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## Part I Conference Schedule

### Wednesday Oct. 17

Time	Activity	Location
08:00-19:00	Registration	Lobby of Golden Eagle Summit Hotel, Nanjing

- Notes: 1. Please remember your paper ID as BEB\*\*\*\*;  
 2. Please take Name Tag for the venue and Visit Card for the field visit.

### Thursday Morning, Oct. 18

Time	Activities	Location: Golden Eagle Hall, 6th floor
08:30-09:00	Opening Ceremony (Chaired by: Prof. Ng Yin Kwee, Conference TPC Chair) Opening Speeches: Prof. Gang Wu, Vice President, Southeast University Prof. Jianqing Li, Vice President, Nanjing Medical University Prof. Yi Peng, Deputy Secretary General, Chinese Society of Biomedical Engineering Prof. Alan Murray, Conference Honorary Chair Prof. Aiguo Song, Conference Local Committee Chair Pose for a Group Photo	
09:00-09:35	Keynote Speech 1: Medical Device Safety Prof. Alan Murray, Newcastle University, UK	
09:35-10:10	Keynote Speech 2: The Problems with (and Solutions for) Digital Cardiology Prof. Gari Clifford, Emory University & Georgia Institute of Technology, USA	
10:10-10:25	Coffee Break	
10:25-11:00	Keynote Speech 3: Enhanced Statistical Parameters for Renograms as New Quantitative Indices in Differentiating Renal Obstruction Prof. Ng Yin Kwee, Nanyang Technological University, Singapore	
11:00-11:35	Keynote Speech 4: Recent Advances in Electrochemical Immunosensors and Aptasensors for the Detection of Polyphenol A or Antibodies Ranging from Cholera to Dengue Prof. Serge Cosnier, Grenoble Alpes University, France	
11:40-12:30	Poster Session	

### Thursday Afternoon, Oct. 18

Time	Activities	Location: 7th floor
12:30-13:30	Buffet Lunch	Summit Café
14:30-17:30	Invited & Oral Presentations Session 1: Biomechanics & Biomedical Modeling	Room 1A

	Invited & Oral Presentations Session 2: The China Physiological Signal Challenge	Room 1B
18:00-19:00	Buffet Dinner	Summit Café,

**Friday Morning & Afternoon, Oct. 19**

Time	Activities	Location: 7th floor
08:00-12:20	Invited & Oral Presentations Session 3: Cell Biology, Biopharmacy & Biomaterials	Room 1A
	Invited & Oral Presentations Session 4: Biomedical Engineering	Room 1B
12:30-13:30	Buffet Lunch	Summit Café
14:00-17:30	Invited & Oral Presentations Session 5: Medical Imaging Technology and Application	Room 1A
	Invited & Oral Presentations Session 6: Biomedical Signal Processing	Room 1B

**Friday Evening, Oct. 19**

Time	Activities	Location: Golden Eagle Hall, 6th floor
18:00-21:00	Closing Ceremony (Chaired by: Prof. Chengyu Liu) Closing Speech: Prof. Alan Murray, Conference Honorary Chair Awards Ceremony: CPSC Awards: Presented by Mr. Yingjia Yao & Prof. Gari Clifford Best Paper Awards: Presented by Prof. Alan Murray & PMEA representative Best Oral Awards: Presented by Prof. Ng Yin Kwee	
	Welcome Banquet Presentation on Nanjing & Questionnaire Lottery Nanjing Cultural Shows	

**Saturday, Oct. 20**

Time	Field Visit in Nanjing
08:00	Gathering at the lobby hall of Golden Eagle Summit Hotel
08:30-18:00	National Health and Medical Big Data Super-computing Centre (Eastern China)
	Lunch
	Nanjing Museum
	Sun Yat-sen Mausoleum
P.S. Please show Visit Card when getting on the bus. It is the only access to the field visit.	

## 大会日程安排中文版(Conference Schedule - Chinese Vision)

10月17日，星期三

时间	日程安排	地点
08:00-19:00	注册报到	金鹰珠江壹号国际酒店一楼大厅

- 注：1. 请记住您的文章编号 (BEB\*\*\*\*) ；  
 2. 会议期间请随身携带参会胸牌，实地参观考察需出示参观券。

10月18日，星期四上午

时间	日程安排	地点：6楼金鹰厅
08:30-09:00	开幕式 (主持人: Ng Yin Kwee 教授, 大会程序委员会主席) 致开幕词 东南大学副校长 吴刚教授 南京医科大学副校长 李建清教授 中国生物医学工程学会常务副秘书长 彭屹教授 大会荣誉主席 Alan Murray 教授 大会当地委员会主席 宋爱国教授 大会参会代表集体合影	
09:00-09:35	主题报告 1: Medical Device Safety 报告专家: Alan Murray 教授, 英国纽卡斯尔大学	
09:35-10:10	主题报告 2: The Problems with (and Solutions for) Digital Cardiology 报告专家: Gari Clifford 教授, 美国埃默里大学, 佐治亚理工学院	
10:10-10:25	茶歇	
10:25-11:00	主题报告 3: Enhanced Statistical Parameters for Renograms as New Quantitative Indices in Differentiating Renal Obstruction 报告专家: Ng Yin Kwee 教授, 新加坡南洋理工大学	
11:00-11:35	主题报告 4: Recent Advances in Electrochemical Immunosensors and Aptasensors for the Detection of Polyphenol A or Antibodies Ranging from Cholera to Dengue 报告专家: Serge Cosnier 教授, 法国格勒诺布尔大学	
11:40-12:30	张贴报告	

10月18日，星期四下午

时间	日程安排	地点
12:30-13:30	自助午餐	7楼西餐厅

14:30-17:30	特邀&口头报告 分会场 1: 生物力学与生物医学建模	7楼1号会议室 A厅
	特邀&口头报告 分会场 2: 生理信号竞赛	7楼1号会议室 B厅
18:00-19:00	自助晚餐	7楼西餐厅

**10月19日, 星期五上午&下午**

时间	日程安排	地点
08:00-12:20	特邀&口头报告 分会场 3: 细胞生物、生物医药与生物材料	7楼1号会议室 A厅
	特邀&口头报告 分会场 4: 生物医学工程	7楼1号会议室 B厅
12:30-13:30	自助午餐	7楼西餐厅
14:00-17:30	特邀&口头报告 分会场 5: 医学影像技术与应用	7楼1号会议室 A厅
	特邀&口头报告 分会场 6: 生物医学信号处理	7楼1号会议室 B厅

**10月19日, 星期五晚上**

时间	日程安排	地点
18:00-21:00	闭幕式 (主持人: 刘澄玉教授) 致闭幕词: 大会荣誉主席 Alan Murray 教授 颁奖仪式: CPSC 奖项 颁奖嘉宾: 姚映佳先生(联想集团副总裁)、Gari Clifford 教授 最佳论文奖 颁奖嘉宾: Alan Murray 教授、庄秋莞女士(PMEA 代表) 最佳口头报告奖 颁奖嘉宾: Ng Yin Kwee 教授	6楼金鹰厅
	欢迎晚宴 南京美食景点简介、问卷抽奖 南京特色文化表演	

**10月20日, 星期六**

时间	南京实地参观考察
08:00	金鹰珠江壹号国际酒店大厅集合
08:30-18:00	南京江北新区国家健康医疗大数据中心
	午餐
	南京博物院
	中山陵
P.S. 请务必带上您的参观券, 凭券上车。	

## Part II Keynote Speeches

### Keynote Speech 1: Medical Device Safety

**Speaker: Prof. Alan Murray**

*Newcastle University, UK*

**Time: 09:00-09:35, Thursday Morning, Oct. 18**

**Location:** Golden Eagle Hall, 6th floor



**Abstract:** Medical devices have made a huge contribution to clinical achievements in medicine and surgery. They enable diagnostic and therapeutic procedures to be undertaken safely. Many of today's clinical procedures were not possible or even envisaged a few decades ago. Patients can now hope to live to an active old age.

However, with sadness we need to acknowledge that medical devices can and do cause harm. Thankfully, the percentage of procedures that result in patient harm or death is very small. Nevertheless there is much that can be done to improve this situation. Medical staff and bioengineers have collaborated successfully to produce innovative new procedures and devices. It is important that they also contribute to improving safety.

Medical devices can fail for many reasons. They include the following: devices can be too complicated to use, users are poorly trained, devices can unexpectedly change settings during use, devices can fail long before their expected life is over, maintenance can be poor, wrong consumables can be used, and the inventing bioengineer may not have fully understood the clinical problem. There is much that can be done to improve this situation, by both clinicians and bioengineers.

## Keynote Speech 2: The Problems with (and Solutions for) Digital Cardiology

**Speaker: Prof. Gari Clifford**

*Emory University & Georgia Institute of Technology, USA*

**Time: 09:35-10:10, Thursday Morning, Oct. 18**

**Location:** Golden Eagle Hall, 6th floor



**Abstract:** Perhaps the biggest problem with attempts to diagnose patients via automated ECG analysis is the lack of accurate labels on which to train data. PhysioNet ([www.physionet.org](http://www.physionet.org)) has for many years set the gold standard in electrocardiographic (and other) data, leading to the FDA requiring reporting on PhysioNet data. Never-the-less, the last 18 years of PhysioNet/Computing in Cardiology (CinC) Challenges ([www.physionet.org/challenge/](http://www.physionet.org/challenge/)) and related work have demonstrated that standard expert labels are far more error prone than would be expected by such an established diagnostic art form. Intra- and Inter-observer disagreements are significant and large, particularly in the more complex (and perhaps important) tasks. With such inconsistencies, it is impossible for a diagnostic system to realistically achieve performance measure above 80-90%, which in turn prevents their use without human oversight; an imperative for large scale analysis. I will discuss solutions to this issue including a voting approach that combines multiple algorithms (and humans) of varying performance levels in an efficient manner to boost labels and classifier performances. It is generally accepted that an ensemble of independent weak classifiers can outperform a single strong classifier, yet little work has been performed on developing mixtures of weak and strong classifiers and measuring and controlling for the correlation between classifiers. I will also discuss this essential element of a label boosting system. Finally, I will discuss the related issue of over-fitting on public (and private) data, which we have observed throughout the literature and even in the PhysioNet/CinC Challenge test data to some extent. I will therefore propose a generalized framework for testing public algorithms that mitigate this over-training issue and provide realistic estimates of out-of-sample performances.

## Keynote Speech 3: Enhanced Statistical Parameters for Renograms as New Quantitative Indices in Differentiating Renal Obstruction

**Speaker: Prof. Eddie Ng Yin Kwee**

*Nanyang Technological University, Singapore*

**Time: 10:25-11:00, Thursday Morning, Oct. 18**

**Location:** Golden Eagle Hall, 6th floor



**Abstract:** Renography is a renal imaging technique that utilizes radioisotopes and is commonly used for evaluating renal functions. Here, we studied the feasibility of using basic statistical parameters derived from renogram, “mean count value (MeanCV)” and “median count value (MedianCV)”, as novel indices in the diagnosis of renal obstruction through diuresis renography. Both MeanCV and MedianCV data derived from renograms with duration of 25 min could successfully separate the diagnosis into unobstructed and obstructed classes. Using compartmental modeling based on the derivation of fluid flow rate equation of kidney [1], we enhanced both the parameters by extending the duration of renograms. As a result, the extended MeanCV and MedianCV were better separated into 3 distinct classes – i) unobstructed, ii) slightly obstructed and iii) heavily obstructed. Based on machine learning classifier results, the enhanced MeanCV derived from renogram with duration of 50 min had an overall accuracy of 92.42% and the enhanced MedianCV derived from renogram with duration of 60 min had an overall accuracy of 93.18% [2].

In brief, this talk demonstrates more objective methods in the assessment of renal obstruction through quantification of renogram (via bio-fluids & bio-statistical analysis) and to develop robust systematic methods for clinical evaluation of renogram. Both the new parameters could be derived easily and applied to diagnose renal obstruction with a high level of accuracy. They can potentially be added to existing computer-aided diagnosis system of renography as parameters in evaluating the functionality of kidney. We therefore propose the extended MeanCV and MedianCV generated from renograms as new quantitative indices in differentiating renal obstruction.

### **Ref:**

[1] Suriyanto, Ng, E.Y.K., Say, X J., Ng, C.E.D., Yan, X.S. & Kumar, S.D. Quantitative means for differentiating renal obstruction by analysing renography by compartmental modelling of renal fluid flow rate. Nucl. Med. Commun. 37, 904-910 (2016).

[2] Suriyanto; Ng, E. Y-K; C.E.D Ng; S.X. Yan; N.K. Verma, "Using statistical parameters derived from renograms as new quantitative indices in differentiating renal obstruction", BioMedical Engineering OnLine, 2018 (under review).



## Keynote Speech 4: Recent Advances in Electrochemical Immunosensors and Aptasensors for the Detection of Polyphenol A or Antibodies Ranging from Cholera to Dengue

**Speaker: Prof. Serge Cosnier**

*Grenoble Alpes University, France*

**Time: 11:00-11:35, Thursday Morning, Oct. 18**

**Location: Golden Eagle Hall, 6th floor**



**Abstract:** For four decades, the development of biointerfaces has been the subject of increasing research efforts in the field of biosensors. In particular, the functionalization of electrodes with electrogenerated polymers and / or carbon nanotubes or graphene is widely used for the design of biomaterials. These nano-objects were successfully functionalized by electropolymerization of pyrrolic monomers or via  $\pi$ - $\pi$  stacking interactions with pyrene derivatives exhibiting both affinity or covalent binding interactions towards biomolecules. Various biomolecule immobilization strategies were explored involving photografting or coordination process, affinity and host-guest interactions. In particular, recent examples of electropolymerized films will be presented for the design of labelless electrochemical immunosensors and aptasensors [1-3].

For instance, carbon nanotube deposits with different controlled thicknesses were successfully employed for the design of impedimetric immunosensor for cholera toxin antibody. These nanotube coatings were functionalized by polypyrrole-nitrilotriacetic acid (polyNTA) films and biotinylated cholera toxin. Following a similar elaboration strategy, an electrochemical highly sensitive aptasensor was developed based on electropolymerized poly-NTA film and a new aptamer functionalized by a pentahistidine peptide for the quantification of bisphenol A. A high performance impedimetric immunosensor for the dengue virus antibody detection will be reported. The carbon nanotube deposits on electrodes were functionalized with a poly(pyrrole-N-hydroxysuccinimide) film, which enables the immobilization of the Dengue Virus 2 NS1 glycoprotein. The resulting impedimetric dengue biosensor was tested in bovine blood plasma showing a detection limit of  $10^{-13}$  g mL<sup>-1</sup>.

**Keywords:** biosensor, immunosensor, aptasensor, impedance, electrode, polymers

### Ref:

[1] Q. Palomar, et al. Biosens. Bioelectron., 97 (2017) 177.

[2] Kazane, et al. Anal. Chem., 88 (2016) 7268.

[3] Q. Palomar, et al. Electrochim. Acta., submitted.

## Part III Poster Session

### Poster Presentation

#### Materials Provided by the Conference Organizer:

- X Racks & Base Fabric Canvases (60cm×160cm, see the figure below)
- Adhesive Tapes or Clamps

#### Materials Provided by the Presenters:

- Home-made Posters or Posters printed by the Conference

#### Requirement for the Posters:

- Material: not limited, can be posted on the Canvases
- Size: 60cm×160cm
- Content: Please make sure the poster presentation can be clear and easy to be understood, explanation with figure is good
- Four corners: Please make four holes in the four side of the poster, which will make it easy to be displayed



#### Requirement for the Presenters:

- Stand beside his/her Poster through the Session, and discuss with the readers about his/her paper

#### Time:

- Oct. 18, 11:40-12:30

#### Location:

- Golden Eagle Hall, 6th floor

#### NOTE:

- If you print the poster by yourself, please bring it to the Conference Secretariat at the registration desk on October 17, and the organizing committee will be responsible for the posting.
- After the poster session, we will keep your poster by **18:00 on October 18**, please contact us in advance if you want to take it away.

## Poster Session

Time: 11:40-12:30, Oct. 18

Location: Golden Eagle Hall, 6th floor

Paper ID	Paper Title	Author
BEB4542	RF Ablation Thermal Simulation Model: Parameter Sensitivity Analysis	Xiaoru Wang
BEB4605	Estimating Memory Load by a Combination of Electroencephalography and Functional Magnetic Resonance Imaging Using Different Construction of Sample Set	Xiaojie Zhao
BEB4709	Change of Induced Stress Wave on Collagen Tissue for Biostimulation by Frequency-Doubled Nd: Yag Laser	Han-Byeol Oh
BEB4794	Development of Capacitive Sensor for Automatically Measuring Tumbler Water Level with FEA Simulation	Qun Wei
BEB4804	Segmentation Preprocessing and Deep Learning Based Classification of Skin Lesions	Xiaoqing Zhang
BEB4851	Differences in Putter Trajectory and Psycho-Physiological Variables Between Professional and Amateur Golfers Under Stress Condition	Gyerae Tack
BEB4857	Analysis of Lateral Balance in Response to Perturbation by Surface Tilts in Young and Elderly Adults	Choi YounHyuk
BEB4873	Comparison of Spatio-Temporal Gait Variables in Patients with Parkinson's Disease and Swedd	Choi YounHyuk
BEB4885	Structural Elucidation and Antitumor Activity of six Ergosterol Derivatives from the Fruiting Bodies of Earliella scabrosa	Feng Zhu
BEB4886	Structural Elucidation and Cytotoxicity Evaluation of three Ceramides from the Medicinal Mushroom Earliella scabrosa	Feng Zhu
BEB4892	Signal Quality Index-Based Two-Step Method for Heart Rate Estimation by Combining ECG and Arterial Blood Pressure Signals	Yulin Liu
BEB4898	Novel Method for Assessing Arterial Stiffness Based on Oscillometric Blood Pressure Measurement	Chi Zhang
BEB4905	Interaction Effect Between Beam Diameter and Energy Density in Laser-Induced Tactile Perception	Mi-Hyun Choi, Ji-Hun Jo, Soon-Cheol Chung

BEB4909	Effects of Dynamic Bike Fitting by Lower Limb Alignment on Pedaling Performance	Jinsoo Lee
BEB4918	The Diagnostic Value of MRI Multi-Parameter Combination for Breast Lesions with Ring Enhancement	Lei Xu
BEB4921	MICO_S: Multiplicative Intrinsic Component Optimization with Spatial constraint to suppress noise for MR image segmentation	Chaolu Feng
BEB4922	Analysis and Biological Evaluation of Arisaema Amuremse Maxim Essential oil	Guiying Li
BEB4939	Combination Use of Parallel Plate Compression and Finite Element Modelling to Analyse Mechanical Properties of Intact Porcine Lens	Kehao Wang
BEB4945	Hemodynamic Effect of Obstruction to Renal Arteries Caused by Stent Grafts in Patients with Abdominal Aortic Aneurysms	Ming Liu
BEB4950	Effect of Short-Term Sling Exercise with Whole Body Vibration Recovery Method on Heart Rate, Blood Pressure and Lactic Acid Level Variability	Ju-hwan Oh
BEB4970	Effect of Papillary Muscle Displacement and Annular Dilation on Development of Functional Mitral Regurgitation	Hyunggun Kim
BEB4989	Research on Controllable Electrical Impedance Tomography System Based on FPGA	Shiqiang Li
BEB4992	Diagnostic Efficacy of Non-Contrast Liver Magnetic Resonance Imaging with Multiparametric Sequences in Hepatocellular Carcinoma	Wen-Chang Chen
BEB4995	The Influence of an Extra Task during Driving on the Intensity of Activation Voxels	Mi-Hyun Choi, Ji-Hun Jo, Soon-Cheol Chung
BEB5018	A Multi-purpose Tissue Equivalent Proportional Counter for Measuring the Microdosimetric Spectra of Radiations Generated in Particle Therapy	Chuan-Jong Tung
BEB5022	ProNet--Professional Prostate Segmentation Network of TRUS Images based on Deep Convolutional Neural Networks	Zhaoming Wang
BEB5027	Comparison of PPG Signal Features between Healthy and Sleep Apnea Patients during Five Sleep Stages	Yongchao Chen
BEB5028	Rehabilitative Strategies of Multiple Lower Limbs Training Models	Keyi Wang

BEB5032	Segmentation of The Cardiac Left Ventricle from Cine MR Images Using Local Inhomogeneous Intensity Clustering with Prior Shape Constraint	Chaolu Feng
BEB5052	Effect of A High-Frequency Vibration Boundary on Rbc	Chuang Xiang
BEB5062	Photoacoustic Imaging Reconstruction Algorithm Based on A Combined First and Second Order Total Variation	Jin Wang
BEB5071	Estimation and Clinical Verification of the Effective and Skin Doses for Pediatric and Adult Patients undergoing the Cardiac Interventional Examination using Five PMMA Phantoms and TLD/ionization Chamber Technique	Pan Lung-Fa
BEB5085	Research on Rigid Body Inverse Dynamics of a Novel 6-Prs Parallel Robot	Yubin Liu
BEB5099	Multiline Acquisition Beamforming for Ultrasound Computed Tomography	Shanshan Wang
BEB5139	Effects of An Intra-Ventricular Assist Device on The Stroke Volume of Failing Ventricle: Analysis of A Mock Circulatory System	Shidong Zhu
BEB5152	The Effect of Bioelectrical Impedance Values at Different Frequencies on the Quantitative Assessment of Breast Cancer Related Lymphedema	Yujie Liu
BEB5156	A New Modified Wavelet-based ECG Denoising	Zhaoyang Wang
BEB5167	Visual Information of Diabetic – A Case Report Using Kirlian Images	Reghunadhan Rajesh
BEB5169	Rough Sets for Biomedical Engineering – A Short Review	Reghunadhan Rajesh
BEB5188	Development and Autoregulation of Renal Function in Children: a Retrospective Study Using 99mTc-MAG3 Renography	Xinhua Cao
BEB5200	Deep Learning-Based Classification of Korean Basal Cell Carcinoma Using Convolutional Neural Network	Hyunggun Kim
BEB5217	Co-delivery of Pirarubicin and Sorafenib by PLA-PEG Nanoparticles for Combined Chemotherapy in Kidney Cancer	Xiao Huang
BEB5241	Study on the Change Regularity of Intracellular and Extracellular Water in Patients with Maintenance Hemodialysis during Dialysis	Yi Yin
BEB5244	Exploration and Forecasting of The Related Factors of Frailty among The Elderly	Cheng-Fen Chang
BEB5250	Experimental Study on the Detection of Cerebral Hemorrhage in Rabbits Based on Broadband Antenna Technology	Haisheng Zhang

BEB5266	Identification of Hydroxyapatite-Interacting Proteins in Tooth	Chao-Jing
BEB5299	Folate-modified and NIR-activated Lipid-polymer Hybrid Nanoparticles Loaded with Cisplatin-prodrug for Ovarian Cancer	Yu Sun
BEB5362	A Convolutional Neural Network Model for Electrocardiography Diagnosis	Tsai-Min Chen
BEB5375	EdgeCNN: Image Classification with Edge Detection and Deep Convolutional Neural Network for Portable Medical Imaging Systems	Minsub Kim
BEB5409	The Recurrence Prediction by Pathological Value of Breast Cancer Patients Based on Machine Learning	Myoung Nam Kim
BEB5422	A Method for ECG Arrhythmia Multi-Classification Using Random Forest and Multiple Features	Yatao Zhang
BEB5429	Development of 3D-tracking System by a 3D-array of Hall Sensors with Permanent Magnet	Jyung Hyun Lee
BEB5433	Toward Heartbeat Event Classification Using 12 leads ECG signals: Time-Frequency and Wavelet Analysis	Yongbo Liang

## **Part IV Oral Session**

### **Oral Presentation**

#### **Devices Provided by the Conference Organizer:**

- Laptops (with MS-Office & Adobe Reader)
- Projectors & Screen
- Laser Sticks

#### **Materials Provided by the Oral Presenters:**

- PowerPoint (Note: Please show your paper ID as BEB\*\*\*\* in the last page.)

#### **Duration of each Presentation (Tentatively):**

- Invited Oral Session: 20 Minutes of Presentation, 3-5 Minutes of Q&A
- Regular Oral Session: 15 Minutes of Presentation, 3-5 Minutes of Q&A

#### **Awarding for the Oral Presentation:**

- We will hold a voting for the oral presentation, participants will get a vote to select the best 1-2 oral presentations in each session.
- Each session chair has 3 votes for the best oral presentations.
- Top elected presenters will each be awarded with a free ticket to the next conference ICBE2019.

#### **Time:**

- October 18, 14:30-17:30
- October 19, 08:00-17:30

#### **Location:**

- Conference Room 1A, 7th floor
- Conference Room 1B, 7th floor

#### **NOTE:**

- Please send us the Powerpoint for the presentation once it is ready and have your presentation back up in a U-disk. You also need to tell the Session Chair (before the start of your Session) that you are present. Please kindly let us know in advance if you cannot be present.

## Oral Session\_1 Biomechanics & Biomedical Modeling

Session Chair: Prof. Robert Guidoin, Laval University, Canada

Time: 14:30-17:30, Oct. 18

Location: Conference Room 1A, 7th floor

Time	Paper ID	Paper Title	Author
14:30-14:50	BEB4940	Cardiovascular Devices for Implantology: How the 3bs Concept Contributes to the Culture of Safety	Robert Guidoin
14:50-15:10	BEB4833	A Three-dimensional Microscale Gripper with an Integrated Optical Force Sensor for Controlled Micromanipulation	Alex Thompson
15:10-15:30	BEB5080	Innovative Bone Regeneration in Critical Segmental Defect via Bone-like Scaffold	Daniel S. Oh
15:30-15:50	BEB5412	Shear Stress Regulates the Mechanics and Actomyosin-dependent Viability and Chemoresistance of Circulating Tumor Cells	Youhua Tan
<b>15:50-16:10</b>	<b>Coffee Break</b>		
16:10-16:25	BEB4959	Duty-Cycled Spinning Based 3D Motion Control Approach for Bevel-Tipped Flexible Needle Insertion	Lin Zhou
16:25-16:40	BEB5094	Finite Element Analysis of Different Posterior Cruciate Ligament Reconstruction Techniques	Yansong Qi
16:40-16:55	BEB5056	A Sensorless Force-feedback System for Robot-assisted Laparoscopic Surgery	Baoliang Zhao
16:55-17:10	BEB5154	Effect of Different Suture Positions of Lateral Meniscus Posterior Root Tear on Knee Biomechanics	Pengfei Zhang
17:10-17:25	BEB5382	Evaluation of Laparoscopic Forceps Jaw Contact Pressure and Distribution Using Pressure Sensitive Film	Rui Zhu



## Oral Session\_2 China Physiological Signal Challenge

Session Chair: Prof. Gari Clifford, Emory University/Georgia Institute of Technology, USA;

Co-Chair: Prof. Chengyu Liu, Southeast University, China

Time: 14:30-17:30, Oct. 18

Location: Conference Room 1B, 7th floor

Time	Paper ID	Paper Title	Author
14:30-14:50	NA	CPSC2018: Automatic Identification of the Rhythm/morphology Abnormalities in 12-lead ECGs	Chengyu Liu
14:50-15:10	BEB5292	Automatic Interpretation of ECG Using Deep Learning	Wenjie Cai
15:10-15:30	BEB5416	Identification of the Abnormalities in the Electrocardiogram based on a Multi-channel Bidirectional Gated Recurrent Unit Model	Luping Fang
15:30-15:50	BEB4951	Automatic Identification of The Arrhythmias Using Deep Neural Networks (DNNs)	Runnan He
<b>15:50-16:10</b>	<b>Coffee Break</b>		
16:10-16:30	BEB5171	LSTM Based Auto-Encoder Model for ECG Arrhythmias Classification	Borui Hou
16:30-16:50	BEB5343	Multi-Lead Deep Neural Network for Identification of The Rhythm/Morphology Abnormalities in Ecgs	Bo Wu
16:50-17:10	BEB5435	A Solution for Automatic Identification of the Rhythm/morphology Abnormalities in 12-lead ECGs	Yue Yu

## Oral Session\_3 Cell Biology, Biopharmacy & Biomaterials

Session Chair: Prof. R. James Swanson, Liberty University, USA

Time: 08:00-12:20, Oct. 19

Location: Conference Room 1A, 7th floor

Time	Paper ID	Paper Title	Author
08:00-08:20	BEB4866	Nanosecond Pulsed Electric Field (nsPEF) Causes Instantaneous Cellular Membrane Modulation by Altering Calreticulin Expression	R. James Swanson
08:20-08:40	BEB5427	Application of Liquid Biopsy in Cancer Research	William Cho
08:40-09:00	BEB4861	Strongyloides in Cerebrospinal Fluid	Neda Zarrin-Khameh
09:00-09:20	BEB4884	Use of Splicing-sensitive Fluorescent Reporters to Screen for Modulators of VEGF-A Splicing in Vitro and to Understand Splicing Regulation in Vivo in Transgenic Mice	Sebastian Oltean
09:20-09:40	BEB4897	Optical Detection of Transcriptional Activities in Single Cells	Jie Yao
09:40-10:00	BEB5209	Identification of Mineral Crystal Nucleators in Bone	Haiyan Zhou
10:00-10:20	BEB5246	Significant Improvement of Pharmacokinetics and Pharmacodynamics of Clopidogrel in Anti-platelet Therapy by Use of Novel Conjugates	Haoming Zhang
<b>10:20-10:35</b>	<b>Coffee Break</b>		
10:35-10:55	BEB5268	More is not Always Better, Demonstrated by Selecting Features for the Integrated OMIC Analysis	Fengfeng Zhou
10:55-11:15	BEB5273	A Novel Collagen Mimetic Biomaterial	Yujia Xu
11:15-11:35	BEB5426	Clinical Treatment of Andrographis in Cases of Physical and Mental Health Problems Caused by Chronic Pharyngitis	Sung Ho Chien
11:35-11:50	BEB4936	Thermoresponsive Protein Delivery System with Dramatically Enhanced Pharmacology	Zhuoran Wang
11:50-12:05	BEB5184	Role of the Expression of Cyr61 in Gastric Cancer Tumorigenesis in Vitro	SURILA
12:05-12:20	BEB5283	Novel Long Non-coding RNA Acp1-ps1 Promotes Rats Liver Fibrosis via the Activation of Acp1 and Its Downstream Pathways	Zhenghua Gong

## Oral Session\_4 Biomedical Engineering

Session Chair: Assoc. Prof. Yifeng Lei, Wuhan University, China

Time: 08:00-12:20, Oct. 19

Location: Conference Room 1B, 7th floor

Time	Paper ID	Paper Title	Author
08:00-08:20	BEB4946	Surface Modification with Ferritin Nanoparticles to Modulate the Biocompatibility and Performance of Implanted Glucose Sensors	Yifeng Lei
08:20-08:40	BEB5368	Automatic Evaluation System of Welding Quality Using C-scan Color Image of Ultrasonic Signal	Seong-Geun Kwon
08:40-09:00	BEB4865	Application of a Contact Lens Type Artificial Iris with Self-Regulating Capability by Reversible Photoreaction	Jun-Hee Na
09:00-09:15	BEB4850	Pathological Brain Detection in MRI using Combined Features and Improved Extreme Learning Machines	Siyuan Lu
09:15-09:30	BEB4906	The Mysterious Zero Survival of Sperm Cells Cryopreserved in Nanodroplets	Bat-sheva Galmidi
09:30-09:45	BEB4917	Design and Implementation of a Low-cost Training System for Trans-esophageal Ultrasound	Shuangyi Wang
09:45-10:00	BEB4923	The Process of 3D Printed Skull Models for Anatomy Education	Zhen Shen
10:00-10:15	BEB4928	The Influence of Femtosecond Laser's ON/OFF Delay on the Taper of Resin Teeth Prepared by an Automated Dental Robot	JianQiao Zheng
<b>10:15-10:30</b>	<b>Coffee Break</b>		
10:30-10:45	BEB4965	Automated Segmentation of Malignant Mass in Mammography Using the PCANet based Deep Learning Model	Yao Tan
10:45-11:00	BEB5003	Modified Gaussian Models for Pulmonary Nodule Simulation in Chest Tomosynthesis	Qi Mao
11:00-11:15	BEB5170	Automated Detection of Circulating Tumor Cells Using Faster R-CNN	Yunxia Liu
11:15-11:30	BEB5177	Quantitative Ultrasound: SVM Approach for Skeletal Muscle Atrophy Auxiliary Diagnosis	Hui Shen
11:30-11:45	BEB5230	Physical and Biological Effect of Alternative Electric Fields on the Tumor Cell	Xing Li
11:45-12:00	BEB5366	The Effect of Moxibustion Thermal Stimulation on Fingertip Temperature in Healthy Subjects	Chao Sun
12:00-12:15	BEB5351	A Rat Model of Radiation Vasculitis for the Study of Mesenchymal Stem Cell-based Therapy	Xuan Tao

## Oral Session\_5 Medical Imaging Technology and Application

**Session Chair: Prof. Lung-Kwang Pan, Central Taiwan University of Science and Technology  
Takun, Taiwan**

Time: 14:00-17:30, Oct. 19

Location: Conference Room 1A, 7th floor

Time	Paper ID	Paper Title	Author
14:00-14:20	BEB4931	Creatine Chemical Exchange Saturation Transfer Imaging in the Epileptic Seizure Rat Models	Dong-Hoon Lee
14:20-14:40	BEB5075	Survival Rate Prediction of Breast Cancer Patients of 0-IV Stages with and without Radiotherapy via a Revised Taylor Series Expansion Algorithm: A Population-based Study in Taiwan	Lung-Kwang Pan
14:40-15:00	BEB4844	Dynamic Spatially Selective Dephasing for Magnetic Resonance Spectroscopy	Jing-Huei Lee
15:00-15:20	BEB4808	MR Guided Pulsed High Intensity Focused Ultrasound Enhancement of Docetaxel Combined with Radiotherapy for Prostate Cancer Treatment	Lili Chen
15:20-15:40	BEB4880	Digital Image Processing for In-vivo Skin Capacitive Contact Imaging	Perry Xiao
<b>15:40-16:00</b>	<b>Coffee Break</b>		
16:00-16:15	BEB4813	Histological Subtype Classification of Gliomas in Digital Pathology Images based on Deep Learning Approach	Xieli Li
16:15-16:30	BEB4875	Fast Imaging Combined with Joint - Transmitting - Receiving Beamforming Based on a Ring Array in Ultrasound Computed Tomography	Xinming Jiang
16:30-16:45	BEB4976	Enhanced Plane Wave Compounding with Fewer Transmissions Based on the Envelope Statistics	Yanxing Qi
16:45-17:00	BEB5048	Investigation in Radio Frequency magnetic field Mapping towards tissue Magnetic Resonance Electric Properties Tomography	Xiaonan Li
17:00-17:15	BEB5100	Super-Resolution Reconstruction of Plane-Wave Ultrasound Image Based on a Multi-Angle Parallel U-Net with Maxout Unit and Novel Loss Function	Zixia Zhou
17:15-17:30	BEB5249	A Simple Geometric Method for 3D Morphology Reconstruction of a Cell Based on Two Orthogonal Phase Images	Hao Han

## Oral Session\_6 Biomedical Signal Processing

Session Chair: Huiyu Zhou, Reader, University of Leicester, UK

Time: 14:00-17:30, Oct. 19

Location: Conference Room 1B, 7th floor

Time	Paper ID	Paper Title	Author
14:00-14:25	BEB4835	Mouse Behavior Analysis for Parkinson's Disease	Huiyu Zhou
14:25-14:45	BEB4825	Personalised Patient Physiology Monitoring using Bayesian Hierarchical Gaussian Processes	Tingting Zhu
14:45-15:05	BEB5134	Do We Need Pre-filtering in NLM? – A Study on Ultrasound Images	Reghunadhan Rajesh
15:05-15:20	BEB4599	Effect of Ventricular Myocardium Characteristics on the Defibrillation Threshold	Li Qian
15:20-15:35	BEB4718	Laser Parameters for Efficient Biomedical Stimulation: A Study to Increase Cognitive Response Rate	Jae-Hoon Jun
<b>15:35-15:55</b>	<b>Coffee Break</b>		
15:55-16:10	BEB4798	Monitoring and Evaluation of Sports Load for Primary and Middle School Students	Qi Luo
16:10-16:25	BEB4831	Continuous Sensory Electrical Stimulation for the Suppression of Parkinsonian Rest Tremor	Jae-Hoon Heo
16:25-16:40	BEB4900	A Simple and Effective Method for Detecting Myocardial Infarction Based on Deep Convolutional Neural Network	Na Liu
16:40-16:55	BEB5284	A Convolutional Neural Network for Identifying Premature Ventricular Contraction Beat and Right Bundle Branch Block Beat	Yuwei Zhang
16:55-17:10	BEB4964	Fuzzy Logic Based Risk Assessment System Giving Individualized Advice for Metabolic Syndrome and Fatal Cardiovascular Diseases	Zehra Aysun Altikardeş

## Part V Conference Awards

### CPSC Awards

The China Physiological Signal Challenge (CPSC 2018) is the 1st China Physiological Signal Challenge, which will be held during the 7th International Conference on Biomedical Engineering and Biotechnology (ICBEB 2018) in Nanjing, China. The CPSC aims to provide a platform for the open-source data and algorithms for the physiological signal analysis, and thus to promote the open-source research pattern for the cardiovascular disease detection and prediction in China.

The CPSC 2018 aims to encourage the development of algorithms to identify the rhythm/morphology abnormalities from 12-lead ECGs, lasting several seconds to tens of seconds. The 12-lead ECGs used in CPSC 2018 include one normal type and eight abnormal types, which are detailed as:

- (1) Atrial fibrillation (AF)
- (2) First-degree atrioventricular block (I-AVB)
- (3) Left bundle brunch block (LBBB)
- (4) Right bundle brunch block (RBBB)
- (5) Premature atrial contraction (PAC)
- (6) Premature ventricular contraction (PVC)
- (7) ST-segment depression (STD)
- (8) ST-segment elevated (STE)

#### Awards and Rules

The winners will be selected on the basis of the obtained final  $F_1$  score on the hidden test data. The first three will receive certificates and generous bonuses:

- First prize: Certificate plus bonus of RMB 30,000
- Second prize: Certificate plus bonus of RMB 15,000
- Third prize: Certificate plus bonus of RMB 5,000

In addition, winners with the highest scores of  $F_{AF}$ ,  $F_{Block}$ ,  $F_{PC}$  and  $F_{ST}$  will be honored with the certificates and bonuses respectively, for each of the four sub-abnormal types classification:

- AF classification winner: Certificate plus bonus of RMB 2,500
- Block classification winner: Certificate plus bonus of RMB 2,500
- Premature contraction classification winner: Certificate plus bonus of RMB 2,500
- ST-segment change classification winner: Certificate plus bonus of RMB 2,500

#### Awards Presenters:

Mr. Yingjia Yao, Vice president of Lenovo Group;

Prof. Gari Clifford, Emory University & Georgia Institute of Technology, USA.

## Best Paper Awards

This Awards are energetically supported by the journal-**Physiological Measurement (PMEA)** published by IOP Publishing under the Institute for Physics and Engineering in Medicine (IPEM). Winners of the top 3 papers will receive Certificates issued by PEMA as well as a Bonus of £250 each.

Physiological Measurement (PMEA) publishes papers about the quantitative assessment and visualization of physiological function in clinical research and practice, with an emphasis on the development of new methods of measurement and their validation, with the 2017 Impact Factor of 2.006.

PMEA is one of the journals from IOP Publishing, providing publications through which leading-edge scientific research is distributed worldwide. IOP Publishing is central to the Institute of Physics (IOP) of UK, a leading scientific membership society working to advance physics for the benefit of all.

PMEA encourages publication of data and code as well as results. Papers are published on topics including:

- applied physiology in illness and health
- electrical bioimpedance, optical and acoustic measurement techniques
- advanced methods of time series and other data analysis
- biomedical and clinical engineering
- in-patient and ambulatory monitoring
- point-of-care technologies
- novel clinical measurements of cardiovascular, neurological, and musculoskeletal systems
- novel clinical measurement of flows and pressures in lung, heart and blood vessels
- measurements in molecular and cellular and organ physiology and electrophysiology
- physiological modeling and simulation
- novel biomedical sensors, instruments, devices and systems
- measurement standards and guidelines.

### **Awards Presenters:**

Prof. Alan Murray, Conference Honorary Chair;

Ms. Qiuwan Zhuang, PMEA representative.

## **Best Oral Awards**

Best Oral Awards, as important honors in the conference since 2012, aim to encourage speakers to promote and share their research results in a better way. Well-known professors and conference authors are invited to participate in the conference and vote for the Best Oral Presentation in each session.

The session chairs usually distribute vote forms to the participants before the opening and collect at the end of all oral presentations. Participants can score for each presentation and mark the highest one or two presentations before the submission.

Winners of the Best Oral Presentations will be awarded with a free ticket to the next conference IC-BEB2019.

### **Awards Presenters:**

Prof. Ng Yin Kwee, Conference TPC Chair.



## Part VI Conference Venue

### Basic Information

Nanjing Golden Eagle Summit Hotel is designed and constructed according to international five-star standard. Located on the city axis, at the intersection of Zhongshan Road and Zhujiang Road which is right at the CBD core, and within the core administrative district of both municipal and provincial levels beside Southeast University, Golden Eagle Summit Hotel is standing in the area of Xinjiekou and sitting above the entrance of Metro (Zhujiang Road Station). It is only 45 minutes' drive from Nanjing Lukou International Airport, and 15 minutes' drive from Nanjing Railway Station. The exceptional geographic advantage brings Golden Eagle Summit Hotel's guests convenient transport.

**Address:** No. 1 Zhujiang Road, Xuanwu District, Nanjing, Jiangsu, China

**Tel:** (86) 025-83218888

**E-mail:** jyzj@jinying.com

### Access to the Venue

#### 1. From Nanjing Lukou International Airport (about 45 KM)

(1) Metro: take Metro Line S1 to Nanjing Nan Station, transfer to Metro Line 1 to Zhujiang Road, get out from Exit 4, and then walk for 2 minutes to the hotel.

(2) Taxi: about RMB 110 (For reference only, not as a basis for payment).

#### 2. From Nanjing Railway Station (about 7 KM)

(1) Metro: take Metro Line 1 to Zhujiang Road, get out from Exit 4, and then walk for 2 minutes to the hotel.

(2) Taxi: about RMB 20 (For reference only, not as a basis for payment).

#### 3. From Nanjing South Railway Station (about 30 KM)

(1) Metro: take Metro Line 1 to Zhujiang Road, get out from Exit 4, and then walk for 2 minutes to the hotel.

(2) Taxi: about RMB 40 (For reference only, not as a basis for payment).