

# IEEE ICDH 2021 - TECHNICAL PROGRAM

## ICDH TECHNICAL PROGRAM

Conference code: CHD

All times are listed in UTC time. To convert UTC time to your time, use the [UTC Time Zone Converter](#).

Date	Time	Session Chair	Presentation
Mon 9/6	15:00 - 16:20 pm UTC	Farhana Zulkernine Queen's University	CHD_REG_3 Architecture of an Intelligent Personal Health Library fo Improved Health Outcomes Hasan Jamil
	CDH 1 Regular Papers		CHD_REG_24 Lung Cancer Prediction using Curriculum Learning base Deep Neural Networks Jackson Zhou, Matloob Khushi, Mohammad Ali Moni, Sh Uddin and Simon Poon

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## CDH\_REG\_27

Grading Diabetic Retinopathy Severity Using Image Processing and Ensembled Convolution Neural Networks

Andrew Lee, Matloob Khushi, Patrick Hao, Shahadat Uddin and Simon Poon

Mon 16:30 - 17:50 pm  
9/6 UTC

CDH 2  
Regular Papers

Hasan Jamil  
University of  
Idaho

## CDH\_REG\_28

Risk and Compliance in IoT-Health Data Propagation : A Security-Aware Provenance based Approach

Fariha Tasmin Jaigirdar, Carsten Rudolph and Chris Baird

## CDH\_REG\_36

Secure Cloud EHR with Semantic Access Control, Search Encryption and Attribute Revocation

Redwan Walid, Karuna Joshi and Seung Geol Choi

Mon 18:10 - 19:30 pm  
9/6 UTC

CDH 3  
Regular Papers

Carson Leung  
University of  
Manitoba

## CDH\_REG\_37

BIOCAD: Bio-inspired Optimization for Classification and Anomaly Detection in Digital Healthcare Systems

Nur Imtiazul Haque, Alvi Ataur Khalil, Mohammad Rahmani, Hadi Amini and Sheikh Iqbal Ahamed

## CDH\_REG\_45

Do You Brush Your Teeth Properly? An Off-body Sensor-Based Approach for Toothbrushing Monitoring.

Zawar Hussain, David Waterworth, Murtadha Aldeer, Weiqiang Emma Zhang, Quan Z Sheng and Jorge Ortiz

## CDH\_REG\_48

A Digital Health System for Disease Analytics

Carson Leung

Mon 19:40 - 21:00 pm  
9/6 UTC

DCH 4  
Regular Papers

Mohammad  
Rahman  
Florida  
International  
University

## CDH\_REG\_49

Passive COVID-19 Assessment using Machine Learning on Physiological and Activity Data from Low End Wearables

Atifa Sarwar and Emmanuel Agu

## CDH\_REG\_50

An IoT System for Autonomous, Continuous, Real-Time Monitoring and Its Application to Pressure Injury Management

Sam Mansfield, Eric Vin and Katia Obraczka

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## CDH\_REG\_61

### Exploring Relationships between Cerebral and Peripheral Biosignals with Neural Networks

Alexander Hatteland, Ričards Marcinkevičs, Thomas Frick, Ilona Hubbard, Julia E. Vogt, Renaud Marquis, Thomas Brunschwiler and Philippe Ryvlin

Tues 1:00 - 2:20 am UTC Emmanuel Agu  
9/7  
CDH 5  
Regular Papers  
Worcester Polytechnic University

## CDH\_REG\_63

Deep Learning Anomaly Detection methods to passively detect COVID-19 from Audio  
Shreesha Narasimha Murthy and Emmanuel Agu

## CDH\_REG\_64

Smartphone TBI Sensing using Deep Embedded Clustering and Extreme Boosted Outlier Detection  
Srinarayan Srikanthan, Florina Asani, Bhoomi Kalpesh P and Emmanuel Agu

## CDH\_REG\_69

Remote Photoplethysmography Heart Rate Variability Detection Using Signal to Noise Ratio Bandpass Filtering  
Lin He, Kazi Shafiul Alam, Jiachen Ma, Eric Burkholder, V Cheng Chung Chu, Anik Iqbal and Sheikh Iqbal Ahamed

Tues 2:30 - 3:50 am UTC Richie Oyeleke  
9/7  
CDH 6  
Short Papers  
Institute of Technology

## CDH\_SHT\_6

Preictal onset detection through unsupervised clustering epileptic seizure prediction  
Alessio Quercia, Thomas Frick, Fabian Egli, Nick Pullen, Isabelle Dupanloup, Jianbin Tang, Umar Asif, Stefan Har and Thomas Brunschwiler

## CDH\_SHT\_16

Physical Exercise Recommendation and Success Predict Using Interconnected Recurrent Neural Networks  
Arash Mahyari and Peter Pirolli

## CDH\_SHT\_26

Putting Process (BPMN) and Decision (DMN) Models to Work in a Pediatric Surgery Case Study  
Anna Maria Bianchi, Matteo Mortari, Claudio Pintavalle Giuseppe Pozzi

Tues 9/7	4:10 - 5:30 am UTC	Giuseppe De Pietro CNR	CDH_SHT_30 Multi-task Learning Based on Multi-type Dataset for Ret Abnormality Detection Linna Zhao, Jianqiang Li, Zerui Ma, Yu Guan, Xi Xu, Li Zh and Li Li
			CDH_SHT_31 Engineering Continuous Monitoring of Intrinsic Capacity Elderly People Valerio Bellandi, Ioannis Basdekis, Paolo Ceravolo, Matt Cesari, Ernesto Damiani, Eleftheria Iliadou, Mircea Marz and Samira Maghool
			CDH_SHT_33 An Adaptable LSTM Network Predicting COVID-19 Occur Using Time Series Data Anthony Li and Nikhil Yadav
			CDH_SHT_34 A Novel Pre-processing Method for Classification Proble Medical Intelligent Tasks* Haochen Jiang, Ziqi Wei and Jun Chen
Tues 9/7	18:50 - 19:30 pm UTC	Sheikh Iqbal Ahamed Marquette University	Wendy Nilson, National Science Foundation The Future of Smart Health in the Wake of a Pandemic
	CHD 8		
	Distinguished Talk		
Tues 9/7	19:30 - 20:10 pm UTC	Sheikh Iqbal Ahamed Marquette University	Sheikh Iqbal Ahamed, Marquette University Wendy Nilson, NSF Kathy Chang, The University of New Mexico Ajay Royyuru, IBM Santosh Kumar, The University of Memphis
	Panel Discussion The Future of Digital Health: Vision & Challenges		
Tues 9/7	20:20 - 21:40 pm UTC	Maria Valero Kennesaw State University	CDH_SHT_42 Finding Similar Tweets in Health Related Topics Danny Villanueva and Manuel Rodriguez

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ICDH 2021 ABOUT TECHNICAL PROGRAM SPEAKERS **PyDPLib: Python Differential Privacy Library for Private** PUBLISHERS STUDENT GRANTS & AWARDS CALL FOR PAPERS

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#### CDH\_SHT\_55

##### Medical Data Analytics

Sana Imtiaz, Philipp Matthies, Francisco Pinto, Máté Ma  
Holger Wenz, Ramin Sadre and Vladimir Vlassov

#### CDH\_SHT\_62

##### COVID-19 Mortality Prediction Using Machine Learning Techniques

Lindsay Schirato, Kennedy Makina, Dwayne Flanders,  
Seyedamin Pouriyeh and Hossain Shahriar

#### CDH\_SHT\_68

##### A decision support system for rehabilitation

Mauro Maria Baldi, Bruno Giovanni Galuzzi, Fabrizia  
Mantovani, Petar Aleksandov Mavrodiev, Enza Messina  
Olivia Realdon

Wed 9/8	1:00 - 2:20 am UTC	Shahrear Iqbal	CDH_WIP_17
	CDH 10	National	A Software Simulator for Optimizing Ambulance Locatio
	Work-in-Progress	Research	Response Time: A Preliminary Report
		Council,	David La Barbera, Kevin Roitero, Stefano Mizzaro, Vince
		Canada	Della Mea and Francesca Valent
			CDH_WIP_18
			A Framework for Secure Logging in Precision Healthcare
			Cloud-based Services
			Shahrear Iqbal, Parisa Moghaddam and Issa Traore
			CDH_WIP_32
			A Wireless Single Lead ECG Module for Cloud-Computin
			Based Postoperative Monitoring of Cardiac Surgical Pat
			Ravi Durbha and Valencia Koomson
			CDH_WIP_43
			Deep Learning-based Prediction of Cognitive Function L
			Basic Blood Test Data and NIRS-measured Cerebral
			Hemodynamics
			Katsunori Oyama and Kaoru Sakatani

Wed 9/8	2:30 - 3:50 am UTC	Li-Shan Chou Iowa State University	Panel Discussion: Advances in Biomedical Sciences & Engineering for Digital Healthcare  Panelists: Fong-Chin Su, National Cheng Kung University Tishya Wren, Children's Hospital Los Angeles; University Southern California Rick Greenwald, Simbex; iWalk; National Institute for Sp Science & Safety; Dartmouth College Joe Bonner, NIH Yoshiyuki Kobayashi, National Institute of Advanced Ind Science & Technology
Wed 9/8	4:10 - 5:30 am UTC	Lin Liu Tsinghua University	CDH_WIP_52 An ABAC Break-Glass to access medical records in case emergency based on Blockchain Yoshiyuki Kobayashi, Richard Greenwald
			CDH_WIP_56 A Machine Learning Approach to Predict Length of Stay Opioid Overdose Admitted Patients Jiawei Wu, Priyanka Annapureddy, Zach Farahany and P Madiraju
			CDH_WIP_57 A Portable Microfluidic Immuno-biochip Platform for Or Cancer Biomarker Detection Hua En Chueh
			CDH_WIP_70 Non-Invasive Monitoring of Human Hygiene using Vibra Sensor and Classifiers Shashank Trivedi, Maria Valero, Hossain Shahriar and Li Zhao
			CDH_WIP_71 Framework for Collecting Data from specialized IoT dev An application to enhance Healthcare Systems Md Saiful Islam, Shahriar Sobhan, Maria Valero, Hossair Shahriar, Liang Zhao and Sheikh Iqbal Ahamed

Wed 9/8	5:40 - 7:00 am UTC	William Chu Tungshai University	CDH_INV_1 An Investigation of Containment Measure Implementation Public Responses to the COVID-19 Pandemic in Mainland China Ji Liu, Haoyi Xiong, Xiakai Wang, Jizhou Huang, Qiaojun Li, Tongtong Huang, Siyu Huang, Haifeng Wang and Dejing
	CDH 13 Invited Papers		CDH_INV_4 Intelligent Health Information Services Requirements Revisited from an Actor Perspective Zhangqiang Cao and Jianmin Wang
			CDH_INV_29 Enabling Tiered and Coordinated Services in a Health Community of Primary Care Facilities and County Hospitals Based on HL7 FHIR Jingwen Nan, Li-Qun Xu, Qingsong Wang, Changyu Bu, Ji Ma and Feng Qiao
Wed 9/8	16:30 - 17:50 pm UTC	Sheikh Iqbal Ahamed Marquette University	Dana Wolff-Hughes Leveraging Digital Technologies for Population Surveillance Opportunities And Challenges
	CDH 14  Distinguished Talk		
Wed 9/8	19:40 - 21:00 pm UTC	Farhana Zulkernine Queen's University	CDH_INV_38 Knowledge Graph Building from Real-world Multi-source "Dirty" Clinical Electronic Medical Records for Intelligent Consultation Applications Xinlong Liu and Li-Qun Xu
	CDH 15 Invited Papers		CDH_INV_58 Clinical de-identification using sub-document analysis and ELECTRA Rosario Catelli, Francesco Gargiulo, Emanuele Damiano, Massimo Esposito and Giuseppe De Pietro

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## CDH\_INV\_66

## Which Usability Assessment for Digital Therapeutics and Patient Support Programs?

Mario Bochicchio, Lucia Vaira, Andrea Mortara and Renzo Maria

Thu 9/9	1:00 - 2:20 am UTC  CDH 16  Panel Discussion Education for Digital Health	Lin Liu Tsinghua University	Sheikh Iqbal Ahamed, Marquette University Carl Chang, Iowa State University Giuseppe De Pietro, CNR Benjamin Kwan, Queen's University Sweta Sneha, Kennesaw State University
Thu 9/9	2:30 - 3:50 am UTC  CDH 17 Invited Papers Session 3	Hossain Shahriar Kennesaw State University	CDH_INV_67 Analyzing Security and Privacy Concerns of Contact Tracing Applications Lorna Migiro, Hossain Shahriar and Sweta Sneha
			CDH_INV_72 A Statistical Summary Analysis of Window-Based Extracted Features for EEG Signal Classification Mohammad Masum, Hossain Shahriar, Hisham Haddad Wenzhan Song
			CDH_INV_73 Towards Blockchain-based Secure Data Management for Remote Patient Monitoring Jobair Hossain, Hossain Shahriar, Maria Valero, Sweta Sneha, Sheikh Ahamed and Mohammad Rahman
Thu 9/9	18:10 - 19:20 pm UTC  CDH 18 Invited Papers Session 4	Li-Shan Chou Iowa State University	CDH_INV_74 A Novel Telemedicine System to Traditional Tongue Examination for Chinese Medical Applications Lisa Li-Chuan Chen, Shen-Kai Wang, Tse-Yu Lin, Ling-Feng Huang, Men-Tzung Lo and Chien-Chang Chen
			CDH_INV_75 Use of Musculoskeletal Modeling to Examine Lower Limb Muscle Contribution to Gait Balance Control: Effects of Overweight Hyun Kyung Kim and Li-Shan Chou



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CDH\_INV\_76

Minimizing Epidemic Viral Total Exposure under the Drc  
and Aerosol Models  
Abdalaziz Sawwan and Jie Wu

Thu 9/9	19:40 - 21:00 pm UTC  CDH 19  Panel Discussion How 2020 Changed the Future of Digital Health	Rajesh Subramanyan Amazon	Panelists Khan Siddiqui, Hyperfine Ashutosh Banerjee, GE Healthcare Rhonda Rhyne, Prevencio, Inc Srinivasan Krishnan, Greenway Health Hiroki Takakura, Nagoya University
Fri 9/10	1:00 - 2:20 am UTC  CDH 20  Panel Discussion Digital Health Priorities	Zeno Franco Medical College of Wisconsin	Panelists Maria Valero, Kennesaw State University Hyunkyung Oh, University of Wisconsin-Milwaukee Farhana Zulkernine, Queen's University
Fri 9/10	2:30 - 3:50 am UTC  CDH 21  Distinguished Talks	Lin Liu Tsinghua University	WiFi-based Contactless Human Sensing: Theory and Healthcare Applications Daqing Zhang, Peking University  From Personalized Medicine to Population Health: an m Sensing Approach Haoyi Xiong, Big Data Laboratory, Baidu Research

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