniz University, Turkey
Prof. Essam Rashed, Graduate School of Information Science, University of Hyogo, Japan
Dr. Fernanda Coutinho, Coimbra Polytechnic – ISEC, Portugal
Dr. James F. Meng, Lancashire Teaching Hospitals NHS Foundation Trust, UK

The Technical Program Committee list above is in alphabetical order.

For those who contribute to the success of the conference organization without listing the name below, we would like to say thanks as well.

Website

Wechat