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Leonard Barolli  
Editor

# Advances on Broad-Band Wireless Computing, Communication and Applications

Proceedings of the 16th International  
Conference on Broad-Band Wireless  
Computing, Communication and Applications  
(BWCCA-2021)

*Editor*

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and Communications Engineering  
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# **Welcome Message of BWCCA-2021 International Conference Organizers**

Welcome to the 16th International Conference on Broadband and Wireless Computing, Communication and Applications (BWCCA-2021), which will be held in conjunction with 3PGCIC-2021 International Conference from October 28 to October 30, 2021, at Fukuoka Institute of Technology, Fukuoka, Japan.

This international conference is a forum for sharing ideas and research work in the emerging areas of broadband and wireless computing. Information networks of today are going through a rapid evolution. Different kinds of networks with different characteristics are emerging, and they are integrating in heterogeneous networks. For these reasons, there are many interconnection problems which may occur at different levels of the hardware and software design of communicating entities and communication networks. These kinds of networks need to manage an increasing usage demand, provide support for a significant number of services, guarantee their QoS, and optimize the network resources.

The success of all-IP networking and wireless technology has changed the ways of living for the people around the world. The progress of electronic integration and wireless communications is going to pave the way to offer people the access to the wireless networks on the fly, based on which all electronic devices will be able to exchange the information with each other in ubiquitous way whenever necessary.

The aim of this conference is to present the innovative research and technologies as well as developments related to broadband networking, and mobile and wireless communications.

The organization of an international conference requires the support and help of many people. A lot of people have helped and worked hard to produce a successful BWCCA-2021 technical program and conference proceedings. First, we would like to thank all authors for submitting their papers, program committee members and reviewers who carried out the most difficult work by carefully evaluating the submitted papers.

We thank web administrators co-chairs and finance chair for their excellent work. We would like to express our gratitude to Prof. Makoto Takizawa, Hosei University, Japan, as Honorary Chair of BWCCA-2021 for his support and help. We give special thanks to keynote speakers of BWCCA-2021 and local arrangement team.

We hope you will enjoy the conference proceedings.

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# **BWCCA-2021 Keynote Talks**



# Developing Trustworthy Artificial Intelligences

Arjan Durrezi

Indiana University Purdue University in Indianapolis, Indiana, USA

**Abstract.** In this talk, we will discuss how to develop trustworthy artificial intelligence solutions. In particular, we will focus on designing and testing metrics for standardization and use of trustworthy artificial-based solutions. Our metrics use the human in the loop approach and employ our trust management system. We will provide examples of the use of our trustworthy acceptance and trustworthy explainability in the fields of artificial intelligence solutions, including natural source management and medical diagnosis.

# **Pandemic Prevention by Technology - The Contactless Healthcare via The IoT Platform**

Chuan-Yu Chang

National Yunlin University of Science and Technology (YunTech), Yunlin, Taiwan

**Abstract.** With the change in global population structure and increased frequency of epidemic and pandemic outbreaks, the application of digital technology is crucial to epidemic-prevention measures. In the COVID-19 outbreak, the number of confirmed cases has exceeded 166 million around the world, with the death toll reaching 3.46 million. Frontline medical personnel stick to their positions, face the COVID-19 and significant stress every day, and are also exposed to high-risk environments in the long term. In this talk, I will introduce the contactless healthcare devices we developed for all the frontline medical personnel. Industrial Technology Research Institute (ITRI) and Taipei Medical University Hospital (TMUH) jointly developed a contactless remote monitoring system: The Contactless Healthcare Connected IoT Platform. The IoT gateway is used to integrate many technologies, providing patients with contactless, round-the-clock, real-time monitoring of their vital signs to achieve the goal of “Contactless and Considerate”. Pandemic prevention by technology can reduce infection risks during patient care.

# Contents

<b>A Comparison Study of Chi-square and Uniform Distributions of Mesh Clients by WMN-PSODGA Simulation System for RIWM and LDIWM Router Replacement Methods</b> . . . . .	1
Admir Barolli, Kevin Bylykbashi, Ermioni Qafzezi, Shinji Sakamoto, and Leonard Barolli	
<b>Performance Evaluation of WMNs by WMN-PSOHC Hybrid Simulation System Considering Different Number of Mesh Routers and Chi-Square Distribution of Mesh Clients</b> . . . . .	14
Shinji Sakamoto, Yi Liu, Leonard Barolli, and Shusuke Okamoto	
<b>An Energy-Efficient Algorithm to Make Virtual Machines Migrate in a Server Cluster</b> . . . . .	25
Dilawaer Duolikun, Tomoya Enokido, Leonard Barolli, and Makoto Takizawa	
<b>Evaluation of Focused Beam Routing Protocol for Different Applications of Underwater Sensor Networks</b> . . . . .	37
Elis Kulla, Keita Matsuo, and Leonard Barolli	
<b>Performance Evaluation of V2X Communication for Road State Information Platform Based on 5G and HighSpeed LAN</b> . . . . .	46
Yoshitaka Shibata and Akira Sakuraba	
<b>An Energy-Efficient Process Replication by Differentiating Starting Time of Process Replicas in Virtual Machine Environments</b> . . . . .	57
Tomoya Enokido, Dilawaer Duolikun, and Makoto Takizawa	
<b>Traffic Reduction for Information Flow Control in the IoT</b> . . . . .	67
Shigenari Nakamura, Tomoya Enokido, and Makoto Takizawa	

<b>A Simulation System for Mesh Router Placement in WMNs Considering Coverage Construction Method and Simulated Annealing</b> . . . . .	78
Aoto Hirata, Tetsuya Oda, Nobuki Saito, Tomoya Yasunaga, Kengo Katayama, and Leonard Barolli	
<b>On the Latency of Nomadic Lévy Walk Based Message Ferry Routing in Delay Tolerant Networks</b> . . . . .	88
Koichiro Sugihara and Naohiro Hayashibara	
<b>A Machine Learning Based Network Intrusion Detection System with Applying Different Algorithm in Multiple Stages</b> . . . . .	100
Seiichi Sasa, Hiroyuki Suzuki, and Akio Koyama	
<b>In-vehicle Network IDS Using Message Time Interval Infrastructure</b> . . . . .	111
Chanmin Kim, Insu Oh, Yeji Koh, Myungsu Kim, and Kangbin Yim	
<b>A Fuzzy-Based System for Assessment of Quality of Service Communication Links in SDN-VANETs</b> . . . . .	120
Ermioni Qafzezi, Kevin Bylykbashi, Phudit Ampririt, Makoto Ikeda, Keita Matsuo, and Leonard Barolli	
<b>Malware Classification Based on Graph Neural Network Using Control Flow Graph</b> . . . . .	129
Rongze Xia and Baojiang Cui	
<b>Hand Gesture Input Interface of <i>IntelligentBox</i> Using Leap Motion Controller and Its Application Example</b> . . . . .	139
Takumi Takeshita, Kosuke Kaneko, and Yoshihiro Okada	
<b>Toward Automated Audit of Client-Side Vulnerability Against Cross-Site Scripting</b> . . . . .	148
Mamoru Mimura and Takumi Yamasaki	
<b>Single Sign-On Using Contactless Smart Cards and Fingerprint Authentication</b> . . . . .	158
Sriram Bobba and Vamsi Paruchuri	
<b>Blockchain-Based Identity Management for Personal Data: A Survey</b> . . . . .	167
Mekhled Alharbi and Farookh Khadeer Hussain	
<b>Effects of Buffer Management Considering Time Continuity on Disaster Information on DTN Based Information Sharing System</b> . . . . .	179
Tetsuya Shigeyasu and Shogo Utahara	
<b>Fusion Techniques for Strong Data Protection</b> . . . . .	189
Urszula Ogiela, Makoto Takizawa, and Lidia Ogiela	

**Predictive Intelligence Approaches for Security Technologies** . . . . . 193  
 Urszula Ogiela and Marek R. Ogiela

**Project Management Mechanism Based on Burndown Chart to Reduce the Risk of Software Project Failure** . . . . . 197  
 Sen-Tarnng Lai, Heru Susanto, and Fang-Yie Leu

**The Implementation of Dynamical Shortest Path and Resource Management for Network Slicing in 5G Networks** . . . . . 206  
 Pei-Hua Yu, Heru Susanto, Li-Xuan Liu, Shang-Jie Wu, and Fang-Yie Leu

**Compare Encoder-Decoder, Encoder-Only, and Decoder-Only Architectures for Text Generation on Low-Resource Datasets** . . . . . 216  
 Pei-Xuan Cai, Yao-Chung Fan, and Fang-Yie Leu

**Efficient Execution of Malleable Applications in Desktop Grids Using Credit Damping** . . . . . 226  
 Lung-Bin Chen and Fang-Yie Leu

**An Adaptive Anti-packet Recovery Method for Vehicular DTN: Performance Evaluation Considering Shuttle Buses and Roadside Units Scenario** . . . . . 234  
 Masaya Azuma, Shota Uchimura, Yoshiki Tada, Makoto Ikeda, and Leonard Barolli

**Proposal of Vehicular Real-Time Sensing Method for Amount of Snow Accumulation on the Road** . . . . . 242  
 Akira Sakuraba, Yoshitaka Shibata, and Mamoru Ohara

**Numerical Analysis of Electromagnetic Wave Propagation in Photonic Crystal Waveguide with Stubs for Wavelength Filtering** . . . . . 251  
 Hiroshi Maeda

**Evaluating the Impact of Node Density and Area Shape in Underwater Wireless Sensor Networks** . . . . . 260  
 Elis Kulla, Kuya Shintani, and Keita Matsuo

**Improving Peer Reliability in P2P Networks: Implementation of an Integrated Simulation System Considering Fuzzy Logic and NS-3** . . . . . 268  
 Yi Liu, Shinji Sakamoto, and Leonard Barolli

**Vulnerability Analysis of a Secure USB Memory: Based on a Commercial Product D** . . . . . 279  
 Wontae Jung, Kangbin Yim, and Kyungroul Lee

**SPEC: Frame Filtering for CAN Protocol on ECU** . . . . . 284  
 Munkhdelgerekh Batzorig, Insu Oh, Chanmin Kim, Yeji Koh, and Kangbin Yim

**A Concept of IDS for CAN Protocol Based on Statics Theory . . . . . 294**  
Md Rezanur Islam, Insu Oh, Munkhdelgerekh Batzorig, Seoyeon Kim,  
and Kangbin Yim

**Design and Implementation of a Control Interface for Indoor Position  
Detection of Moving Omnidirectional Access Point Robot Using Super  
Sonic Signals . . . . . 303**  
Kenshiro Mitsugi, Atushi Toyama, Keita Matsuo, Elis Kulla,  
and Leonard Barolli

**An Intelligent Fallen Object Detection System for Safe Driving . . . . . 315**  
Shota Uchimura, Yoshiki Tada, Makoto Ikeda, and Leonard Barolli

**A Simulation System for Optimal Positions of MOAP Robots Using  
Elbow and Silhouette Theories: Simulation Results Considering  
Minimum Transmission Power of MOAP Robots . . . . . 321**  
Keita Matsuo, Kenshiro Mitsugi, Atushi Toyama, Elis Kulla,  
and Leonard Barolli

**Proposal of Indoor Navigation System Using Mixed Reality  
Technology . . . . . 333**  
Takahiro Uchiya, Yudai Furuta, and Ichi Takumi

**Author Index . . . . . 341**