



CISIM 2021

20th International Conference on Computer Information Systems and Industrial Management Applications

Elk, September 24-26, 2021

ORGANIZED BY

Faculty of Computer Science
Białystok University of Technology
Wiejska 45A, 15-351 Białystok, POLAND

cisim2021.wi.pb.edu.pl



BUT

BIALYSTOK UNIVERSITY OF TECHNOLOGY

in cooperation with:

- Warsaw University of Technology, Poland
- University of Calcutta, India
- Ca' Foscari University, Italy
- Institute of Computer Science, Systems Research Institute,
(Polish Academy of Sciences, Poland)
- Gachon University, South Korea
- Universidad de la Costa, Colombia
- PTSK, Polish Society for Computer Simulation, Poland
- Tokyo Metropolitan University, Japan
- Fukuoka Institute of Technology, Japan.

TECHNICALLY SUPPORTED BY

- Lecture Notes in Computer Science, Springer

CONFERENCE PATRON

Marta Kosior-Kazberuk, *Rector, BUT, Poland*

GENERAL CHAIR

Khalid Saeed, *BUT, Poland*

CONFERENCE CO-CHAIRS

Marek Krętownski, *BUT, Poland*
Rituparna Chaki, *University of Calcutta, India*
Katherinne Salas, *Universidad de la Costa, Colombia*

ADVISORY COMMITTEE

Nabendu Chaki, *University of Calcutta, India*
Young-Im Cho, *South Korea*
Agostino Cortesi, *Universita Ca'Foscari, Italy*
Emiro de la Hoz Franco, *Universidad de la Costa, Colombia*
Nobuyuki Nishiuchi, *Tokyo Metropolitan University, Japan*
Sławomir Wierchoń, *ICS PAS, Poland*

INTERNATIONAL ORGANIZING COMMITTEE

Zenon Sosnowski, *BUT, Poland, chair*
Tito Jose Crissien Borrero, *Universidad de la Costa, Colombia*
Jiří Dvorský, *VŠB, Czech Republic*
Pavel Moravec, *VŠB, Czech Republic*
Dionicio Neira, *Universidad de la Costa, Colombia*

LOCAL ORGANIZING COMMITTEE

Maciej Szymkowski, *BUT-Poland, chair*
Marcin Adamski, *BUT-Poland*
Miguel Jimenes, *CUS-Colombia*
Kitti Koonsanit, *TMU-Japan*
Miroslaw Omieljanowicz, *BUT-Poland*
Grzegorz Rubín, *LSUAS-Poland*
Mariusz Rybnik, *UoB-Poland*
Aleksander Sawicki, *BUT-Poland*

KEYNOTE SPEAKERS

Alessandra De Benedictis, *Univ. of Naples Federico II, Italy*
Witold Pedrycz, *University of Alberta, Canada*
Roy Maxion, *Carnegie Mellon University, USA*

INTERNATIONAL PROGRAM COMMITTEE

Waleed Abdulla, *University of Auckland, New Zealand*
Raid Al-Tahir, *Univ of the West Indies, Tr. and Tobago*
Adrian Atanasiu, *Bucharest University, Romania*
Aditya Bagchi, *Indian Statistical Institute, India*

Valentina Emilia Balas, *University of Arad, Romania*
Anna Bartkowiak, *Wrocław University, Poland*
Daniela Borissova, *Bulgarian Academy of Sciences*
Rahma Boucetta, *National Engg School of Gabes, Tunisia*
Nabendu Chaki, *University of Calcutta, India*
Rituparna Chaki, *University of Calcutta, India*
Young-Im Cho, *Gachon University, South Korea*
Melissa Acosta Coll, *Universidad de la Costa, Colombia*
Agostino Cortesi, *Ca' Foscari University of Venice, Italy*
Dipankar Dasgupta, *University of Memphis, USA*
Pierpaolo Degano, *University of Pisa, Italy*
Ana Torregroza Espinoza, *Universidad de la Costa, Colombia*
Riccardo Focardi, *Ca' Foscari University of Venice, Italy*
Marina Gavrilova, *University of Calgary, Canada*
Jan Devos, *Ghent University, Belgium*
Andrzej Dobrucki, *Wrocław Univ. of Technology, Poland*
Jiří Dvorský, *Technical Univ of Ostrava, Czech Republic*
David Dagan Feng, *University of Sydney, Australia*
Pietro Ferrara, *IBM T.J. Watson Research Center, U.S.A.*
Raju Halder, *Ca' Foscari University of Venice, Italy*
Christopher Harris, *State University of New York, USA*
Kauru Hirota, *Tokyo Institute of Technology, Japan*
Khalide Jbilou, *Université du Littoral Côte d'Opale, France*
Ryszard Kozera, *The Univ of Western Australia, Australia*
Tomáš Kozubek, *Technical Univ of Ostrava, Czech Republic*
Marek Lampart, *Technical Univ of Ostrava, Czech Republic*
Christoph Lange, *Fraunhofer, Germany*
Jens Lehmann, *University of Bonn, Germany*
Flaminia Luccio, *Ca' Foscari University of Venice, Italy*
Pavel Moravec, *Technical Univ of Ostrava, Czech Republic*
Romuald Mosdorf, *Technical University of Białystok, Poland*
Debajyoti Mukhopadhyay, *Maharashtra Inst. of Tech, India*
Yuko Murayama, *Iwate University, Japan*
Nobuyuki Nishiuchi, *Tokyo Metropolitan University, Japan*
Tadeusz Nowicki, *Military University of Technology, Poland*
Andrzej Pacut, *Technical University of Warsaw, Poland*
Jerzy Pejaś, *WPUT in Szczecin, Poland*
Marco Pistoia, *IBM Watson Research Center, USA*
Igor Podolak, *Jagiellonian University, Kraków, Poland*
Jaroslav Pokorný, *Charles University, Czech Republic*
Piotr Porwik, *University of Silesia, Poland*
Jan Preis-Heje, *Ghent University, Netherlands*
S P Raja, *Vel Tech University, Chennai, India*
Isabel Ramos, *University of Minho, Portugal*
Kenneth Regan, *University at Buffalo, USA*
Khalid Saeed, *Białystok University of Technology, Poland, chair*

Anirban Sarkar, NIT, Durgapore
Ewa Skubalska-Rafajłowicz, Wrocław Univ of Tech, Poland
Kateřina Slaninová, Tech. Univ of Ostrava, Czech Republic
Krzysztof Ślot, Lodz University of Technology, Poland
Václav Snášel, Technical Univ of Ostrava, Czech Republic
Zenon Sosnowski, Białystok Univ of Tech, Poland
Jarosław Stepaniuk, Białystok Univ of Tech, Poland
Marcin Szpyrka, AGH Univ. of Sc and Tech, Kraków, Poland
Jacek Tabor, Jagiellonian University, Kraków, Poland
Pavel Tuček, Palacký Univ., Czech Republic
Andrea Torsello, Ca' Foscari University of Venice, Italy
Nitin Upadhyay, BITS Pilani, India
Qiang Wei, Tsinghua University, Beijing, China
Sławomir Wierzchoń, Polish Academy of Sc, Warsaw, Poland
Michał Woźniak, Wrocław University of Technology, Poland
Sławomir Zadrozny, Polish Academy of Sciences, Poland

PURPOSE OF CONFERENCE

This conference aims to bring many important research streams together. Computer Information Systems and their applications in Image Analysis and Processing, Biometrics in both behavioral and physiological categories comprise researches in Information Processing Systems and Human Identification and Recognition Techniques. Therefore, researchers are encouraged to submit their contributions in both theoretical and practical aspects of the following Topics.

TOPICS

- Biometrics and Security

Preprocessing Methods, Feature Extraction, Face Description and Identification, Retinal and Iris, Tongue, DNA and EEG Biometrics, Multi-modal Biometric Methods, Medical Analysis, Border Control, Biometric Cryptosystems, Fingerprints, Hand Palm and Hand Geometry, Speech and Speaker Verification and all other topics on Human Description, Classification, Identification and Recognition; Kansei Engineering, Affective Systems and Human Emotion Measuring Techniques

- Computer Information Systems

Signal & Image Analysis and Processing, Computer Graphics and Vision, Object Classification and Recognition, Artificial Intelligence, Ambient Intelligence, Ubiquitous Systems, Mobile and Pervasive Computing, Security, Mobile Ad-hoc and Sensor Network Service-oriented Framework and Middleware

- Classification and clustering with applications

Classification, Clustering, SVM, Neural gas, Bayesian Models, Neural Networks

- Geoinformation Science and Technologies

Geovisualization, Spatial Data Analysis, Geoapplication Development, Geoinformation Science and Technologies, Geocomputation

- Machine learning and High Performance Computing

Classification, Clustering, Deep Learning, SVM, Bayesian Models, Code Optimization, Large Scale Data Analysis, Cloud and Grid Computing

- Industrial Management and other Applications

Commerce, Engineering Economy and Cost Analysis, Engineering Education and Training, Global Manufacturing and Management, Human Factors, Information Processing and Engineering, Intelligent Systems, Manufacturing Systems, Operations Research, Production Planning and Control, Project Management, Quality Control and Management, Reliability and Maintenance Engineering, Safety, Security and Risk Management, Service Innovation and Management, Supply Chain Management, Systems Modeling and Simulation, Technology and Knowledge Management.

CONFERENCE VENUE

Elk lake, Poland (if on-site)

Białystok University of Technology (if on-line)

IMPORTANT DATES

Paper submission: February 28, 2021

Notification: April 18, 2021

Camera-ready & Registration: May 16, 2021

PREVIOUS CONFERENCES

CISIM 2020 Poland

<https://wi.pb.edu.pl/cisim2020/>

CISIM 2019 Serbia

<https://wi.pb.edu.pl/cisim2019/>

CISIM 2018 Czech Republic

<https://wi.pb.edu.pl/cisim2018/>

CISIM 2017 Poland

<https://wi.pb.edu.pl/cisim2017/>

CISIM 2016 Vilnius

<http://www.uwb.lt/cisim2016/>

CISIM 2015 Warsaw

<http://www.mini.pw.edu.pl/cisim2015/>

CISIM 2014 Viet Nam

<http://cisim2014.tdt.edu.vn>

CISIM 2013 Poland

<http://home.agh.edu.pl/~saeed/cisim2013/>

CISIM 2012 Italy

<http://www.dsi.unive.it/CISIM/>

CISIM 2011 India

<http://cisim.cucse.org/>

CISIM 2010 Poland

<http://home.agh.edu.pl/~saeed/cisim/>

CISIM 2009 India

<http://www.mirlabs.org/cisim09/>

CISIM 2008 Czech Republic

<http://arg.vsb.cz/cisim/>

CISIM 2007 Elk

<http://private.wsfiz.edu.pl/mosdorf/cisim07/>

ACS-CISIM 2005-2006

<http://acs.wi.ps.pl>

CISIM 2003-2004 Elk

<http://private.wsfiz.edu.pl/mosdorf/cisim04/>

