

EMedIC Global 2021

Engineering Medical
Innovation Global Competition

Hong Kong

Nov 19-20, 2021

The Chinese University
of Hong Kong



Hong Kong
Science Park

Organizer:

Co-Organizers:

Co-sponsoring & Endorsing Organizations:



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1. Programme Schedule

Friday 19 Nov 2021		
HK Time (UTC +8)	Session	Venue:
09:20-09:30	Opening Session	ERB1122* / ZOOM
Presentations by finalist teams^: 15 minutes per team [2 mins setup / 8 mins presentation (including demo (if applicable)) / 5 mins Q&A We will give a reminder when the presentation is 1 minute left]		
09:30-09:45	<i>Group 10</i>	ERB1122* / ZOOM
09:45-10:00	<i>Group 11</i>	
10:00-10:15	<i>Group 19</i>	
10:15-10:30	<i>Group 09</i>	
10:30-10:45	<i>Group 23</i>	
10:45-11:00	<i>Group 13</i>	
11:00-11:15	Tea Break	
11:15-11:30	<i>Group 03</i>	ERB1122* / ZOOM
11:30-11:45	<i>Group 32</i>	
11:45-12:00	<i>Group 34</i>	
12:00-12:15	<i>Group 21</i>	
12:15-12:30	<i>Group 06</i>	
12:30-12:45	<i>Group 18</i>	
12:45-13:45	Lunch	
13:45-14:00	<i>Group 29</i>	ERB1122* / ZOOM
14:00-14:15	<i>Group 07</i>	
14:15-14:30	<i>Group 25</i>	
14:30-14:45	<i>Group 14</i>	
14:45-15:00	<i>Group 26</i>	
15:00-15:15	<i>Group 02</i>	
15:15-15:30	Tea Break	
15:30-15:45	<i>Group 27</i>	ERB1122* / ZOOM
15:45-16:00	<i>Group 30</i>	
16:00-16:15	<i>Group 01</i>	
16:15-16:30	<i>Group 16</i>	
16:30-16:45	<i>Group 20</i>	
16:45-17:00	<i>Group 28</i>	
17:00-17:30	Processing composite scores sheet	ERB1122*
17:30-18:00	Judges' Meeting	ERB1122* / ZOOM

18:30-22:00	Announcement of all awards on web	
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Notes:

* Room 1122, 11/F, William M.W. Mong Eng Bldg., The Chinese University of Hong Kong, Shatin, Hong Kong

^ The sequence of groups is based on drawing lots on 28 Oct.

Zoom Link for Finalist teams' presentations

Topic: EMedIC Global 2021 Finalists Competition

Time: **Nov 19 2021, 09:00 AM Hong Kong Time (UTC +8)**

<https://cuhk.zoom.us/j/99218205595?pwd=WEtOYlICckFPYVBxcEtzajg5V0t0dz09>

or short cut link <http://www.emedicglobal.org/zoom>

Meeting ID: 992 1820 5595

Passcode: 393497

The ZOOM has waiting room and meeting room.

Please change your name to our recognized name in ZOOM's waiting room.

For **Judges**, please rename your ZOOM name to **Judge_name**.

For **Team Members**, please rename your ZOOM name to **GpXX_name**. (XX is your group number).

For **Guests**, please rename your ZOOM name to **Guest_name**.

Rehearsal is scheduled on 15 Nov 2021 14:00-17:00 (Hong Kong Time, UTC +8). All teams can access the same ZOOM link to test power point, video, audio etc.

Saturday 20 Nov 2021 (EMedI Summit cum EMedIC Global Awards Presentation)		
HK Time (UTC +8)	Session	Venue
09:40-10:30	Opening Ceremony / Chow Yuk Ho Lecture / Panel Discussion	Conference Halls 4-5# / Virtual Room (Need registration [†])
10:30-10:35	Introduction of EMedIC Global Competition by Professor Raymond Tong	Conference Halls 4-5 / Virtual Room (Need registration [†])
10:35-10:45	EMedIC Global 2021 Awards Presentation 1. Best Presentation Award 2. Technical Challenge Award 3. Most Innovative Award 4. Clinical Readiness Award 5. Bronze Award 6. Silver Award 7. Gold Award	Conference Halls 4-5 / Virtual Room (Need registration [†])
10:45-16:25	EMedI Summit 2021 Programme For details, please refer to below link http://emedisummit.org/programme.html	Conference Halls 4-5 / Conference Halls 6-7# / Virtual Room (Need registration [†])

Notes:

Conference Halls 4/5/6/7, Hong Kong Science Park, Pak Shek Kok, Hong Kong.

† Registration for virtual participation on event day 20 Nov, please access this link

<https://www.emedisummit2021.hk/>

2. Important information to Finalist

1. The presentation order is determined by lots drawing on 28 Oct 2021.
2. All EMedIC Global presentations should be conducted in English.
3. All finalist teams must present themselves at the final competition venue / ZOOM meeting room at least 15 minutes before sessions start. ZOOM link and access information can be found on page 2.
4. Each finalist team would be given no more than 2 minutes for setting-up (e.g., share power point at ZOOM) right before their presentation / demonstration. They are not expected to bring physically to the venue any apparatus / equipment that cannot be readily set up on-site within the 2 minutes before their presentation / demonstration. If present via ZOOM, please set up the demo as early as possible.
5. Each finalist team will only be given 8 minutes for their presentation, including all forms of their presentation and demonstration. The first page of power point should be included topic, team members' names and group photo.
6. Finalist teams can attend presentations of other teams as observers to maximize learning from each other. As observers, they cannot disturb the presentations of the other teams and can only move in / out of the presentation venue / zoom meeting room between presentations.
7. Single screen projection and VGA/HDMI-link to notebook computer are available on-site at presentation venue. The screen also displays ZOOM presentations.
8. Power supply (220V-50Hz) is available at the presentation venue.
9. Awards will be based on the average scores given by the judges during the final competition.
10. The result will be announced on EMedIC Global website within 18:30-22:00 on 19 Nov 2021.
11. All finalist teams must attend the EMedIC Global awards presentation during the EMedI Summit Opening Session. Walk-in registration for virtual participation on event day 20 Nov, please use this link <https://www.emedisummit2021.hk/>.
12. All EMedIC Global awards will be presented after 20 Nov 2021. We will transfer money to your side via telegraphic transfer (T/T) / bank transfer / cheque payment etc. The exact amount received may be less than the actual awards due to the bank handling and service charge.

3. Final Competition Judging Criteria

Clinical Impacts (25%)	Needs, Potential clinical benefits, Clinical feasibility, Business model (including regulatory issues, etc.)
Novelty (25%)	Major conceptual innovation vs incremental gain over existing products, Potential IP
Technical Merits (25%)	Technical challenges, Demonstration of technical feasibility
Presentation (25%)	Clarity, Engaging presentation

To avoid conflicts of interest, a judge will not give scores to the team(s) from his own institution.

4. Final Competition Judging Panel

- Prof. James GOH
- Prof. Youngho KIM
- Dr. Hin Chung LAU
- Prof. Che-Wei LIN
- Prof. Hongliang REN
- Prof. Raymond TONG
- Prof. Ming-Long YEH

5. International Advisors

- Prof. Mei Lin CHAN
Stony Brook University
- Prof. Wenxi CHEN
The University of Aizu
- Prof. Devakar EPARI
Queensland University of Technology
- Prof. James GOH
National University of Singapore
- Prof. Che-Wei LIN
National Cheng Kung University
- Prof. Bradley NELSON
ETH Zurich
- Prof. Hongliang REN
National University of Singapore
- Prof. Fong Chin SU
National Cheng Kung University
- Prof. Raymond TONG
The Chinese University of Hong Kong
- Prof. Guang-Zhi WANG
Tsinghua University
- Prof. Jaw-Lin WANG
National Taiwan University
- Prof. Shuhua YUE
Beihang University

6. Award Presentation

Awards will be based on the scores of the judges:

- One Gold Award (based on the total scores)
- One Silver Award (based on the total scores)
- One Bronze Awards (based on the total scores)
- Most Innovative Award (based on the Novelty scores)
- Technical Challenge Award (based on the Technical Merit scores)
- Best Presentation Award (based on the Presentation scores)
- Clinical Readiness Award (based on the Clinical Impact scores)

50/100 is the minimum score to qualify for meritorious mention.

Announcements of Awards will be posted on EMedIC Global website within 18:30-22:00 on 19 Nov 2021.

7. List of 24 Finalist Teams

Finalist Team No.	Team Members	Institution	Topic
Group 01	Po Hong, CHOU Christian Steven, JONATHAN Jing Zhi, KOO <i>Faculty Advisor:</i> Dr James Chen Yong, KAH	National University of Singapore	Monitor for Risks of Three-Highs
Group 02	Andrew, WIJAYA Michael, SUTANTO Shirley, WANG <i>Faculty Advisor:</i> Dr. Andi Sudjana, PUTRA	National University of Singapore	Ah Bot: Elderly Robot Companion for Health Monitoring, Active Engagement, and Connectivity
Group 03	Kuan Wen, LOU Chun Yin, AU-YEUNG Jak Lum Alson, LEE Chit Yau, KUAN Chi Chung, CHAN <i>Faculty Advisor:</i> Prof. Yi-Ping Megan, HO	The Chinese University of Hong Kong	Real-time non-invasive hypoglycaemic detection in diabetic patients with Metal Oxide Metabolism sensor (MOMs)
Group 06	Wei, QIAN Junbei, LIAO Fei, LEI Xikai, MEN Zeyu, XIAO Leitian, AI <i>Faculty Advisor:</i> Dr. Zhao, GUO	Wuhan University	Compliant upper limb rehabilitation Exoskeleton robot
Group 07	Zhiyong, ZHOU Siyu, LIU Linjun, LU Shuowen, YI Jianfeng, LIN <i>Faculty Advisor:</i> Dr. Zhao, GUO	Wuhan University	Cable driven Active Knee Exoskeleton

Group 09	Bryan, CHOW Harold, GOH <i>Faculty Advisor:</i> Prof. Ali Asgar S., BHAGAT	National University of Singapore	Smart inhaler to analyze and monitor respiratory profile
Group 10	Meng, TONG Zhi Xiang Trifanny, YEO <i>Faculty Advisor:</i> Prof. Chwee Teck, LIM Dr. Yuji, GAO	National University of Singapore	A flexible multiplexed immunosensor for point-of-care in situ wound monitoring
Group 11	Xiangqian, SHI Holam, HEUNG Yuk Hong, LAM Chun Him, SETO Wai Shing, CHAN Chi Chau, CHAN <i>Faculty Advisor:</i> Prof. Raymond K. Y., TONG Prof. Zheng, LI Mr. Changqiu, ZHOU	The Chinese University of Hong Kong	Home-Based Portable Soft Robotic Hand System for Daily Healthcare and Rehabilitation
Group 13	Jia-Yang, WANG Laudes, CENTURION Walther, WOTTRICH Hsuan, KUEI Cheng-Bin, XU Wei-Siang, CIOU <i>Faculty Advisor:</i> Prof. Yi-Chun, DU Prof. Fong-Chin, SU Prof. Yu-Hsuan LIN Prof. Chien-Hsing LEE	National Cheng Kung University	A Novel Speech Separation System for Attention Improvement of Children with ADHD
Group 14	Pei-Xuan, HUANG Jiun-Siyan, CHU Yu-Cheng, KO Hong-Yun, LIN Chang-Wei, CHEN Chia-Chun, HSU <i>Faculty Advisor:</i> Prof. Che-Wei, LIN	National Cheng Kung University	Automatic Identification System for Real-Time Diagnosis of the Arteriovenous Access (AVA) Stenosis Based on the Deep Learning of the Audio Signal

<p>Group 16</p>	<p>Pimchatt, YODUDOM Korrawiz, CHOTAYAPA Thanyatorn, LEETHAMCHAYO Suparada, PATTARAPONGSATIT Piraya, CHINNAWONG Waratchaya, CHIMPHLEE <i>Faculty Advisor:</i> Prof. Warakorn, CHAROENSUK</p>	<p>Mahidol University</p>	<p>Smart sensor glove with therapy ball for post-stroke hand rehabilitation</p>
<p>Group 18</p>	<p>Noel, SNG Mingjian, ZHAO <i>Faculty Advisor:</i> Prof. Ali Asgar S., BHAGAT Dr. Joo Chuan, YEO</p>	<p>National University of Singapore</p>	<p>Flexible Sensor for Penile Health Monitoring</p>
<p>Group 19</p>	<p>Ryan, CHEN Luigia, THAN Cynthia, WU Vivian, LIN Michael, LY Peter, DIPIETRO <i>Faculty Advisor:</i> Prof. Nobuho, NAGASAWA Prof. Mei Lin CHAN</p>	<p>Stony Brook University</p>	<p>CICaidA (Continuous Individual Crisis Aid Alert System)</p>
<p>Group 20</p>	<p>Michelle, MATTILLE Silvia, VIVIANI Simone, GERVASONI Jonas, LUSSI <i>Faculty Advisor:</i> Prof. Bradley, NELSON</p>	<p>ETH Zurich</p>	<p>A Robotic Platform for Fetal Surgery</p>
<p>Group 21</p>	<p>Yitian, XIAN Xue, ZHANG Yehui, LI Jian, LI Ke, XIE Wang Lik, LEUNG <i>Faculty Advisor:</i> Prof. Zheng, LI Dr. Danny Tat Ming, CHAN</p>	<p>The Chinese University of Hong Kong</p>	<p>A Semi-autonomous Stereotactic Brain Biopsy Robotic System with Enhanced Safety</p>

Group 23	Wai Shing, LIU Chak Kit, CHENG <i>Faculty Advisor:</i> Prof. Li, ZHANG Dr. Kai Fung, CHAN	The Chinese University of Hong Kong	QuickCAS: An easy-to-use analysis system for quick detection of infectious pathogens clinical samples
Group 25	Huxin, GAO Ruoyi, HAO Xiaoxiao, YANG Zedong, ZHANG <i>Faculty Advisor:</i> Prof. Hongliang, RENHAN Prof. Changsheng, LI Prof. Xiuli, ZUO Prof. Yanqing, LI	National University of Singapore The Chinese University of Hong Kong Beijing Institute of Technology Qilu Hospital of Shandong University	Gastrointestinal Endoscopic Surgical Robot (GESR)
Group 26	Sishen, YUAN Junnan, XUE Sifan, CAO Botao, LIN <i>Faculty Advisor:</i> Prof. Hongliang, REN Prof. Shuang, SONG Prof. Jiaole, WANG	The Chinese University of Hong Kong Harbin Institute of Technology, Shenzhen	Independent Magnetic Control of Anchoring and Drug Release for Wireless Capsule Robots
Group 27	Huxin, GAO Zhiwei, FANG Ruoyi, HAO Weichen, FAN Catherine Jiayi, CAI Kirthika Kumar, SENTHIL <i>Faculty Advisor:</i> Prof. Hongliang, REN Prof. Xiao, XIAO, Dr. Kam King Nicolas, KON	National University of Singapore The Chinese University of Hong Kong Southern University of Science and Technology Mount Elizabeth Hospital Singapore	Skull-mounted robot (Skullbot) for needle intervention

Group 28	Shashaank Abhinav, VENKATESH Kah Meng, ANG Rachel Reno, LIM Victoria, TSE <i>Faculty Advisor:</i> Prof. Andrew William, HOLLE	National University of Singapore	A novel and cost-effective multi-factor chemical-based lateral flow assay for early detection and outcome prediction in disorders such as Malaria and kidney disease
Group 29	Qian Qian, HAN Jin, JIN Chao-Yu, CHEN <i>Faculty Advisor:</i> Prof. Chen Hua, YEOW	National University of Singapore	Modular Hybrid Robotic Arm for Bedside Rehabilitation
Group 30	Wenchao, YUE Long, BAI Yameng, ZHANG <i>Faculty Advisor:</i> Prof. Hongliang, REN Prof. Max Qing-Hu, MENG Prof. Xiao, XIAO	The Chinese University of Hong Kong	TriMBot: Magnetically-connected Modular-reconfigurable Mini-robot towards Minimally Invasive Procedures
Group 32	Muhammad Agil Wijaya, FARADIS Anita Dominique, SUBALI Rizki Chandra, MAULANA Muhammad Farras Sakti, PRATAMA <i>Faculty Advisor:</i> Dr. Nurussa'adah Dr. Thareq, BARASABHA	Universitas Brawijaya	SI-SCA (System Integrated for Sudden Cardiac Arrest) : Smartphone Integrated Early Detection and Intervention for Sudden Cardiac Arrest Based on the Internet of Things
Group 34	Jolo Gerard Miel, TOLENTINO Jin Teng, HU Jia-Xiang, CHENG Yu-Kuan, MO <i>Faculty Advisor:</i> Prof. Aaron, RAYMOND Prof. Wan Jung, CHANG Prof. Ming-Che, CHEN Prof. Yang-Kun, OU	Southern Taiwan University of Science and Technology	The AI Armature Project

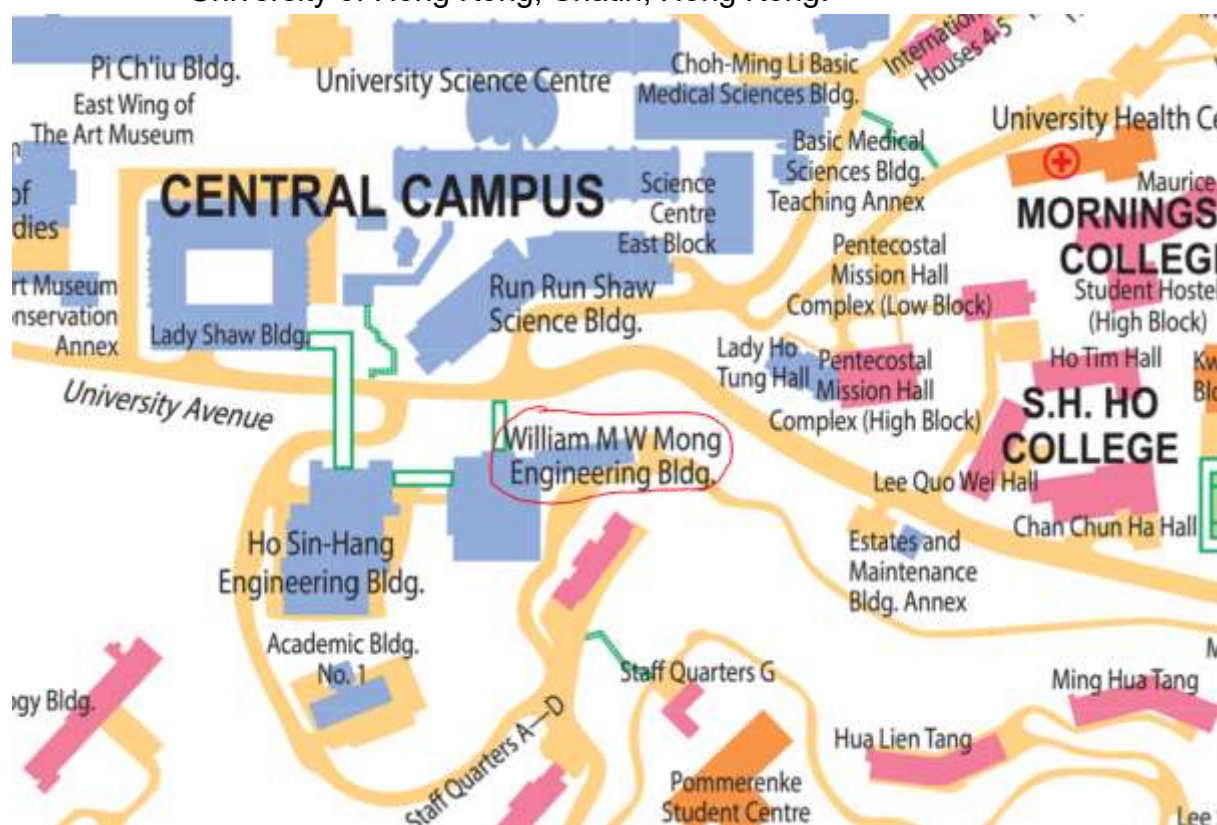
Video of each team can be found at this link, <http://www.emedicglobal.org/finalistvideo.php>

8. Site Map of EMedIC Global Competition Venue

The EMedIC Global 2021 takes place at **CUHK campus** and **ZOOM online**

VENUE: BME Computer Lab (ERB1122)








ADDRESS: Room 1122, 11/F, William M.W. Mong Engineering Building, The Chinese University of Hong Kong, Shatin, Hong Kong.



On-line map: <https://www.cuhk.edu.hk/english/campus/cuhk-campus-map.html>

9. Bad Weather Arrangement

Activities may be cancelled or suspended due to bad weather as advised by the Hong Kong Observatory (<http://www.hko.gov.hk/contente.htm>). Please pay attention to the announcement made through email.

Warning Signal	Symbol	Arrangement
Very Hot Weather Warning		Activities will continue and offices will remain open. Participants should observe the traffic and weather conditions.
Amber Rainstorm Warning Signal		
Red Rainstorm Warning Signal		
Thunderstorm Warning		
Standby Signal No. 1	T1	
Strong Wind Signal No. 3	L3	Activities will be affected. (see arrangement below)
Black Rainstorm Warning Signal		
Typhoon No. 8 or Storm Signal		
Increasing Gale or Storm Signal No. 9		
Hurricane Signal No. 10	+10	

The typical bad weather arrangements are as follow:

Signal is/will be in force at/after the following time	Suspension / cancellation of activities
7:00	Morning session (8:30 – 14:00)
12:00 noon	Afternoon session (14:00 – 18:00)
15:00	Evening session (18:00 – 22:00)

Activities in progress will be suspended immediately. Participants are advised to stay in a safe place until the weather and traffic conditions improve.

10. Contact Information

EMedIC Global 2021 support team

General Enquiry Tel: Mr. Nelson SO (852) 3943 8291
 Ms. Melanie WONG (852) 3943 5507
 Email: emedicglobal@cuhk.edu.hk