BEB
Conference on Biomedical Engineering and Biotechnology

The 11th International Conference on Biomedical Engineering and Biotechnology (ICBEB 2022)

The 5th China Physiological Signal Challenge (CPSC 2022)

The 2nd International Conference on Medical Imaging Science and Technology (MIST 2022)

Conference Program

November 15-18, 2022

Online via Microsoft Teams

Supported by

BME Institute of Bio-medical Engineering Research

Southeast University 仪器科学与工程学院

State Key Laboratory of Bioelectronics 生物电子学国家重点实验室

HuStar 혁신대학

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Clairaudience

CONFERENCE PROGRAM

November 15th-18th, 2022

GMT+08:00, China Standard Time

ONLINE-Microsoft Teams Meeting

Notes:

Considering the uncertainty and pervasive travel restrictions caused by the global pandemic of COVID-19, the 11th International Conference on Biomedical Engineering and Biotechnology (ICBEB 2022), 5th China Physiological Signal Challenge (CPSC 2022), and 2nd International Conference on Medical Imaging Science and Technology (MIST 2022) which were initially scheduled to be held in **Shenzhen, China**, have to be changed to entirely **Online via MS Teams**.

*The Program is used for Academic Exchange Only

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Part I Conference Schedule Summary

Tuesday, November 15, 2022 (GMT+8, Beijing Time) *MS Teams Link: http://www.academicconf.com/teamslink?confname=ICBEB2022*	
09:00-12:00 14:00-17:00	**MS Teams Online Conference Testing and Ice Breaking**

Wednesday, November 16, 2022 (GMT+8, Beijing Time) *MS Teams Link: http://www.academicconf.com/teamslink?confname=ICBEB2022*	
08:30-08:50	**OPENING SPEECHES and KEYNOTE SPEECHES Chaired by** *Prof. Lung-Kwang Pan, Central Taiwan University of Science and Technology, Chinese Taichung* **WELCOME SPEECH 1 & CPSC 2023 RELEASE** *Prof. Chengyu Liu, Technical Program Committee Chair, Southeast University, China* **WELCOME SPEECH 2** *Prof. Yi Peng, Challenge Director, Chinese Academy of Medical Sciences & Pecking Union Medical College, China*
08:50-09:30	**Keynote Speech 1: Development of Photoplethysmography (PPPG) Analysis Tool with Heart Rate Variability through Poincare and Sequence Bandwidth Assessment** *Prof. Eddie Y. K. Ng, Nanyang Technological University, Singapore*
09:30-10:10	**Keynote Speech 2: Nanotechnology-inspired Therapeutics for Malignant Brain Tumors** *Prof. Bakhos A. Tannous, Harvard Medical School/Massachusetts General Hospital, USA*
10:10-10:20	**BREAK**
10:20-11:00	**Keynote Speech 3: Liquid Biopsy for Cancer: The Beginning of a New Era** *Prof. William C. Cho, Queen Elizabeth Hospital, Hong Kong, China*
11:00-11:40	**Keynote Speech 4: AI in Histopathological Image Analysis for Cancer Detection: Past, Present and Future** *Prof. Simon James Fong and Ms. Gloria Li, University of Macau, China*
11:40-12:10	**Poster Session**
12:10-14:00	**BREAK**

Wednesday, November 16, 2022 (GMT+8, Beijing Time)

MS Teams Link: http://www.academicconf.com/teamslink?confname=ICBEB2022

14:00-14:40	**Keynote Speech 5: Molecular Imaging by PET** *Prof. Nagara Tamaki, Kyoto Prefectural University of Medicine, Japan*
14:40-14:50	**BREAK**
14:50-17:00	**Oral Session 1: Biomedical Signal Processing and Medical Information**

Thursday, November 17, 2022 (GMT+8, Beijing Time)

MS Teams Link: http://www.academicconf.com/teamslink?confname=ICBEB2022

08:30-11:45	**Oral Session 2: Medical Imaging Technology and Application**
11:45-14:00	**BREAK**
14:00-18:05	**Oral Session 3: Cell biology & Medicinal Chemistry**

Friday, November 18, 2022 (GMT+8, Beijing Time)

MS Teams Link: http://www.academicconf.com/teamslink?confname=ICBEB2022

08:30-11:55	**Oral Session 4: Biomechanical Engineering & Biotechnology**

Part II Keynote Speeches

Keynote Speech 1: Development of Photoplethysmography (PPG) Analysis Tool with Heart Rate Variability through Poincare and Sequence Bandwidth Assessment

Prof. Eddie Y. K. Ng

PhD, PGDTHE, FEASA [EU], FASME [USA], FNAT [USA], FIETI [HK], FIET [UK], DFIDSAI [CN],

Nanyang Technological University, Singapore

Biography: Eddie is elected as:

* Academician for European Academy of Sciences and Arts (EASA, EU);
* Fellow of the American Society of Mechanical Engineers (FASME, USA);
* Fellow (inaugural) for National Academy of Technology (FNAT, 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 (430); int. conf. proceedings (130), textbook chapters (>105) and others (32) over the 29 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 0.001% in the field of Biomedical Engineering), and ranked # 8 (Worldwide) in Google Scholar under Biomedical, cited by 14504 (h-index: 62).

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;

* Associate editor or EAB of various referred international journals such as Applied Intelligence, BioMedical Engineering OnLine, 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 Ph.D. at Cambridge Univ. and elected as an Academician for European Academy of Sciences and Arts, 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 23 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 and superficial vein-finder has resulted in 3 TDs. He has notable citations in the field of infrared physics & technology.

Abstract. As the number of people affected by cardiovascular diseases (CVD) increases each year with hypertension, maintaining of blood pressure levels becomes crucial. Traditionally, it was done using a sphygmomanometer which is the clinical standard for measurement. However, the method has proven to be impractical due to the lack of constant monitoring and convenience. Many researchers have thus investigated Photoplethysmography (PPG) wearable technologies in the search for a better alternative. The wearables currently available, such as smartwatches, have demonstrated to be relatively inaccurate with motion and noise artifacts. They are not suitable for the adoption in healthcare applications with the lack of clinical information. Hence, there is a significant need to develop a technique for obtaining accurate and useful clinical information from PPG.

This talk presents the development of a PPG analysis tool with the assessment of Heart Rate Variability (HRV). With a prototype that was developed in-house, data collection of ECG and PPG signals alongside heart rates and blood pressures using a blood pressure monitor was carried out. Subsequently, a simple yet accurate original window extraction algorithm was developed to carefully select and extract proper PPG waveforms to be used for analysis. The process included signal pre-processing, filtering, feature detection, window extraction and signal reconstruction. Following that, various measures of HRV such as time domain, frequency domain, non-linear (Poincaré), and its bandwidth were extracted to better analyze the PPG signals. The main focus of the study was to evaluate and analyze PPG through Poincaré and HRV sequence bandwidth. These 2 measures were used for analysis due to their potential significance in providing clinical usefulness and the possibility of a new breakthrough. Lastly, a Graphical User Interface (GUI) application was designed to provide easy viewing of a summary of the HRV analysis.

Keynote Speech 2: Nanotechnology-inspired Therapeutics for Malignant Brain Tumors

Prof. Bakhos A. Tannous

Professor of Neurology
Director, Experimental Therapeutics and Molecular Imaging Unit,
Director, Interdepartmental Neuroscience Center,

Harvard Medical School, USA

Massachusetts General Hospital, 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 and therapy. He is a Professor of Neurology at Harvard Medical School and acts as the Director for the Interdepartmental Neuroscience Center, the Experimental Therapeutics Unit, and the Postdoctoral Division at the Massachusetts General Hospital. He is a member of the Dana Farber/Harvard Cancer Center and servers 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 brain tumors, with a primary focus on cancer stem cells, as well as blood-based cancer diagnostics. Dr. Tannous received many prestigious awards such as the Young Investigator Award from the Society for Molecular Imaging for 3 years in a row, National Cancer Institute Howard Temin Pathway to Independence Award in cancer research, the Outstanding Investigator Award from the American Society for Gene and Cell Therapy, Several Partners in Excellence Awards and Innovation Awards, Beirut Golden Award for outstanding achievement in medicine, and several Outstanding Mentor Awards. He is a member of many national and international committees, including the Neurology Research Council, Center for Faculty Development, and Committee of Fundamental Research at the Massachusetts General Hospital, American Society for Gene and Cell Therapy, European Society for Medical Oncology organizing committees, several NIH review study sections including a standing member of the NCI career development and transition to the independence review panel, and has served as a reviewer for many National and International grant committees.

Abstract. In this presentation, we will discuss the development of novel nanoparticles and extracellular vesicles-based therapeutics for malignant brain tumors. We will also discuss how a burst of radiation therapy can prime gliomas for nanotherapeutics uptake and how to leverage this phenomenon to overcome tumor immune suppression.

Keynote Speech 3: Liquid Biopsy for Cancer: The Beginning of a New Era

Prof. William C. Cho

Queen Elizabeth Hospital, Hong Kong, China

Biography: Dr. Cho's main research interests have been focusing on cancer studies to discover biomarkers for cancer diagnosis, treatment prediction and prognostication. As a seasoned researcher, Dr. Cho has conducted cancer research using molecular biology, proteomics, genomics, immunology as well as bioinformatics.

Dr. Cho has published over 500 peer-reviewed papers (Lancet, Lancet Oncology, Annals of Oncology, Lancet Gastroenterology & Hepatology, Advanced Science, Nature Communications, PNAS, Molecular Cancer, Journal of Thoracic Oncology, Journal of the National Cancer Institute, Journal of Extracellular Vesicles, Clinical Cancer Research, Clinical Chemistry, Theranostics, etc.) covering cancer biomarkers, proteomics, non-coding RNAs, Chinese medicine and dozens of books including "An Omics Perspective on Cancer Research", "MicroRNAs in Cancer Translational Research", "Drug Repurposing in Cancer Therapy: Approaches and Applications" and "Supportive Cancer Care with Chinese Medicine" etc. The accumulated impact factors of the journals are over 3,500 and these papers have received > 23,000 citations. Dr. Cho is listed among the world's top 2% most influential scientists (2022).

Abstract. Liquid biopsy involves the isolation of tumor-derived entities, such as circulating tumor cells, circulating tumor DNA, and tumor extracellular vesicles, present in the body fluids of cancer patients. It is a simple, safe and less invasive alternative to surgical biopsy, allowing doctors to discover a range of information about a tumor from a simple blood sample. By its nature, liquid biopsy can capture tumor heterogeneity in patients with metastatic cancer and contribute to understanding and predicting metastasis. This talk will share some applications of liquid biopsy in cancer research, focusing on circulating cell-free nucleic acids, circulating tumor cells, extracellular vesicles, and microRNA research. Liquid biopsy will usher in a new era in cancer management, and it is a good source for early detection, disease surveillance (including detection of tumor burden, drug resistance, mutation and recurrence), and perhaps for future screening.

Keywords: Circulating cell-free nucleic acids, circulating tumor cells, extracellular vesicles (EVs), cancer cell plasticity, surface-engineered EVs

Keynote Speech 4: AI in Histopathological Image Analysis for Cancer Detection: Past, Present and Future

Prof. Simon James Fong

Associate Professor, University of Macau, Macau SAR, China;
Honorary Professor, Durban University of Technology, Durban, South Africa;
Adjunct Professor, ZIAT of Chinese Academy of Sciences, Zhuhai, China;
Adjunct Professor, Xi'an Polytechnic University, Xi'an, China;
Senior Visiting Scholar, Tsinghua University, Beijing, China

Biography: Dr. Simon James Fong graduated from La Trobe University, Australia, with a 1st Class Honors BEng. Computer Systems degree and a Ph.D. Computer Science degree in 1993 and 1998 respectively. Simon is now working as an Associate Professor at the Computer and Information Science Department of the University of Macau, as an Adjunct Professor at Faculty of Informatics, Durban University of Technology, South Africa. He is a co-founder of the Data Analytics and Collaborative Computing Research Group in the Faculty of Science and Technology. Prior to his academic career, Simon took up various managerial and technical posts, such as systems engineer, IT consultant and e-commerce director in Australia and Asia. Dr. Fong has published over 500 international conference and peer-reviewed journal papers, mostly in the areas of data mining, data stream mining, big data analytics, meta-heuristics optimization algorithms, and their applications. He serves on the editorial boards of the Journal of Network and Computer Applications of Elsevier, IEEE IT Professional Magazine, and various special issues of SCIE-indexed journals. Simon is also an active researcher with leading positions such as Vice-chair of IEEE Computational Intelligence Society (CIS) Task Force on "Business Intelligence & Knowledge Management", TC Chair of IEEE ComSoc e-Health SIG and Vice-director of International Consortium for Optimization and Modelling in Science and Industry (iCOMSI).

Ms. Gloria Li

University of Macau, China

Ms. Gloria Li is currently a Ph.D. candidate at the University of Macau. In 2017, Gloria graduated with a BEng, major in Electronic Communication Engineering, from Hebei University of Science & Technology, China. She graduated with an MSc degree in Computer Information Science in 2019. She is also the Head of Data Analytics and Collaborative Computing Laboratory, Zhuhai Institute of Advanced Technology, Chinese Academy of Science, Zhuhai, China. Ms. Li is leading and managing the laboratory, in R&D as well as technological transfer and incubation. She is an entrepreneur with experiences in innovative I.T. contest, with her award-winning team in the Bank of China Million Dollar Cup competition. Her latest winning work includes the first unmanned supermarket in Macau enabled by the latest sensing technologies, face recognition and e-payment systems. She is also the founder of several Online2Offline dot.com companies in trading and retailing both online and offline. In 2021, Ms. Li won a prize of 2nd runner-up of Global Management Challenge: WorldGMC (Macau region) by her analytics skills. Ms. Li is also an active researcher, manager and chief-knowledge-officer in DACC laboratory at the faculty of science and technology, University of Macau.

Abstract. Since the inception of virtual microscopy in the 1990's, histology image analysis has migrated from optical microscope to visual inspection over digital histological images that were scanned and generated at high resolution. Detection of cancer and estimation of its prognosis are tedious processes from the digital whole slide images because of their sheer area and complexity. Recently, by the efforts of multi-disciplinary research, artificial intelligence methods especially computer vision, object recognition, deep learning and XAI, have become popular aids for grading and staging of cancer diagnoses and prognoses, by automatically analyzing over digital histopathology images. It was claimed that AI has helped pathologists to lower down the assessment errors by magnitude. Most of the research literature reports about identifying the cell types, and segmenting the tumor and the cells. Current trend has it that the recognition of cells is done by deep learning due to its effectiveness in learning the features of the cells and recognizing them by their features. However, the accuracy and certainty of those histological deep learning methods are bottle-necked at the image level. Recognition rate is never perfect from solely the images. Lately it is discovered that the tumor immune microenvironment (TME) consists of many heterogeneous cell types that engage in extensive crosstalk among cancer, immune and stroma tissues. In addition to just the cell types, the spatial organization of these different cell types in TME is observed as biomarkers for predicting metastasis, prognosis and drug responses via scRNAseq and spatial transcriptomics technologies. It opens up a new arena where AI can extend its power in analyzing the localization of cells, types of cells and their interactions, as a whole for further improving the prediction accuracy. In this talk, we will narrate the brief history, the current practices and future prospect of applications of AI on histological image analysis. This speech puts the future of AI research over histological images into a perspective that extra dimensions of analysis are in need for inferring more insights from histological image analysis. Novel models in this perspective are introduced. Future opportunities by integrating digital histopathology images with molecular omics data, spatial information, as well as meta-level analysis will be discussed for better understanding of a tumor ecosystem. During the keynote speech, our lab principal researcher, Dr. Gloria Li, will demonstrate several deep learning applications which are the cornerstone AI techniques over histopathological image analysis.

Keynote Speech 5: Molecular Imaging by PET

Prof. Nagara Tamaki

Department of Radiology, Graduate School of Medical Science,

Kyoto Prefectural University of Medicine, Japan

Biography: After graduating from Medical School in Kyoto University in 1978, I have specialized in Nuclear Medicine and Molecular Imaging for over 40 years with the use of various nuclear medicine radiopharmaceuticals and SPECT/PET systems. We have published several key scientific papers in the field of nuclear cardiology during my Ph.D. course. In 1995, I have promoted as professor and director, department of nuclear medicine, Hokkaido University. Since then, I have focused on new clinical and basic studies using PET and molecular imaging. We have published over 500 original articles and over 60 books and chapters in this field. In addition, I have spent a lot of efforts in educating students and young fellows in our field.

I have had three times in studying abroad. I studied in Kansas City, Missouri, USA as an exchange student in high school in 1970-1971. Also, I stayed at Massachusetts General Hospital and Harvard Medical School as a research fellow in 1984-1986. I worked on renal blood flow measurement in animal models using PET. In addition, I had a chance to apply a new portable cardiac function monitor in various cardiac patients. I have published several key papers in these fields. More recently, I visited Munchen Technical University, Germany as a visiting professor for three months in 2002. These chances have helped me making wonderful friends all over the world, particularly in the field of nuclear medicine and molecular imaging.

After receiving the degree of Emeritus Professor at Hokkaido University, I moved to Kyoto Prefectural University of Medicine, as a professor in the Department of Radiology in 2017. We are managing oncology PET center with an in-house cyclotron at this University.

I have received (1) the Japanese Society of Nuclear Medicine Award in 1990, (2) the Georg de Hevesy Nuclear Medicine Pioneer Award in the Society of Nuclear Medicine (SNM) in 1998, (3) the SNM Cardiovascular Council, Hermann Blumgart Award in 2009, and (4) Award from Hokkaido Medical Association and Governor of Hokkaido in 2013.

Abstract. Recent progress in imaging permits various non-invasive molecular imaging in vivo. Among them, positron emission tomography (PET) has recently been applied for quantitative molecular imaging using various molecular probes for human studies. F-18 labeled fluorodeoxyglucose (FDG) has been commonly used to assess glucose uptake and metabolism in vivo using PET system.

FDG-PET permits the detection and staging of malignant tumors. Thus, this technique is valuable for selecting optimal treatment planning (Precision Medicine). It has recently been used for treatment monitoring and predicting outcomes with the use of quantitative assessment of FDG uptake in malignant tumors. Furthermore, it holds a new clinical value for suitable radiation planning of malignant tumors.

Most recently, PET has been used in the field of neurology and cardiology as well. PET has the potential to predict the early stage of Alzheimer's disease. In addition, FDG-PET has a new role in identifying active lesions in cardiovascular diseases.

This keynote lecture will cover the advantages of molecular imaging by PET and the introduction of various clinical applications in the oncology, neurology, and cardiovascular fields.

Part III Oral Presentations

Oral Presentation Guidelines

- Online Oral Presentation will be conducted via Microsoft Teams Meeting. Click to see **How to join ICBEB 2022/MIST 2022 via Teams**).
- All presenters are requested to reach the Session Room prior to the schedule time and complete their presentation on time.
- All presentation times are shown in **China Standard Time (GMT+08:00).**
- If a presenter is not able to show up via Teams, the session chair/conference secretary will download and play the pre-recorded video presentation during his/her scheduled presentation time, if listeners have questions about the presentation, please contact the conference secretary to forward the questions.
- If a presenter cannot show up on time or has a problem with internet connect, the session chair has the right to rearrange his/her presentation, and let the next presentation start.
- Signed and stamped electronic presentation certificate would be issued via e-mail after presentation.

Best Oral Presentations Selection

The session chair will select one best oral presentation from his/her session based on the following criteria:

- ✓ Research Quality
- ✓ Presentation Performance
- ✓ Presentation Language
- ✓ PowerPoint Design
- ✓ Effective Communications

Best Oral Presentations Award

The Best Presenter from each session will be awarded an official certificate, a $150 prize and a free registration to ICBEB 2023.

(The prize of $150 for each best presenter is sponsored by ***Frontiers in Bioengineering and Biotechnology***.)

Session 1_ Biomedical Signal Processing and Medical Information

Time: 14:50-17:00, November 16, 2022 (GMT+8:00)

Session Chair: Assoc. Prof. Pedro Peris-Lopez, Carlos III University of Madrid, Spain

Session Room Link: http://www.academicconf.com/teamslink?confname=ICBEB2022

14:50-15:05	BEB6584	Research on Magneto-Acoustic Imaging under Chirp Current Excitation *Dr. Shunqi Zhang, Chinese Academy of Medical Sciences & Peking Union Medical College, China*
15:05-15:20	BEB6973	Classification of Heart Sounds Based on Topological Data Analysis Method *Dr. Feifei Liu, Shandong Jianzhu University, China*
15:20-15:35	BEB6800	Design and Development of a Novel TCM Medical Music Electroacupuncture Portable Apparatus *Dr. Shaoxiong Li, Shanghai University of Traditional Chinese Medicine, China*
15:35-15:50	BEB6908	Automatic Epilepsy Source Localization from Non-Invasive Scalp EEG Based on Patient-Specific Head Model and Multi-Dipole Model *Dr. Ruowei Qu, Hebei University of Technology, China*
15:50-16:00		**BREAK**
16:00-16:20	BEB6957	ECGsound for Human Identification *Assoc. Prof. Pedro Peris-Lopez, Carlos III University of Madrid, Spain*
16:20-16:40	BEB6958	Force Utilization in Structural Analysis of Human Hand Model Identified from EMG Signal Processing *Prof. E. Priya, Sri Sairam Engineering College, India*
16:40-17:00	BEB7001	Dynamics of the 'Cognitive' P3b Brain Wave at Rest for AD Prediction in MCI *Prof. Camillo Porcaro, University of Padova, Italy*

Session 2_ Medical Imaging Technology and Application

Time: 08:30-11:45, November 17, 2022 (GMT+8)
Session Chairs: Prof. Essam A. Rashed, University of Hyogo, Japan
Asst. Prof. Liangjing Yang, Zhejiang University/University of Illinois at Urbana -Champaign (ZJU-UIUC) Institute, China
Session Room Link: http://www.academicconf.com/teamslink?confname=ICBEB2022

08:30-08:45	MIST1085	A Deep Network for Tinnitus Classification and Severity Prediction from Structural MR Images *Dr. Sanjay Ghosh, University of California San Francisco, USA*
08:45-09:05	MIST1075	Imaging and Machine Vision for Biomedical Robots *Asst. Prof. Liangjing Yang, Zhejiang University/University of Illinois at Urbana-Champaign (ZJU-UIUC) Institute, China*
09:05-09:20	MIST1091	Deep Learning-based Method for the Estimation of Patient's Angles from Lateral Skull Radiographs *Mr. Kazuma Nakazeko, Juntendo University, Japan*
09:20-09:40	MIST1078	In vivo Imaging of Astrocytes in the Whole Brain with Engineered AAVs and Diffusion Weighted Magnetic Resonance Imaging *Prof. Jie Wang, Chinese Academy of Sciences, China*
09:40-10:00	MIST1074	Computer Aided Diagnosis System for Cervical Lymph Nodes in CT Images using Deep Learning *Dr. Narendra Londhe, National Institute of Technology Raipur, India*
10:00-10:15	BEB6675	Deep Learning for Differentiating Benign from Malignant Tumors on Breast-Specific Gamma Image *Dr. Liyong Ma, Harbin Institute of Technology, China*
10:15-10:25		**BREAK**
10:25-10:40	MIST1081	Breast Abnormality Prediction using Broad Learning System *Prof. Debotosh Bhattacharjee, Jadavpur University, India*
10:40-11:00	MIST1082	Development of Human Head Models from Anatomical Medical Images using Deep Learning *Prof. Essam A. Rashed, University of Hyogo, Japan*
11:00-11:15	BEB6857	Iterator-Net: Sinogram-based CT Image Reconstruction *Ms. Limin Ma, Northeastern University, China*
11:15-11:30	MIST1084	The Use of Customized Filters and Template Matching for Texture Feature Analysis and ROI Extraction in Imaging *Dr. Otega Olawuyi and Dr. Michael Olawuyi, Olawuyi Racett Nigeria Ltd., Nigeria*
11:30-11:45	MIST1093	Classification of Brain Tissues of Multispectral MRI using Mixture Models and Independent Component Analysis *Dr. Megha Maria Cheriyan, Karunya University, India*

Session 3_ Cell biology & Medicinal Chemistry

Time: 14:00-18:05, November 17, 2022 (GMT+8)

Session Chairs: Prof. Igor Pantić, University of Belgrade, Serbia

Prof. Nivin Sharawy, Cairo University, Egypt

Session Room Link: http://www.academicconf.com/teamslink?confname=ICBEB2022

14:00-14:20	BEB6995	LGR5+/CD44+ Cells Endow Cancer Stemness and EMT Property through WNT/TGF-β Crosstalk Predicting Poor Prognosis in Gastric Adenocarcinoma *Assoc. Prof. Xiaoran Yin, the Second Affiliated Hospital of Xi'an Jiaotong University, China*
14:20-14:35	BEB6997	Low-Intensity Pulsed Ultrasound (LIPUS) Approach for Modulation of Macrophage Polarization in Acute Kidney Injury *Prof. Nivin Sharawy, Cairo University, Egypt*
14:35-14:55	BEB6754	Preoperative and Postoperative Risk Classification in Synchronous Oligometastatic Non-Small Cell Lung Cancer *Dr. Luca Bertolaccini, IEO European Institute of Oncology IRCCS, Italy*
14:55-15:15	BEB6780	Toward Diseases Therapy through Targeting the Cation-Chloride Cotransporters and their Upstream Kinase Signalling of WNK-SPAK/OSR1 Pathway *Dr. Jinwei Zhang, University of Exeter, UK*
15:15-15:30	BEB6885	Challenges for Machine Learning in RNA-Protein Interaction Prediction *Dr. Viplove Arora, Scuola Internazionale Superiore di Studi Avanzati, Italy*
15:30-15:50	BEB7012	Novel Approach to Meniscus Regeneration *Assoc. Prof. Jakub Rybka, Adam Mickiewicz University in Poznań, Poland*
15:50-16:00		**BREAK**
16:00-16:20	BEB6869	Artificial Intelligence for Detection of Subtle Morphological, Physiological and Pathophysiological Changes in Cell Nuclei *Prof. Igor Pantić, University of Belgrade, Serbia*
16:20-16:40	BEB6832	Novel Microfluidic Approach for Phenotypic Antimicrobial Susceptibility Testing *Assoc. Prof. Kangning Ren, Hong Kong Baptist University, China*
16:40-16:55	BEB6838	Pharmacological Effect and Molecular Mechanism of Chuanzhitongluo Capsule on Promoting Blood Circulation and Removing Blood Stasis Based on Metabolomics and Network Pharmacology *Dr. Yuanfang Sun, Shanghai Jiao Tong University, China*
16:55-17:15	BEB6939	Investigation of Novel Halogenated Cinnamanilides *Prof. Josef Jampilek, Comenius University in Bratislava, Slovakia*
17:15-17:30	BEB6985	Structural Characterization of Mushroom Polysaccharides and its Neuroprotection Related to Inhibition on Oxidative Stress *Prof. Yang Liu, Jilin Agricultural University, China*
17:30-17:50	BEB7000	Crosstalk between the Liver Microenvironment and Metastatic Colorectal Cancer *Dr. Rui Wang, Case Western Reserve University, USA*
17:50-18:05	BEB6982	Exploring the Scope of Plants in Photodynamic Therapy of Cancer *Dr. Rahul Chandran, University of Johannesburg, South Africa*

Session 4_ Biomechanical Engineering & Biotechnology

Time: 08:30-11:55, November 18, 2022 (GMT+8)

Session Chairs: Assoc. Prof. R. S. Hegadi, Central University of Karnataka, India
Dr. Ching Yee Yong, University of Technology Sarawak, Malaysia

Session Room Link: http://www.academicconf.com/teamslink?confname=ICBEB2022

08:30-08:45	BEB6924	The Effects of Progressive Resistance Exercise in Experimental Models of Induction of Cerebral Ischemia and Parkinson's Disease in Rats *Ms. Ana Paula Martins Inácio and Mr. Miguel Henrique dos Reis, University of São João del-Rei, Brazil*
08:45-09:00	BEB6960	Creating a Real-World Data, United States Healthcare Claims-based Adaptation of Kurtzke Functional Systems Scores for Assessing Multiple Sclerosis Severity and Progression *Dr. Hoa V. Le, PAREXEL International, USA*
09:00-09:15	BEB6901	A Study on Deriving Physical Properties of Cold-Heat Pattern of Traditional East Asian Medicine through Abdominal Examination *Dr. Keun Ho Kim, Korea Institute of Oriental Medicine, Republic of Korea*
09:15-09:30	BEB6977	miR-142a-3p is a Potential Target for Therapies to Improve the Physiological Function of Skeletal Muscle *Ms. Xinyi Gu, Peking University People's Hospital, China*
09:30-09:50	MIST1087	Recent Developments in the Orthopedic Surgical Training Simulators *Assoc. Prof. R. S. Hegadi, Central University of Karnataka, India*
09:50-10:05	BEB7003	Design of Microvascular Trees using Generative Adversarial Networks and Constrained Constructive Optimization *Ms. Huanghui Shen, Zhejiang University of Technology, China*
10:05-10:15		**BREAK**
10:15-10:30	BEB6911	Computational Structural Analysis of a Modified Knee Implant Design for Total Knee Replacement *Ms. Kanz Ur Rehman, University of Engineering and Technology, Pakistan*
10:30-10:50	BEB6934	Sonographic Assessment of The Efficacy of Essure Hysteroscopic Sterilization *Dr. Maja Rosič, Gynecologic Health Institution Rosič, Slovenia*
10:50-11:05	BEB6989	The Characteristics of BOLD-fMRI in the Brain during under Free and Resistant Flexion Resistant Flexion Tasks *Dr. Shen Wang, Peking University People's Hospital, China*
11:05-11:20	MIST1092	The Role of Lutetium-177 in Radionuclide Therapy *Asst. Prof. Merve Karpuz, Izmir Katip Celebi University, Turkey*
11:20-11:35	BEB6966	The Mitral Valve Architecture: a Mix of Golden Ratio, Fibonacci Sequence and Fractal Geometry. A Twist of Fate or a Planned Natural Project? *Dr. Luca Deorsola, Regina Margherita Children's Hospital, Italy*
11:35-11:55	BEB6827	Use of Indocyanine Green Fluorescence Imaging in the Extrahepatic Biliary Tract Surgery *Asst. Prof. Orestis M. Ioannidis, Aristotle University of Thessaloniki, General Hospital "George Papanikolaou", Greece*

Part IV Poster Presentations

Poster Presentation Guidelines

- **Poster Presentations:** A collection of posters in PDF format (with/without audio) will be available at conference website for attendees to view.
- **Online Poster Q&As:** Participants could view and share their comments on the website. If you have any questions on E-posters, kindly contact conference secretary for assistance.
- Signed and stamped electronic presentation certificate would be issued via e-mail after presentation is delivered.

Best Poster Presentations Selection

Selection Criteria

- Research Quality
- Presentation Skill
- Poster Design

Selection Procedure

- 2 Best Presentations will be selected based on the judgements by the TPC committee, please ensure your Paper ID (BEB****) is shown correctly on the poster page.
- Final Results will be demonstrated on the website on December 7, 2022.

Best Poster Presentations Award

Each Best Presenter will be awarded an official certificate, a $150 prize and a free registration to ICBEB 2023.

(The prize of $150 for each best presenter is sponsored by ***Frontiers in Bioengineering and Biotechnology.***)

List of Posters:

Please get access of the e-posters via http://www.academicconf.com/poster?confname=icbeb2022

**Should you have any questions on the online posters, please feel free to write down in the note box of each poster at ICBEB 2022 official website. The organizer will forward your questions to the presenters.*

Poster Session: 11:40-12:10, November 16, 2022 (Wednesday) (GMT+8, Beijing Time)

BEB6744	Couplings Analyses between Functional and Structural Brain Networks in Alzheimer's Disease	*Ms. Xia Xu, Jiading District Central Hospital affiliated Shanghai University of Medicine and Health Sciences, China*
BEB6747	GSEnet: Feature Extraction of Gene Expression Data and its Application to Leukemia Classification	*Assoc. Prof. Chaolu Feng, Northeastern University, China*
BEB6772	Anthropometry, Motion Range, and Muscle Strength Measurements of Amputees for Designing Large-Scale Agricultural Equipment	*Prof. Juhye Yook, Korea Nazarene University, Republic of Korea*
BEB6947	Dual-Task Mutual Learning for Weakly-Supervised COVID-19 Lesion Segmentation from Chest CT	*Dr. Yao Wang, Peking University, Beijing, China*
BEB6773	Sleep Monitoring for Individuals with Spinal Cord Injury using Contact-Free Bed Sensors	*Ms. So-Jung Lee, National Rehabilitation Center, Republic of Korea*
BEB6899	Preliminary Study on Multimedia Animation for Methadone Maintenance Therapy Supplemented by Traditional Chinese Medicine Acupuncture	*Dr. Wen-Lung Tsai, Asia Eastern University of Science and Technology*
BEB6803	A Multiprocessing Framework for Heterogeneous Biomedical Embedded Systems with the Proposal of a Finite State Machine-based Architecture	*Mr. Xiaohe Tian, University of Macau, China*
BEB6811	Ixazomib Combined with Autologous Stem Cell Transplantation for POEMS Syndrome: a Case Report and Meta-analysis	*Dr. Liang Wang, Weifang Medical University, China*
BEB6843	An Intraoperative Correction Method of Maxillofacial Surgery Based on Laser Scanner	*Dr. Xinrong Chen, Fudan University, China*

BEB6867	The Effect of Nutrition Education on Self-Care of Patients with Gastric Cancer undergoing Chemotherapy *Ms. Maryam mousazadeh, Islamic Azad University, Iran*
BEB6844	Designing a Novel Cost-Effective Device to Prevent Perineal Tears during Labor *Ms. Yuvna Reddy Musuku, Rutgers University, United States*
BEB6859	Treadmill Exercise Attenuates Tau Hyperphosphorylation via Activation of the PI3K/Akt/GSK-3β Signaling Pathway in the Streptozotocin-induced Alzheimer's Disease Rats Model *Mr. Yongzhen Zhang, Sports Department of Taishan University, China*
BEB6866	Evaluation of Safety and Efficacy of IMFLUNA Herbal Compound on Improving the Symptoms and Complications of Patients with COVID 19 *Dr. Mohammadreza Gholibeikian, University of Kashan, Iran*
BEB6900	A Paradox of Immersion: The Role of Flow In Short-form Video Problematic Use *Prof. Avus Hou, Asia Eastern University of Science and Technology*
BEB6948	A Highly Accurate and Robust Mouse Pose Estimation Pipeline Based on Maze Experiment *Dr. Yao Wang, Peking University, Beijing, China*
BEB6903	Research on Magnetically Mediated Thermoacoustic Imaging Based on B-Scan *Dr. Yanju Yang, Chongqing University of Arts and Sciences, China*
BEB6904	A Simulation System Design on Radiography: a Preliminary Study *Dr. Wen-Lung Tsai, Asia Eastern University of Science and Technology*
BEB6949	A Mouse Pose Estimation Method Based on Contour Curvature *Dr. Yao Wang, Peking University, Beijing, China*
BEB6956	Spatiotemporal Patterns of Cutaneous Leishmaniasis in the District Upper and Lower Dir, Khyber Pakhtunkhwa, Pakistan: A GIS-based Spatial Approaches *Dr. Ismail Zeb, Abdul Wali Khan University, Pakistan*
BEB6959	The Filum Disease and the Neuro-Cranio-vertebral Syndrome: Definition, Clinical Picture and Imaging Features *Dr. Jose Manuel Arteaga-Armas, Institut Chiari & Siringomielia & Escoliosis de Barcelona, Spain*
BEB6950	A Screening System for Recognition Results of Animal Pose Estimation Based on Deep Learning *Dr. Yao Wang, Peking University, Beijing, China*
BEB6978	Identification and validation of MicroRNA-mRNA Networks in Dorsal Root Ganglia after Peripheral Nerve Injury *Dr. Xinyi Gu, Peking University People's Hospital, China*

BEB6902	Joy or Loneliness? Cognitive Absorption Effect on the Short-form Video Apps problematic Use *Prof. Avus Hou, Asia Eastern University of Science and Technology*
BEB6990	Treatment with Soluble Bone Morphogenetic Protein Type 1A Receptor Fusion Protein Alleviates Irradiation-induced Bone Loss in Mice through Increased Bone Formation and Reduced Bone Resorption *Dr. Shen Wang, Peking University People's Hospital, China*
BEB6992	Motions of Worm-like Drug Particles and their Rheological Properties in Blood Flow *Ms. Shuo Zhang, Nanjing University of Aeronautics and Astronautics, China*
BEB6868	The Effect of Acute Caffeine Consumption on the Index of Cardiac Parasympathetic System and Blood Pressure in the Recovery Period after Swimming 400 Meters Girls Swimmers *Ms. Maryam Mousazadeh, Islamic Azad University, Iran*
BEB6905	Digital Game Design on Hypoglycemia Dietary Recommendations: a Preliminary Study *Dr. Wen-Lung Tsai, Asia Eastern University of Science and Technology*
MIST1089	Musculoskeletal Imaging *Dr. Manya Mehra, Bundelkhand University, India*
BEB6952	An Improved Tracking-learning-Detection Method for Object Tracking *Dr. Yao Wang, Peking University, Beijing, China*
MIST1098	Using Point Shear Wave Elastography (Pswe) in Assessment Stiffness of Pancreas Tissue in Diabetic Patient Compared to Healthy Subjects *Dr. Fahad F Almutairi, King abdulaziz University, Saudi Arabia*
BEB6998	Updates in the Classification and Diagnosis of Some Bone Metabolic Diseases *Dr. Eiman Mohammad Shahrour, Tishreen University, Syria*
BEB6851	A New Wearable Brace Monitoring Multiple Physiological Parameters Based on the Nb-Iot Technique *Dr. Yu Jiang, Wuxi Second Hospital Affiliated to Nanjing Medical University, China*
BEB6994	The Effect of TECAR Therapy using Winback on Diaphragm Movement and Chest Mobility in Adults with Limited Chest Mobility *Mr. Minkyu Kim, Cheju Halla University, Republic of Korea*
BEB6912	The Mechanism of Thermal-pH Sensitive Lipid Nanoparticles for Controllable Intracellular Drug Release: Molecular Dynamic Simulation *Dr. Genpei Zhang, University of Science and Technology Beijing, China*
BEB7018	Mercury Exposure Risk Evaluation of Tibetan Medicine Zuotai and Its Compounding Preparations Containing HgS by the RfD and PDE of Soluble Inorganic Mercury *Assoc. Prof. Cen Li, Northwest Institute of Plateau Biology of Chinese Academy of Sciences, China*

Part V Acknowledgements

On behalf of the ICBEB2022 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 in this special year. We would also 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 ***Frontiers in Bioengineering and Biotechnology*** and ***BMEF (BME Frontiers)***, as well as the medical company ***Clairaudience***.

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

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