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
Prof. 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 Saitoh, 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, Shahir 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: Russudan Makhachashvili**

- **BASIC MATHEMATICAL MODELLING COMPETENCIES FOR NON-STEM HIGHER EDUCATION** (F056)
  Marina Marchisio, Fabio Roman and Matteo Succhet
- **GENERAL (APTITUDE) MATH EXAMS AND SUCCESS IN MATHEMATICAL CLASSES AT UNIVERSITY: A CROSS-COUNTRY COMPARISON** (F032)
  Genady Grubarnik, Lutza Kim-Tyan and Serge Yaskolk
- **DEVELOPMENT OF A MULTI-USER VR ENVIRONMENT FOR TRAINING ELECTRICIANS TO WORK ON ELECTRIC POWER DISTRIBUTION NETWORK** (S057)
- **ONLINE WRITTEN EXAMS DURING COVID-19 CRISIS: AN UPDATE AFTER ONE YEAR** (S060)
  Goffredo Haus, Yuri Benvenuto Pasquinelli, Daniela Scaccia and Nello Scarcabottolo
- **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 Bai
- **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. Pontis, 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)
  Ayvan Vargun, Emin Tolgahan Polat, Öğür Macit and Uğur Serkan Taşkon
- **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, Anotoly Shalyto and Natalia Gasurova
- **EVALUATION OF NEURAL NETWORK COMPRESSION METHODS ON THE RESPIRATORY SOUND DATASET** (F031)
  Tamás Pál, Balázs Molnár, Adam Türeci and Csongor László Martin
- **USE OF TWO TOPIC MODELING METHODS TO INVESTIGATE COVID VACCINE HESITANCY** (S050)
  Philipp Ma, Qing Zeng-Treiter 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
Wednesday 21st July 2021

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 Egbeulu

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 Bilkerguchi

DESIGN-BASED LEARNING IN TEXTILES FOR HIGHER EDUCATION (S071)
Benny Malegashi, Ion Răzvan Rădulescu, Mirela Blaga, Radek Polansky and Zoran Sjepanovic

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)
Rassudam Makhachashvili and Ivan Semenist

FACTORS MOTIVATING WOMEN TO STUDY TECHNOLOGY: A QUANTITATIVE SURVEY AMONG YOUNG WOMEN IN NORWAY (S072)
Hilde G. Cornelissen, Gilda Seddighi, Anna Maria Urbaniaik-Brekke and Morten Simonsen

TECHNOLOGICAL IMPERATIVES OF YOUNG PEOPLE IN FINLAND – COMPETENCES AND OPPORTUNITIES NEEDED FOR DIGITAL AGENCY (S078)
Sari Taura-Hongisto, Kristiina Korjonen-Kuusipuro and Päivi Armila

AUTOMATION: AN ESSENTIAL COMPONENT OF ETHICAL AI? (R028)
Vivek Nallar, 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)
Jefferson Goncalves de Oliveira, Cristiana Fernandes De Mugil, Fernando Hadad Zaidan, Ana Maria Pereira Cardoso and Jose 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 Ayoobawa Adejobi, Fiona Carroll and Liqaa Nawaf and Reza Montasari

TOWARDS AN ETHICS-AUDIT BOT (S024)
Siani Pearson, Martin Lloyd and Vivek Nallar

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 Urbaniaik-Brekke, Ivar Petter Grotte and Øyvind Heimset Larsen
14:30-15:50 FSP 21.6  
E-Learning Curriculum Development Issues  
Chair: Eduardo Tanaka

EMERGENCY E-LEARNING 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 Sementist

LOSES THE E-LEARNING 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 FSP 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 Beckurt, Jan Fausser, 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 Goriatchev

SMART AND SUSTAINABLE URBAN MOBILITY: HOW CONNECTIVITY MAY SUPPORT BIKE-SHARING OPERATORS’ BUSINESSES (S049)  
Arash Rezazadeh, Elisabethe Sá, Joaquim Silva, Ana Carvalho, Maher Georges Elmaskhara and Ricardo Pessoa

ON THE ROAD TOWARDS A SMART URBAN DISTRICT SUPPORTED BY A MOC 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 Zúñiga de Reguero

GEN MZ TOWARD SUSTAINABLE FASHION PRACTICES - ALTERNATIVE SERVICES AND BUSINESS MODELS (F094)  
Aima Letona Cadern and Swati Srivastava

SINGLE NATIONAL NUMBER, A SOLUTION FOR AN OPTIMAL MANAGEMENT OF INSURANCE IN 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)  
Elshafir F. Kabbair

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
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 KL1 – Keynote Presentation

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

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

e-Learning

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
Chair: Mário Macedo

e-Health

ENABLING TIME-CRITICAL COMMUNICATIONS IN MEDICAL IOT APPLICATIONS (F017)
Dino Mustafa, Hossein Fotouhi, Sasi Kumar Punnekatt 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