15th MULTI CONFERENCE ON COMPUTER SCIENCE AND INFORMATION SYSTEMS
20 - 22 July 2021

15th International Conference on e-Learning
14th International Conference on ICT, Society and Human Beings
13th International Conference on e-Health
7th International Conference on Connected Smart Cities
18th International Conference on Web Based Communities and Social Media

CONFERENCE PROGRAM

IMPORTANT NOTICE: listed times are in **GMT+1**, you can check your timezone at **https://greenwichmeantime.com/time-zone/gmt-plus-1/** (you can use the provided URL to insert your location and see your time in relation to GMT+1).

Tuesday 20th July 2021

09:00 – 09:15 Session O – Opening Session

Profs. Pedro Isaias, Piet Kommers, Miguel Baptista Nunes, Mário Macedo and Guo Chao (Alex) Peng

09:15 – 10:15 Session KL1 – Keynote Presentation

NETWORKED INTERACTIVE DIGITIZED INFORMATION WILL CHANGE THE WORLD
Professor Hermann Maurer, School of Computer Science, Graz University of Technology, Austria
Co-presented with Dr. Bilal Zaka, COMSATS University Islamabad, Pakistan

10:15-10:30 Break

10:30-11:30 FP 20.1
Life environment and ICT
Chair: Bertil Marques

RECORD THE TRANSCRIPT OF STUDENT ACTIVITY IN HIGHER EDUCATION BASED ON BLOCKCHAIN TECHNOLOGY (F019)
Meyliana, Yakob Utama Chandra, Cadelina Cassandra, Surjandy, Henry Antonius Eka Widjaja, Erick Fernando, and Harjanto Prabowo
MEASURING THE ENGAGEMENT OF IN-HOUSE CURRENCY SYSTEM USERS (F082)
Toshiomi Moriki, Hiroki Satoh, Shinpei Takami, Kie Yoshiji, Miho Kobayashi and Norihisa Komoda

10:30-12:20 Session FSP 20.2
Organisational Strategy and Management Issues // Educational Management
Chair: Nello Scarabottolo

E-LEARNING DESIGN THINKING AND DESIGN DRIVEN INNOVATION (F068)
Dalia Gallico
USING LOGIC TO DETERMINE KEY ITEMS IN MATH EDUCATION (F044)
Manuel Ojeda-Hernández, Francisco Pérez-Gámez, Ángel Mora Bonilla and Domingo López-Rodríguez
MANAGERIAL-LEADERSHIP COMPETENCIES FOR ENHANCING THE INTEGRATION OF INNOVATIVE TEACHING- LEARNING TECHNOLOGIES (F050)
Elizabeth Landa, Chang Zhu and Jennifer Sesabo
E-LEARNING CHALLENGES USING ZOOM AND APPLICATION OF ARTIFICIAL INTELLIGENCE TO IMPROVE LEARNING IN AUSTRALIA HIGHER EDUCATION INSTITUTES (S020)
Raj Sandu, Shakir Karim and Mahesh Kayastha

11:30 – 12:30 Session KL2 – Keynote Presentation

ACCELERATING INNOVATION THROUGH HEALTH DATA
Professor Dipak Kalra, President of The European Institute for Innovation through Health Data, Belgium

12:30 – 14:00 Break

14:00 – 14:45 Session T1 – Special Talk

OPEN STANDARD DEFINES COMMON LANGUAGE FOR SMART CITY APPLICATIONS *Simon Dunkley and Richard Perry*

14:00-15:55 Session FSRP 20.3
E-Learning // // Higher and Further Education
Chair: Rusudan Makhachashvili

BASIC MATHEMATICAL MODELLING COMPETENCIES FOR NON-STEM HIGHER EDUCATION (F056) *Marina Marchisio, Fabio Roman and Matteo Sacchet* **GENERAL (APTITUDE) MATH EXAMS AND SUCCESS IN MATHEMATICAL CLASSES AT UNIVERSITY: A CROSS-COUNTRY COMPARISON (F032)** *Genady Grabarnik, Luiza Kim-Tyan and Serge Yaskolko* **DEVELOPMENT OF A MULTI-USER VR ENVIRONMENT FOR TRAINING ELECTRICIANS TO WORK ON ELECTRIC POWER DISTRIBUTION NETWORK (S057)** *Eduardo H. Tanaka, Tiago Z. Paula, Alisson F. Silva, Guilherme S. F. Gouveia, Lucimara de Almeida, Leonardo R. Domingues, Alex H. F. Alves and Roberta R. Oliveira* **ONLINE WRITTEN EXAMS DURING COVID-19 CRISIS: AN UPDATE AFTER ONE YEAR (S060)** *Goffredo Haus, Yuri Benvenuto Pasquinelli, Daniela Scaccia and Nello Scarabottolo* **SELF-PRESENTATION AND LIABILITY WITHIN E-LEARNING ENVIRONMENTS (R038)** *Stella J. Phipps, Michael V. Harrington, Gerald E. Evans and Daniel C. Evans*

14:45-16:00 Session FRP 20.4
Connected Smart Cities
Chair: Hanna Koskinen

SMART CITY SOLUTIONS FOR LOCATION TRACKING (F059) *Neetesh Bhati, Sujala D. Shetty and Aparna Raj* **A NEW SERVICE MODEL FOR VEHICLE SENSING DATA COLLECTION (F060)** *Christian Prehofer and Preeta Abbasi* **UNMANNED VEHICLES SYSTEM UTILIZING WASTE TRACKING DATA TO TACKLE PLASTIC MARINE LITTERING ON TOURIST ISLANDS (R061)** *George Plakas, Stavros T. Ponis, Eleni Aretoulaki and Theodoros Nikolaos Maroutas*

16:00-16:15 Break

16:15-18:20 Session FSP 20.5
Mobile Applications // Other
Chair: Mário Macedo

AN INNOVATIVE APPLICATION ARCHITECTURE TO REDUCE CONTACT IN WORK ENVIRONMENTS (F020) *Aycan Vargün, Emin Tolgahan Polat, Özgür Macit and Uğur Serkan Taşkın* **HELPING PARAMEDICS IN ASSESSING A PATIENT'S CONDITION BASED ON ECG BY MEANS OF MOBILE PHONE (F044)** *Aleksandra Vatian, Dmitrii Peredreev, Konstantin Rodiontsev, Anastasia Murzina, Elizaveta Klevtsova, Anna Tatarinova, Tatiana Treshkur, Anatoly Shalyto and Natalia Gusarova* **EVALUATION OF NEURAL NETWORK COMPRESSION METHODS ON THE RESPIRATORY SOUND DATASET (F031)** *Tamás Pál, Bálint Molnár, Ádám Tarcsi and Csongor László Martin* **USE OF TWO TOPIC MODELING METHODS TO INVESTIGATE COVID VACCINE HESITANCY (S050)** *Phillip Ma, Qing Zeng-Treitler and Stuart J. Nelson* **A CANCER PATIENT RECOMMENDER SYSTEM FOR MANAGING END-OF-LIFE DECISION MAKING (F023)** *Raghav Pavan Karumur*

16:15 – 17:00 Session T2 – Special Talk

INTERACTING WITH COMPLEX DATA TO DELIVER MEANINGFUL VISUALIZATIONS USING THE EPI METHOD - EXPLORE, PROBE, AND INSIGHTS *Mohit Gupta*

17:00-18:20 Session FP 20.6
Web Based Communities and Social Media
Chair: Vanessa Dennen

DESIGN THINKING AS AN APPROACH TO FOSTER RECIFE'S CREATIVE TOURISM (F023) *Ana Elisa L. Ribeiro and Renata S. Souza* **PARENTS, SOCIAL MEDIA, AND ONLINE SUPPORT: A SYSTEMATIC REVIEW OF THE LITERATURE (F036)** *Vanessa P. Dennen, Daeun Jung, Casey Cargill and Amber Hedquist* **VIRTUAL INDEPENDENCE: TEEN SOCIAL MEDIA USE DURING THE SUMMER OF QUARANTINE (S039)** *Vanessa P. Dennen, Stacey A. Rutledge, Lauren M. Bagdy, Stephen Bunn, Daeun Jung, Casey Cargill, Catherine Cosgrove, Amber Hedquist, and Shannon McWaters*

08:15-09:15 Session FP 21.1
Web Based Communities and Social Media
Chair: Charmaine Du Plessis

ETHICAL RESPONSIBILITY DIRECTIVES AIMED AT BIG SOCIAL DATA RESEARCH (F021)
Charmaine du Plessis
UNDERSTANDING SMART LOCKER USER BEHAVIOR THROUGH TWITTER (F022)
Colette Malyack and Pius Egbelu

08:05-09:15 Session FSP 21.2
Learning Theories and Approaches for e-Learning // Higher and Further Education
Chair: Bertil Marques

INTERNATIONALIZATION FOR ENHANCING THE EUROPEAN SECURITY AND DEFENCE HIGHER EDUCATION (F058)
Marina Marchisio and Enrico Spinello
TEACHER ASSESSMENT OF ONLINE INSTRUCTION (S034)
Cecilia B-Ikeguchi
DESIGN-BASED LEARNING IN TEXTILES FOR HIGHER EDUCATION (S071)
Benny Malengier, Ion Răzvan Rădulescu, Mirela Blaga, Radek Polanský and Zoran Stjepanović

09:15-10:15 Session KL1 – Keynote Presentation

EMULATED REAL-WORLD ENVIRONMENTS FOR INTERACTIVE AND EMBODIED LEARNING USING ROBOTS AND IOT-BASED TANGIBLE OBJECTS
Professor Nian-Shing Chen, Chair Professor, Department of Applied Foreign Languages, National Yunlin University of Science and Technology, Taiwan

10:15-10:30 Break

10:30-11:55 Session FSP 21.3
Life Role and ICT // Other
Chair: Alma Leora Culén

DIGITAL HYBRID LEARNING INDIVIDUAL QUALITY ASSESSMENT IN EUROPEAN AND ORIENTAL LANGUAGES PROGRAMS: STUDENT CASE STUDY IN UKRAINE (F039)
Rusudan Makhachashvili and Ivan Semenist
FACTORS MOTIVATING WOMEN TO STUDY TECHNOLOGY: A QUANTITATIVE SURVEY AMONG YOUNG WOMEN IN NORWAY (S072)
Hilde G. Corneliussen, Gilda Seddighi, Anna Maria Urbaniak-Brekke and Morten Simonsen
TECHNOLOGICAL IMPERATIVES OF YOUNG PEOPLE IN FINLAND – COMPETENCES AND OPPORTUNITIES NEEDED FOR DIGITAL AGENCY (S078)
Sari Tuuva-Hongisto, Kristiina Korjonen-Kuusipuro and Päivi Armila
AUTOMATION: AN ESSENTIAL COMPONENT OF ETHICAL AI? (R028)
Vivek Nallur, Martin Lloyd and Siani Pearson

10:30-11:30 Session FP 21.4
eHealth to improve Quality and Patient Safety
Chair: Mário Macedo

SOCIAL INFORMATION SYSTEMS IN PUBLIC HEALTH: EMPIRICAL EVIDENCE IN BRAZIL (F027)
Jeferson Gonçalves de Oliveira, Cristiana Fernandes De Muylder, Fernando Hadad Zaidan, Ana Maria Pereira Cardoso and José Nelio Januário
DESIGNING AND EVALUATING A WEARABLE SEMG DEVICE FOR THE ELDERLY (F028)
Pin-Jun Chen, Chien-Hsiang Chang, Yu-Liang Kuo and Yang-Cheng Lin

12:00 – 14:00 Break

14:00-15:55 Session FSRP 21.5
ICT and Effects on Humans
Chair: Régis Dandoy

@RE-ART. HOW TO MIX A VIRTUAL TOUR, ARCHIVING AND A SOCIAL MEDIA STRATEGY ON THE WEB TO IN-VOLVE A NEW PUBLIC AND BRING AWARENESS TO THE MUSEUM AND THE EXHIBITION (F045)
Dalia Gallico
PHISHING, TRUST AND HUMAN WELLBEING (F066)
John Ayooluwa Adejobi, Fiona Carroll and Liqaa Nawaf and Reza Montasari
TOWARDS AN ETHICS-AUDIT BOT (S024)
Siani Pearson, Martin Lloyd and Vivek Nallur
CLUBHOUSE: DETERMINING THE MOST TALKED ABOUT TOPICS AND THEIR EFFECT ON THE PLATFORM'S POPULARITY (S068)
Luka Skeledzija and Eva Skeledzija
A TEST CASE FROM NORWEGIAN RURAL AREAS WHERE STRUCTURED USER PARTICIPATION BUILDS SAFER COMMUNITIES (R088)
Anna Maria Urbaniak-Brekke, Ivar Petter Grøtte and Øyvind Heimset Larsen

14:30-15:50 FSP 21.6
e-Learning Curriculum Development Issues
Chair: Eduardo Tanaka

EMERGENCY ELEARNING DURING A PANDEMIC: TALES OF A FORCED TRANSITION (F035)
Gerald E. Evans, Daniel C. Evans and Michael V. Harrington
E-SKILLS AND DIGITAL LITERACY FOR FOREIGN LANGUAGES EDUCATION: STUDENT CASE STUDY IN UKRAINE (F074)
Rusudan Makhachashvili and Ivan Semenist
LOSING THE ELEARNING SAFETY NET: TEACHING AN MBA CLASS WITHOUT AN EDUCATIONAL TECHNICIAN (S037)
Gerald E. Evans, Daniel C. Evans and Michael V. Harrington

16:00-16:15 Break

16:15-17:00 Corporate Showcase

INTEGRATED HOLISTIC MEDICAL PORTFOLIO VISUALIZATION FOR CLINICAL TRIALS MANAGEMENT USING USER-CENTRIC DESIGN METHODOLOGY
Mohit Gupta and Yvette Scotland

16:15-18:05 Session FSPP 21.7
Smart City as an Integrated Ecosystem // Integrated Smart City Solutions Deployments, Test-Beds and Field Trials
Chair: Christian Prehofer

DEVELOPMENT OF A SMART CITY SERVICE CATALOGUE FOR SENSOR-BASED DIGITAL SERVICES (F050)
Yusuf Bozkurt, Jan Fauser, Reiner Braun, Dieter Hertweck and Alexander Rossmann
HELLO, MY NAME IS SMARTTRAM, HUMAN FACTORS IS ON BOARD, ENJOY THE RIDE! DEVELOPING A HUMAN FACTORS PROGRAM FOR AUTOMATIC TRAMS (F023)
Hanna Koskinen, Susanna Aromaa and Vladimir Goriachev
SMART AND SUSTAINABLE URBAN MOBILITY: HOW CONNECTIVITY MAY SUPPORT BIKE-SHARING OPERATORS' BUSINESSES (S049)
Arash Rezazadeh, Elisabete Sá, Joaquim Silva, Ana Carvalho, Maher Georges Elmashhara and Ricardo Pessoa
ON THE ROAD TOWARDS A SMART URBAN DISTRICT SUPPORTED BY A MOCK PLATFORM (S033)
Frank Elberzhager, Patrick Mennig and Phil Stüpfert
VISUALIZATION CONCEPTS OF A DIGITAL ECOSYSTEM TO INCREASE UNDERSTANDABILITY (P026)
Frank Elberzhager, Kathleen Späth and Sven Storck

17:00-18:35 Session FSRP 21.8
Desirable Goals and ICT
Chair: Rusudan Makhachashvili

E-VOTING AND NON-RESIDENT CITIZENS' VOTER TURNOUT: A QUASI-EXPERIMENT IN ECUADOR (F044)
Régis Dandoy and Sebastián Umpierrez de Reguero
GEN MZ TOWARD SUSTAINABLE FASHION PRACTICES - ALTERNATIVE SERVICES AND BUSINESS MODELS (F094)
Alma Leora Culén and Swati Srivastava
SINGLE NATIONAL NUMBER, A SOLUTION FOR AN OPTIMAL MANAGEMENT OF INSURANCEIN THE DEMOCRATIC REPUBLIC OF CONGO (S054)
Efrem Mbaki Luzayisu
DIGITAL PLATFORMS AS MEDIATOR OF PUBLIC COMMUNICATION (R048)
Leonid Smorgunov and Olga Ignatjeva

Thursday 22nd July 2021

08:30-10:15 Session FSRP 22.1
Actions for reaching the Good Information Society // Other
Chair: Hilde G. Corneliussen

A COMPARATIVE ANALYSIS OF THE E-GOVERNMENT DEVELOPMENT INDEX (EGDI). (F079)
Eltahir F. Kabbar
GOOD FRIENDSHIPS IMPROVE OUR LIVES. BUT CAN VIRTUAL FRIENDSHIPS BE GOOD? (R051)
Nick Munn and Dan Weijers
A RANDOM CHOICE, LATE DISCOVERY, AND PENALTY ROUNDS: MAPPING WOMEN'S PATHWAYS TO INFORMATION TECHNOLOGY EDUCATION (F086)
Hilde G. Corneliussen
LEGAL PERSONALITY OF INDIVIDUALS IN THE SYSTEM OF DIGITAL RELATIONS: SCIENTIFIC UNDERSTANDING AND LEGAL REGULATION IN RUSSIA (F096)
Evgeny Mamay

10:15-10:30 Break

10:30-11:30 Session KL1 – Keynote Presentation

SMART MANUFACTURING: CHALLENGES AND OPPORTUNITIES

Dr Paul Clough, Professor of Search & Analytics, Information School, University of Sheffield, UK and Head of Data Science, Peak Indicators, UK

10:30-11:30 Session FP 22.2
e-Learning
Chair: Rusudan Makhachashvili

PROPOSAL OF A LEARNING DESIGN MODEL DEVELOPED FOR THE CREATION OF TRAINING COURSES - COBOL PROGRAMMING COURSE CASE STUDY (F081)

Rosa Reis and Bertil P. Marques

FACTORS INFLUENCING STUDENTS' ACCEPTANCE OF E-LEARNING PLATFORMS IN PRIMARY AND SECONDARY SCHOOLS IN SAUDI ARABIA (F054)

Amani Bakarman and Nora Almezeini

11:30-12:40 Session FSP 22.3
e-Health
Chair: Mário Macedo

ENABLING TIME-CRITICAL COMMUNICATIONS IN MEDICAL IOT APPLICATIONS (F017)

Dino Mustefa, Hossein Fotouhi, Sasikumar Punnekkat and Detlef Scholle

SUPPORT FOR COMMUNICATION WITH DEAF AND DUMB PATIENTS VIA FEW-SHOT MACHINE LEARNING (S042)

Grigorii Shovkoplias, Mark Tkachenko, Arip Asadulaev, Olga Alekseeva, Natalia Dobrenko, Daniil Kazantsev, Alexandra Vatian, Anatoly Shalyto and Natalia Gusarova

HARNESSING TECHNOLOGY TO RESPOND TO THE GLOBAL DEMAND FOR LEARNING DURING THE COVID-19 PANDEMIC (F025)

Richelle George, Heini Utunen, Christian Willems, Ngouille Ndiaye, Stefanie Schweiger, Thomas Staubitz, Anna Tokar, Melissa Attias, Oliver Stucke and Gaya Gamhewage

11:30 – 12:30 Session KL2 – Keynote Presentation

USE AND THEORETICAL PERSPECTIVES OF THE 7CS OF LEARNING DESIGN FRAMEWORK

Professor Gráinne Conole, Professor of Learning Innovation and Independent consultant, Ireland

12:40 Best Paper Awards Ceremony and Closing Session

Profs. Pedro Isaias, Piet Kommers, Miguel Baptista Nunes, Mário Macedo and Guo Chao (Alex) Peng