



# IEEE IDAACS-SWS 2020 PROGRAMME

5th IEEE International Symposium on Smart and Wireless Systems



Fachhochschule  
Dortmund

University of Applied Sciences and Arts

FFH Fördergesellschaft  
Fachhochschule Dortmund e.V.



# TIME DIFFERENCE

The conference time corresponds with the CEST (Central European Summer Time), where German Time is the reference point.

TIME ZONE	COUNTRY	TIME DIFFERENCE (in relation to Germany)
GERMANY (CEST)		0
DPRA STANDARD TIME	ALGERIA	
WEST (WESTERN EUROPEAN SUMMER TIME)	MOROCCO	-1
UTC +1 ( BRITISH SUMMER TIME)	UNITED KINGDOM	
CEST ( CENTRAL EUROPEAN SUMMER TIME)	CZECHIA FRANCE POLAND SWEDEN SWITZERLAND	0
EST (EGYPT STANDARD TIME)	EGYPT	
EEST (EASTERN EUROPEAN SUMMER TIME)	BULGARIA GREECE UKRAINE	1
MSK (MOSCOW STANDART TIME)	RUSSIA	
TRT (TURKEY TIME)	TURKEY	
GET (GEORGIAN STANDARD TIME)	GEORGIA	2
PKT ( PAKISTAN STANDARD TIME)	PAKISTAN	3
ALMT (ALMA-ATA TIME)	KAZAKHSTAN	4
CST ( CHINA STANDARD TIME)	CHINA	6
MYT ( MALAYSIA TIME)	MALAYSIA	

# IEEE IDAACS-SWS 2020 PROGRAMME

## 17-18.09.2020



## THURSDAY, 17.09.2020

09:30 - 10:00 OPENING & INTRODUCTION

10:00 - 10:30 **KEYNOTE SPEECH:**  
„How Blockchain and Artificial Intelligence Will Shape the Future Internet Evolution Beyond 5G?“  
Taras Maksymyuk

10:30–10:45 COFFEE BREAK

**10:45–12:15 SESSION ON „SMART WIRELESS SYSTEMS“**  
(Chair: Anatoliy Sachenko)

Session keynote: “Heatmaps for Catering Establishments’ Web-Applications Available via MAS-Improved Wireless Networks”  
by Ivan Burlachenko, Iryna Zhuravska, Kateryna Obukhova, Volodymyr Savinov, Anzhela Boiko Q&A

(19)“Accuracy Improvements of Identification and Authentication of Devices by EM-Measurements”  
by Axel Sikora, Elena Nyemkova, Yuriy Lakh

(32)“Adaptation of Smart House System for People with Special Needs Based on Wireless Technologies”  
by Artem Tulenkov, Yevhenii Yaremchenko, Anzhelika Parkhomenko, Yaroslav Zalyubovskiy, Andriy Parkhomenko, Marina Kalinina

(49)“A Scenario for a Multi-UAV Mapping and Surveillance System in Emergency Response Applications”  
by Merlin Stampa, Andreas Sutorma, Uwe Jahn, Felix Willich, Sylvia Pratzler-Wanczura, Jörg Thiem, Christof Röhrig and Carsten Wolff

Q&A Session

**10:45–11:30 POSTERS DISCUSSION SESSION**

**ROOM 1:**  
(26)“An Optimization Algorithm for the Same Primary and Backup Routing of Label Switching Path Based on KSP in PTN”  
by Zaoning Wang, Ming Wei, Xing Li, Chunzhi Wang

(89)“An Improved K-means Clustering Algorithm”  
by Hui Xu, Shunyu Yao, Qianyun Li, Zhiwei Ye

(90)“Method of Reliable Data Storage Based on Redundant Residue Number System”  
by Vasyl Yatskiv, Serhii Kulyna, Pavlo Bykovyy, Taras Maksymyuk, Anatoliy Sachenko

**ROOM 2:**  
(72)“An Approach for Managing Availability in Software Defined Network Infrastructure”  
by Yuri Monakhov, Anna Kuznetsova, Denis Mamaev

(3)“Applying Extension Semantic Web to Event Representation for Software-Defined Networking”  
by Hui Xu, Hongwei Chen, Wei Liu, Qianyun Li

**ROOM 3:**  
(74)“The Influence of Antenna Installation Accuracy on Quality of Signal Reception”  
by Mykhaylo Palamar, Andriy Chaikovskiy, Myroslava Yavorska, Vira Pasternak, Serhiy Shevchuk

(50)“Adaptive Radar-System Configuration Tuning”  
by Andrii Cheredarchuk, Galyna Kriukova, Andrii Malenko, Maksym Sarana, Oleksandr Sudakov, Sergii Vodopyan, Yevhenii Volynets

**ROOM 4:**  
(59)“Evaluation of Information Security Software Using Quality and Reliability Criteria”  
by Mikolaj Karpinski, Ruslana Ziubina, Azamat Azatov, Aigul Shaikhanova, Valentyna Teliushchenko, Pawel Falat

(56)“Normalization Techniques Comparison for QoS-based Web Services Selection by LSP Method”  
by Ravil Kudermetov, Olga Polska, Vadym Shkaruplyo, Natalia Shcherbak

**VIDEO DISCUSSION SESSION**

**ROOM 1:**  
(11)“Secure Information- and Energy-efficient Wireless Networks with Packet Transmission Creation”  
by Bohdan Shevchuk, Orest Ivakhiv, Yuriy Brayko, Mykhaylo Geraimchuk

(63)“Method of Generating Random Numbers by the Group of Quantum Generators of Random Numbers in the Synchronization Mode”  
by Oleksii Nariezhnii, Daniel Jancarczyk, Ivan Gorbenko, Tetiana Grinenko, Vasyl Martsenyuk

(79)“A secure algorithm for Random Linear Network Coding”  
by Mohamed Amine Brahimi, Fatima Merazka

**ROOM 2:**  
(85)“QoS-Aware Score-Based Edge Resource Allocation Model”  
by Aly Sakr, Seenu Mohiyadeen, Bheeshmaraya Vruksharaj, Rolf Schuster

12:15 - 13:15 COFFEE BREAK

**13:15 - 14:45 SESSION ON „WIRELESS TECHNOLOGIES & ARCHITECTURES“**  
(Chair: Orest Ivakhiv)

Session keynote: “ Design Approach of Wideband Steerable Antenna Array Fed by Optimized 4x4 Butler Matrix”  
by Nadia Chater, Tomader Mazri, Mohamed Benbrahim Q&A

(36)“Subtask Prioritization on Workflow Execution in Distributed Wireless Computer System with Network-Centric Approach to Resource Control”  
by Vadym Mukhin, Yaroslav Kornaga, Mikhail Tkach, Oksana Herasymenko, Yuri Bazaka, Oleg Mukhin

(68)“Improving the Accuracy for Radio-Based Positioning in Mines Using SLAM”  
by Dmitry Larionov, Oleg Lukashenko, Alex Moschevikin, Roman Voronov, Axel Sikora

(83)“NCC Wireless Networks: Reed-Solomon Channel Coding and Outage Probability”  
by Elias Benamira, Fatima Merazka, Günes Karabulut Kurt

Q&A Session

**13:15 - 14:30 POSTERS DISCUSSION SESSION**

**ROOM 1:**  
(5)“Clustering Analysis for Big Data in Network Security Domain Using a Spark-Based Method”  
by Hui Xu, Wei Zhang, Man Gao, Hongwei Chen

(20)“Detecting Low-Level Attacks on Wireless OT Networks”  
by Dr. Daniel Mahrenholz, Dr. Georg Lukas, Julius Paffrath, Prof. Dr. Kai-Oliver Detken

(61)“Development of Intrusion Monitoring System in Wireless Sensor Networks Based on Neural Networks”  
by Olexander Belej, Mikolaj Karpinski, Aigul Shaikhanova, Olga Veselska, Azamat Azatov

**ROOM 2:**  
(6)“The Phase-Frequency Response Influence on the Tunable Frequency-Dependent Component Coefficients”  
by Hanna Ukhina, Ivan Afanasyev, Valerii Sytnikov, Oleg Streltsov, Pavel Stupen

(25)“Image Classification Based on Principal Component Analysis Optimized Generative Adversarial Networks”  
by Wang Chunzhi, Pan Wu, Fu Jiarun, Yan Zhou, Hu Jiwei, Yan Lingyu

(58)“Two-Operand Operations of Strict Stable Cryptographic Coding with Different Operands’ Bits”  
by Daniel Jancarczyk, Volodymyr Rudnytskyi, Roksolana Breus, Mykhailo Pustovit, Olga Veselska, Ruslana Ziubina

**ROOM 3:**  
(17)“Distance Monitoring System with ESP8266 for Industrial Automation Machines”  
by Ia Mosashvili, Salome Oniani

(87)“Remote Monitoring of Electrical Equipment for Smart House System Safe Exploitation”  
by Arseniy Arhipov, Artem Tulenkov, Anzhelika Parkhomenko, Yaroslav Zalyubovskiy, Andriy Parkhomenko

**ROOM 4:**  
(43)“WSN IoT Ambient Environmental Monitoring System”  
by Oscar Bautista Gonzalez, José Chilo

(52)“Automatic Anomaly Detection Methodology for Crop Classification Data Using Morphological Features”  
by Leonid Shumilo

**VIDEO DISCUSSION SESSION**

**ROOM 1:**  
(57)“Remote Sensing Approaches for Deforestation Identification in Ukraine”  
by Leonid Shumilo, Bohdan Yailymov, Mykola Lavreniuk, Yuliia Bilokonska

(64)“Losses Assessment for Winter Crops Based on Satellite Data and Fuzzy Logic”  
by Yuliia Bilokonska, Hanna Yailymova, Bohdan Yailymov, Andrii Shelestov, Leonid Shumilo, Mykola Lavreniuk

**ROOM 2:**  
(53)“Low Light Energy Autonomous LoRaWAN Node”  
by Marcel Meli, Manuel Brüttsch, Stefan Stajic, Manuel Böbel, David Lorenz, Lukas Hegetschweiler, Dimitris Karanassos, Charalampos Kouzinopoulos

(81)“HRPL Protocol for 6LoWPAN Smart Home System: a Performance Assessment Analysis”  
by Nin Hayati Mohd Yusoff, Nurul Azma Zakaria, Axel Sikora, Jubin Sebastian E.

**ROOM 3:**  
(69)“Development of Methods for Improving Cryptographic Transformations in the Block-Symmetric Code”  
by Roman Kochan, Serhii Yevseiev, Roman Korolyov, Stanislav Milevskiy, Imad Ireifidzh, Tomasz Gancarczyk, Rafal Szklarczyk

(78)“An improved XGBoost Model based on Spark for Credit card fraud prediction”  
by Hongwei Chen, He Ai, Zhihui Yang, Weiwei Yang, Zhiwei Ye, Dawei Dong

14:45 - 15:00 COFFEE BREAK

**15:00 - 16:15 SESSION ON SESSION ON „ADVANCED IOT APPLICATIONS AND SERVICES“**  
(Chair: Galyna Tabunshchuk)

Session keynote: “ RETIS – Real-Time Sensitive Wireless Communication Solution for Industrial Control Applications”  
by Roman Čečil, Vlastimil Šetka, David Tolar, Axel Sikora Q&A

(30)“Using a COTS Smartphone to Control an Autonomous Self-Driving Platform”  
by Philipp Köhler, Niklas Röske, Steffen Schmelter, Claus Fühner

(45)“Performance Effective Task Scheduling with Duplication - PETS”  
by Shankar Lokeshwara, Naveen Chengappa Chandura Poovaiah, Shambhavi Kolte, Lukas Krawczyk

Q&A Session

16:15 - 16:45 ROUNDTABLE DISCUSSION: FINALISING FIRST DAY

# IEEE IDAACS-SWS 2020 PROGRAMME

## 17-18.09.2020



## FRIDAY, 18.09.2020

### 09:30 - 10:15 KEYNOTE SPEECH:

“Intelligent anomaly detection with SIEM systems in information technology (IT) and operational technology (OT) environments”  
Kai-Oliver Detken

### 10:15 - 10:30 COFFEE BREAK

### 10:30 - 12:00 SESSION ON „WIRELESS RADIO TECHNOLOGIES“

(Chair: Axel Sikora)

#### Session keynote: “Configuration of Wireless TSN Networks”

by Kofi Atta Nsiah, Kamil Alkhoury, Axel Sikora  
Q&A

#### (29)“Low Power LoRaWAN node based on FRAM Microcontroller”

by Marcel Meli, Claudio Furter, Konstantinos Karakostas, Charalampos Kouzinopoulos, Dimitrios Tzovaras

#### (47)“A Wideband Circularly Polarized Linear Parasitic Dielectric Resonators Antenna Array for 5G Applications”

by Shahid Khan, Mohsen Khalily, Anwar Ali, Haider Ali, Camel Tanougast

#### (60)“A Model for Representing Significant Segments of a Video Image Based on Locally Positional Coding on a Structural Basis”

by Vladimir Barannik, Daniel Jancarczyk, Yurii Babenko, Oleg Stepanko, Joanna Nikodem, Stanislaw Zawislak

Q&A Session

### 10:30–11:15 POSTERS DISCUSSION SESSION

#### ROOM 1:

##### (10)“Collaborative Business Model Structures for Wireless Ambient Assisted Living Systems”

by Jelena Bleja, Dominik Wiewelhove, Uwe Großmann, Elisabetta Mörz

##### (33)“Software System for Physical Activity Monitoring: Smart Watch Case”

by Yaroslav Krainyk, Yevhen Darnapuk, Irina Simakova

#### ROOM 2:

##### (9)“Algebraic Modelling of Logistical Systems Equipped by Wireless Monitoring Devices”

by Oleksandr Letychevskyi, Serhii Horbatiuk, Viktor Horbatiuk

##### (24)“Secure Wireless Architecture for Communications in a Parcel Delivery System”

by Saeed Abdolnizhad, Manuel Schappacher, Axel Sikora

#### ROOM 3:

##### (8)“Interference Investigation of Wireless ISM Band Devices in Rescue Helicopters”

by Janusz Wituski, Guido Dietl

##### (39)“802.11n QoS Support for Video Streaming in Wireless Networks”

by Jaime Burbano, Aly Sakr, Rolf Schuster

##### (44)“5G Networks Deployment and Service Modeling”

by Bohdan Shubyn, Andriy Luntovskyy, Taras Maksymyuk, Mykhailo Klymash

#### ROOM 4:

##### (42)“Improving the Productivity of Distributed Computer Systems Through the Use of Knowledge Engineering”

by Nataliia Kylukovska, Ravil Kudermetov

##### (88)“Integration of Information Models for Industrial Internet based on Extenics”

by Hui Xu, Qianyun Li, Jun Su, Lingyu Yan

### VIDEO DISCUSSION SESSION

#### ROOM 1:

##### (71)“Multispectral Control of Ecotoxicity of Waters Using Duckweed (Lemna Minor)”

by Roman Kochan, Volodymyr Pohrebennyk, Serhii Kvaterniuk, Roman Petruk, Olena Kvaterniuk, Marcin Bernas, Rafal Szklarczyk, Ruslana Ziubina

##### (22)“Container Filling Level Estimation using Vibration Resonance Behavior”

by Steffen Schmelter, Claus Fühner, Christof Röhrig

#### ROOM 2:

##### (27)“Embedded Models Realization Platform in IoT”

by Oleksandr Khropaty, Oleh Lohinov, Volodymyr Kazymyr

##### (35)“Cost-Effective Indoor Positioning Using IoT Solutions”

by Galina Shilo, Denys Romaniuk, Andrii Pysarskyi, Anastasiia Lebedieva-Dychko

#### ROOM 3:

##### (23)“Timing Analysis of Car-to-Car Communication Systems Using Real-Time Calculus: A Case Study”

by Mahmoud Bazzal, Lukas Krawczyk, Ram Prasath Govindarajan, Carsten Wolff

##### (37)“Investigation of Hybrid Beamforming in mmWave Massive MIMO systems”

by Dimitriya Mihaylova, Zlatka Valkova-Jarvis, Vladimir Poulkov, Viktor Stoynov, Georgi Iliev

### 12:00 - 12:20 COFFEE BREAK

### 12:20 - 12:30 INTRODUCTION OF IEEE IDAACS-SWS 2022

### 12:30 - 13:00 ROUND TABLE (BEST PAPER AWARD) & CLOSING CEREMONY