



**EDUCON 2021** 21-23 April, 2021 - Vienna, Austria

## Session Overview

**Date: Tuesday, 20/Apr/2021**

<p><b>12:50pm</b> - <b>6:00pm</b></p> <p><b>1:00pm</b> - <b>3:00pm</b></p>	<p><b>Conference Online Support</b> Location: <b>VIRTUAL ROOM Vienna</b> Technical Chair: <b>Julia Kositz</b>, FH Technikum Wien</p> <p><b>IWS1: Statistics in Semiconductor Manufacturing</b> Location: <b>VIRTUAL ROOM Hedy Lamarr</b> Scientific Chair: <b>Andrea Appe</b>, Infineon Technologies Austria AG Technical Chair: <b>Niklas Fraissl</b>, UAS Technikum Wien</p> <p>After a short introduction of Infineon Technologies we take a glance on how and where statistical methods help to ensure the stability of production processes in Semiconductor Manufacturing. Your intuition will be challenged in the second part of the workshop: are you aware of how available information influences your decisions? At the end of the workshop the concept of "Intuitive Statistics" should be clearer for you</p>	<p><b>WS1: Strategies to gender mainstreaming in Engineering studies</b> Location: <b>VIRTUAL ROOM Ada Lovelace</b> Scientific Chair: <b>Carina González</b>, Universidad de La Laguna Scientific Chair: <b>Alicia García-Holgado</b>, University of Salamanca Technical Chair: <b>Marlene Patterer</b>, FH Technikum Wien</p>	<p><b>WS2: Structuring Practical Learning Outcomes for Effective Remote Practicals</b> Location: <b>VIRTUAL ROOM Evelyn Boyd Granville</b> Scientific Chair: <b>Adam Funnell</b>, University of Sheffield Technical Chair: <b>Andrea Hoelzel</b>, Technikum Wien</p>	<p><b>WS3: Engaging Diversity and Inclusion through Educational Robotics and Programming Tools</b> Location: <b>VIRTUAL ROOM Pilar Careaga</b> Scientific Chair: <b>Pedro Plaza Merino</b>, PLAZA ROBOTICA Technical Chair: <b>Stefan Beck</b>, UAS Technikum Wien</p>
<p><b>3:00pm</b> - <b>4:00pm</b></p>	<p><b>IWS 2: High Precision Micro 3D Printing: A Virtual Demo of the microArch™ Systems</b> Location: <b>VIRTUAL ROOM Hedy Lamarr</b> Scientific Chair: <b>Carl Leonard</b>, BMF</p> <p>Micro 3D printing is emerging as a viable alternative to micro manufacturing. Projection Micro Stereolithography (PμSL) is a unique process capable of achieving resolution of 2μm~50μm and tolerance of +/- 5μm~25μm, thus providing mold-free, ultra-high-resolution fast prototyping and end part capability.</p> <p>This virtual demo will dive a little deeper into PμSL technology, how it works and explain how our patented technology allows us to achieve resolution, accuracy and precision not possible on other systems.</p>			
<p><b>3:00pm</b> - <b>5:00pm</b></p>	<p><b>WS4: Engaging Microelectronic through remote FPGA based laboratory</b> Location: <b>VIRTUAL ROOM Ada Lovelace</b> Scientific Chair: <b>Pedro Plaza Merino</b>, PLAZA ROBOTICA Technical Chair: <b>Niklas Fraissl</b>, UAS Technikum Wien</p>	<p><b>WS5: Make It Awkward – strategies to respond to discriminatory comments on engineering campuses</b> Location: <b>VIRTUAL ROOM Evelyn Boyd Granville</b> Scientific Chair: <b>Sara Isaac</b>, EPFL Technical Chair: <b>Marlene Patterer</b>, FH Technikum Wien</p>	<p><b>WS6: Industry-ready Remote Access Laboratory</b> Location: <b>VIRTUAL ROOM Pilar Careaga</b> Scientific Chair: <b>Seng Kee Chee</b>, Keysight Technologies Technical Chair: <b>Andrea Hoelzel</b>, Technikum Wien</p>	

**Date: Wednesday, 21/Apr/2021**

<p><b>8:30am</b> - <b>12:30pm</b></p>	<p><b>Conference Online Support Slot 1</b> Location: <b>VIRTUAL ROOM Vienna</b> Technical Chair: <b>Julia Kositz</b>, FH Technikum Wien</p>
<p><b>9:30am</b> - <b>10:00am</b></p>	<p><b>OP: Opening Ceremony</b> Location: <b>VIRTUAL ROOM Hedy Lamarr</b> Scientific Chair: <b>Thomas Klinger</b>, Fachhochschule Kaernten - gemeinnuetzige Privatstiftung Scientific Chair: <b>Sylvia Lingo</b>, UAS Technikum Wien</p> <p>Speakers:</p> <ul style="list-style-type: none"> <li>• Official opening: Thomas Klinger, Conference Chair</li> <li>• Welcome: Antonio Luque, IEEE REgion 8 Director</li> <li>• Welcome: Edmundo Tovar, President of the Educational Society of IEEE</li> <li>• Welcome: Christian Kollmitzer, Vice-Rector of Technikum Vienna, University of Applied Sciences</li> <li>• Welcome: Peter Granig, Rector of the University of Applied Sciences, Carinthia</li> </ul>
<p><b>10:00am</b> -</p>	<p><b>K1: Keynote 1 Sabine Herlitschka CEO and CTO of Infineon Technologies Austria</b> Location: <b>VIRTUAL ROOM Hedy Lamarr</b> Scientific Chair: <b>Manuel Castro</b>, Universidad Nacional de Educación a Distancia</p>

10:40am Scientific Chair: **Monica Divitini**, Norwegian University of Science and Technology  
Technical Chair: **Joshua Ngoumou**, Fachhochschule Technikum Wien  
"Technology with a purpose – the crisis as a driver for more sustainability"

10:40am **CB1: Cyber Break**  
Location: **VIRTUAL ROOM Vienna**

11:00am

-

11:00am

-

12:30pm

#### SES-01A

Location: **VIRTUAL ROOM**  
**Hedy Lamarr**  
Scientific Chair: **Hanan KOOLI-CHAABANE**, Supméca – Institut supérieur de mécanique de Paris  
Scientific Chair: **Christian Madritsch**, Carinthia University of Applied Sciences  
Technical Chair: **Marlene Patterer**, FH Technikum Wien

#### India Industry-University Collaboration - A Novel Approach combining Technology, Innovation, and Entrepreneurship

**Sathya Prasad**<sup>1</sup>,  
**Raghavendra Bhat**<sup>2</sup>  
1: PES University, India; 2: Intel Technology India Pvt. Ltd

#### A Hybrid and Flexible Teaching Model for Engineering Courses Suitable for Pandemic Conditions towards the New Normality

**Miguel X. Rodriguez-Paz**,  
**Jorge A. Gonzalez-Mendivil**,  
**Israel Zamora-Hernandez**,  
**Benjamin Sanchez**  
Technologico de Monterrey, Mexico

#### A Framework for Course-embedded Assessment for Evaluating Learning Outcomes of a Network Programming Course

**Abderrahmane Lakas**,  
**Abdelkader Nasreddine Belkacem**  
UAE University

#### MoalemCorpus: A Large-Scale Arabic Multimedia Corpus for Children Education of Arabic Vocabularies

**Soumaya AlMaadeed**<sup>1</sup>,  
**Jihad Alja'am**<sup>1</sup>, **Samir El Seoud**<sup>2</sup>  
1: Qatar University, Qatar; 2: The British University of Egypt

#### Development of a BIM-VR application for e-learning engineering education

**Benjamin Sanchez**, **Romeo Ballinas-González**, **Miguel X. Rodriguez-Paz**  
Technologico de Monterrey

#### SES-01B

Location: **VIRTUAL ROOM**  
**Ada Lovelace**  
Scientific Chair: **Madeleine Lorås**, Norwegian University of Science and Technology  
Scientific Chair: **Christian Kreiter**, Carinthia University of Applied Sciences  
Technical Chair: **Maximilian Saudino**, FH Technikum

#### A Remote CSO Workshop Based on Peer Learning: Motivation, Engagement and Self-Regulation of Novice Programmers

**Francisco T. S. S. Pereira**,  
**Natália S. Rosa**, **Diego C. Silva**, **Claudia Pinto Pereira**,  
**Roberto Almeida Bittencourt**  
UEFS - State University of Feira de Santana, Brazil

#### Cloud-based virtual labs vs. low-cost physical labs: what engineering students think.

**Nina Slamnik-Krijestorac**<sup>1</sup>,  
**Raf Van den Langenbergh**<sup>1</sup>,  
**Thomas Huybrechts**<sup>1</sup>,  
**Sergio Martin Gutierrez**<sup>2</sup>,  
**Manuel-Alonso Castro Gil**<sup>2</sup>,  
**Johann M. Marquez-Barja**<sup>1</sup>  
1: University of Antwerp & imec, IDLab, Belgium; 2: Spanish University for Distance Education (UNED), Electrical and Computer Engineering Department, E-28040 Madrid, Spain

#### Tec 21: first outcomes of a new integral university framework for long-life education through challenge-based learning

**Jorge Alberto Pérez Ladrón de Guevara**, **Juan-Manuel Campos Sandoval**  
Tecnológico de Monterrey, Mexico

#### Evaluation of the COVID-19 Shock on STEM Laboratory Courses

**Yunfei Hou**, **Fadi Muheidat**,  
**Timothy Usher**, **Wagner Prado**, **Xiaofei Guo**,  
**Montgomery Van Wart**  
California State University San Bernardino, USA

#### Exploring Educational Practices in Emergency Remote Teaching. The Role of Educational Neuroscience

**Spyros Doukakis**<sup>1</sup>,  
**Panagiotis Sfyris**<sup>2</sup>, **Maria Niar**<sup>3</sup>, **Evita Alexopoulos**<sup>2</sup>  
1: Ionian University; 2: Pierce-The American College of Greece; 3: Hellenic Open University

#### SES-01C

Location: **VIRTUAL ROOM**  
**Evelyn Boyd Granville**  
Scientific Chair: **Isabel María Moreno García**, Universidad de Córdoba  
Scientific Chair: **Antonina Hammermüller**, FH Kärnten  
Technical Chair: **Joshua Ngoumou**, Fachhochschule Technikum Wien

#### Women in Engineering: developing entrepreneurial attitudes through learning by doing approach

**João Almeida**, **Ana Dias Daniel**  
DCSPT, GOVCOPP, University of Aveiro, Portugal

#### A Detailed Analysis of Gender Differences in the Course of CS-Studies

**Veronika Thurner**, **Axel Böttcher**, **Tanja Häfner**  
University of Applied Sciences Munich, Germany

#### "Beautiful Patterns 2019" MIT and Tecnológico de Monterrey high-impact IT/K12-STEM transnational initiative for young women students

**Juan-Manuel Campos**, **Ana Paulina Torres**, **Lamberto Alvarez**, **Laura Elena Morales**  
Tecnológico de Monterrey, Mexico

#### Widening the Shrinking Pipeline: The Case of Data Science

**Koby Mike**<sup>1</sup>, **Gilly Hartal**<sup>2</sup>,  
**Orit Hazzan**<sup>1</sup>  
1: Technion – Israel Institute of Technology, Israel; 2: Bar Ilan University - Israel

#### Engineering School Women-Faculty Evaluation in the Tec21 competence educational model

**Juan Arturo Nolasco-Flores**,  
**Ricardo Swain-Oropeza**  
Tecnologico de Monterrey, Mexico

#### SS01A: Special Session GinEE - Games in Engineering Education - part 1

Location: **VIRTUAL ROOM**  
**Pilar Careaga**  
Scientific Chair: **Matthias Utesch**, Staatliche Fach- und Berufshochschule Technik München und Technische Universität München  
Scientific Chair: **Matthias Gottlieb**, Technical University of Munich  
Technical Chair: **Andrea Hoelzel**, Technikum Wien

#### Teaching the Digital Transformation of Business Processes: Design of a Simulation Game of Business Process Change

**Borys Levkovskiy**<sup>1</sup>,  
**Vanessa Laurim**<sup>1</sup>, **Bilgenur Kayaci**<sup>1</sup>, **Henryk Mustroph**<sup>1</sup>,  
**Matthias Christoph Utesch**<sup>2</sup>,  
**Helmut Krcmar**<sup>1</sup>  
1: Technical University of Munich, Germany; 2: Staatliche Fachober- und Berufshochschule Technik München

#### A Serious Gaming Approach for Teaching Environmental Entrepreneurship

**Florian Bajraktari**<sup>1</sup>,  
**Ferdinand Shuyu Xiong**<sup>1</sup>,  
**Clemens Drieschner**<sup>1</sup>,  
**Victor Karl Mölslein**<sup>1</sup>,  
**Benedikt Pirmin Ströbl**<sup>1</sup>,  
**Matthias Christoph Utesch**<sup>1,2</sup>, **Helmut Krcmar**<sup>1</sup>  
1: Technical University of Munich (TUM), 80333 Munich, Arcisstraße 21, Germany; 2: Staatliche FOS BOS Technik München, 81667 Munich, Orleansstraße 44, Germany

#### HeatQuiz: An app framework for game-based learning in STEM education

**Eva Jacobs**, **Oliver Garbrecht**, **Reinhold Kneer**,  
**Wilko Rohlf**  
Institute of Heat and Mass Transfer, RWTH Aachen University, Germany

#### G-Code Machina: A Serious Game for G-code and CNC Machine Operation Training

**Grigoris Daskalogrigorakis**,  
**Salva Kirakosian**, **Angelos Marinakis**, **Vaggelis Nikolidakis**, **Ioanna Pateraki**, **Aristomenis Antoniadis**, **Katerina Mania**  
Technical University of Crete, Greece

#### Teaching the Concepts of Servitization using a Serious Gaming Approach

**Clemens Drieschner**,  
**Vinzenz Senftl**, **Markus Gruber**, **Magnus Schulte-Tigges**, **Kristopher Weber**,  
**Matthias Utesch**, **Helmut Krcmar**

#### SS01B: Special Session Inclusion and Diversity in Engineering Education IDEE'21

Location: **VIRTUAL ROOM**  
**Ye Shuhua**  
Scientific Chair: **Aruquia Peixoto**, CEFET/RJ  
Scientific Chair: **Sónia Sobral**, REMIT, Universidade Portucalense  
Technical Chair: **Maximiliano Marino Zulli**, FH Technikum Wien

#### The engineering social role conception promoted in the engineering courses' advertising: looking from the point of view of women

**Fátima Monteiro**<sup>1</sup>, **Carolina Leite**<sup>2</sup>, **Cristina Rocha**<sup>2</sup>  
1: Instituto Superior de Engenharia de Coimbra (ISEC) - IPC, Portugal; 2: Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto, Portugal

#### Gender and STEAM as part of the MOOC STEAM4ALL

**Carina Gonzalez**<sup>1</sup>, **Alicia García-Holgado**<sup>2</sup>, **Pedro Plaza**<sup>3</sup>, **Manuel Castro**<sup>3</sup>,  
**Aruquia Peixoto**<sup>4</sup>, **Julia Merino**<sup>5</sup>, **Elio Sancristobal**<sup>3</sup>,  
**Antonio Menacho**<sup>3</sup>, **Diana Urbano**<sup>6</sup>, **Manuel Blázquez**<sup>3</sup>,  
**Félix García-Loro**<sup>3</sup>, **Teresa Restivo**<sup>6</sup>, **Rebecca Strachan**<sup>7</sup>, **Paloma Diaz**<sup>8</sup>,  
**Inmaculada Plaza**<sup>9</sup>, **Cristina Fernandez**<sup>8</sup>, **Susan Lord**<sup>10</sup>,  
**Diane Rover**<sup>11</sup>, **Rosana Chan**<sup>12</sup>, **Melany Ciampi**<sup>13</sup>,  
**Russ Meier**<sup>14</sup>, **Edmundo Tovar**<sup>15</sup>, **Magdalena Salazar**<sup>8</sup>, **Susan Zvacek**<sup>15</sup>,  
**Jose A. Rui Pérez-Valiente**<sup>16</sup>,  
**Blanca Quintana**<sup>3</sup>, **Sergio Martín**<sup>3</sup>, **Guillermo Botella**<sup>3</sup>,  
**África López-Rey**<sup>3</sup>, **Paulo Abreu**<sup>6</sup>

1: University of La Laguna, Spain; 2: University of Salamanca, Spain; 3: UNED, Spain; 4: CODIB CEFET/RJ, Brazil; 5: Tecnalia Innovation, Spain; 6: University of Porto, Portugal; 7: Northumbria University, United Kingdom; 8: Universidad Carlos III de Madrid, Spain; 9: Universidad de Zaragoza, Spain; 10: University of San Diego, United States; 11: Iowa State University, United States; 12: Chinese University of Hong Kong, Hong Kong; 13: COPEC - Science and Education Research Organization; 14: Milwaukee School of Engineering, United States; 15: Consultant Teacher, United States; 16: Massachusetts Institute of Technology, United States

#### Introduction of the gender perspective in the university teaching: a study about inclusive language in Spanish

**Alicia García-Holgado**<sup>1</sup>,

Technical University of  
Munich, Germany

**Carina S. González-  
González<sup>2</sup>, Francisco José  
García-Peñalvo<sup>1</sup>**

1: GRIAL Research Group,  
University of Salamanca,  
Spain; 2: Universidad de La  
Laguna, Spain

**A portrait of adopted  
programming languages  
of Portuguese Higher  
Education Institutions**

**Sónia Sobral<sup>2</sup>, Fernando  
Moreira<sup>1</sup>**

1: REMIT, Universidade  
Portugalense & IEETA,  
Universidade deAveiro,  
Portugal; 2: REMIT,  
Universidade Portugalense,  
Portugal

**The role of machine  
shop sessions in  
building confidence  
amongst first year  
engineering students in  
Ghana**

**Heather Beem**  
Ashesi University

**Female Career  
Technology and  
Engineering Education  
Professionals: A  
Journey through  
Reflections**

**Douglas Lecorchick<sup>1</sup>, Jana  
Bonds<sup>2</sup>, Tonya Isabell<sup>3</sup>, Deb  
Shapiro<sup>4</sup>**

1: Berea College, United  
States of America; 2: South  
Western School District,  
United States of America; 3:  
Purdue University, United  
States of America; 4: Forest  
Glen Middle School, United  
States of America

12:30pm

**CB2: Cyber Break**

Location: **VIRTUAL ROOM Vienna**

-

1:30pm

12:30pm

**Conference Online Support Slot 2**

Location: **VIRTUAL ROOM Vienna**

-

6:30pm

Technical Chair: **Marlene Patterer**, FH Technikum Wien

1:30pm

**K2: Keynote 2 Janina Loh University of Vienna, Austria**

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Heather Beem**, Ashesi University

Scientific Chair: **Barbara Göbl**, University of Vienna

Technical Chair: **Astrid Edlinger**, FH Technikum Wien

Are Sex Robots a Feminist Technology? A Critical-Posthumanist Reflection For most people, sex robotics may sound like pure science fiction. In fact, however, there are already international companies that mass-produce and distribute sex robots. TrueCompanion roboticist Douglas Hines launched the world's first sex robot, Roxxy, in 2010. The sex robots' interactive skills such as being able to "hear what you say, speak, feel your touch, move their bodies, are mobile and have emotions and a personality" distinguish Roxxy as a social robot. Although Roxxy should be able to develop her own personality (or as many different roles as desired) through interaction with her users, she can also be given one of the five pre-programmed characters of one's choice: Wild Wendy, S&M Susan, Mature Martha, Frigid Farah and Young Yoko. In addition to the above abilities, Roxxy is also able to "listen, talk, carry on a conversation and feel your touch as well as move her private areas inside when...

2:10pm

**SES-02A**

Location: **VIRTUAL ROOM**

**Hedy Lamarr**

Scientific Chair: **Alaa K.**

**Ashmawy**, MENAREES

Scientific Chair: **Josef**

**Anibas**, FH Kärnten

Technical Chair: **Astrid**

**Edlinger**, FH Technikum Wien

**Using Real-World  
Problems to Explore and  
Improve Students'  
Understanding of Basic  
Parallelism Concepts**

**Muztaba Fuad**, Debzani Deb  
Winston-Salem State  
University, United States of  
America

**Laboratories 4.0:**

**Laboratories for  
Emerging Demands  
under Industry 4.0  
Paradigm**

**Felix Garcia Loro<sup>1</sup>**, Pedro  
Plaza<sup>1</sup>, Blanca Quintana<sup>1</sup>,  
Elio San Cristobal<sup>1</sup>, Rosario

**SES-02B**

Location: **VIRTUAL ROOM**

**Ada Lovelace**

Scientific Chair: **Gustavo R.**

**Alves**, Polytechnic of Porto -

School of Engineering

Scientific Chair: **Miguel Angel**

**Lopez Montellano**, Fundación

I+D del software libre

Technical Chair: **Julia Kositz**,

FH Technikum Wien

**Evaluating a  
Computational Thinking  
and Computing  
Attitudes Instrument for  
Educational Purposes**

**Eduardo Carneiro Oliveira<sup>1</sup>**,  
**Ronaldo Celso Messias**  
**Correia<sup>2</sup>**, **Roberto Almeida**  
**Bittencourt<sup>1</sup>**

1: UEFS - State University of  
Feira de Santana, Brazil; 2:  
UNESP - Sao Paulo State  
University

**Validated  
Undergraduates'  
Misconceptions about**

**SES-02C**

Location: **VIRTUAL ROOM**

**Evelyn Boyd Granville**

Scientific Chair: **Christian**

**Kollmitzer**, FHTW

Scientific Chair: **Catrina**

**Tamara John**, Hasso Plattner

Institute

Technical Chair: **Joshua**

**Ngoumou**, Fachhochschule

Technikum Wien

**The International Impact  
of COVID-19 and  
"Emergency Remote  
Teaching" on Computer  
Science Education  
Practitioners**

**Tom Crick<sup>1</sup>**, Cathryn  
Knight<sup>1</sup>, Richard  
Watermeyer<sup>2</sup>, Janet  
Goodall<sup>1</sup>

1: Swansea University, United  
Kingdom; 2: University of  
Bristol, United Kingdom

**The "Real Images" of  
Engineering Ethics**

**SS02A: Special session  
GinEE - Games in  
Engineering Education -  
part 2**

Location: **VIRTUAL ROOM**

**Pilar Careaga**

Scientific Chair: **Klaus-Tycho**

**Foerster**, University of Vienna

Scientific Chair: **Sophie Heim**,

Technical University of Munich

Technical Chair: **Andrea**

**Hoelzel**, Technikum Wien

**Online Game-Based  
Learning through  
Minecraft: Education  
Edition Programming  
Contest**

**Nika Klimová**, Jakub  
Šajben, Gabriela Lovászová  
Constantine the Philosopher  
University, Nitra, Slovak  
Republic

**A Review on  
Requirements for  
Teaching the  
Relationship Between**

**SS02B: Special Session  
Data Science Education**

Location: **VIRTUAL ROOM Ye**

**Shuhua**

Scientific Chair: **Yuri**

**Demchenko**, University of

Amsterdam

Scientific Chair: **Yvonne**

**Sedelmaier**, Coburg

University of Applied Sciences

and Arts

Technical Chair: **Maximiliano**

**Marino Zulli**, FH Technikum

Wien

2:10pm - 2:25pm

**Research Data  
Management and Data  
Stewardship  
Competences in  
University Curriculum**

**Yuri Demchenko<sup>1</sup>**, Lennart

**Stoy<sup>2</sup>**

1: University of Amsterdam,  
Netherlands, The; 2: EUA,  
Belgium

2:25pm - 2:40pm

**Classification and**

**Gil<sup>1</sup>, Clara Perez<sup>1</sup>, Martin Fernandez<sup>2</sup>, Manuel Castro<sup>1</sup>**  
1: UNED, Spain; 2: National Technological University, San Nicolás, Argentina

### IoT based Smart Home Security Education using a Hands-on Approach

**Zouheir Trabelsi**  
UAE University, United Arab Emirates

### A Remote Robot Based Lab to Develop Competencies in Engineering Students during Covid19 Pandemic

**Israel Zamora-Hernandez, Miguel X. Rodriguez-Paz, Jorge A. Gonzalez-Mendivil, J. Asuncion Zarate-Garcia**  
Tecnológico de Monterrey, Mexico

### Apply VR and Simulation-Based Learning for Logistics and Warehouse Design Education

**Ming-Der May**  
Lunghwa University of Science and Technology, Taiwan(R.O.C.)

### Software Engineering

**Carolín Gold-Veerkamp**  
University of Applied Sciences Aschaffenburg, Germany

### Autonomous Vehicles as a Development Platform: from High School to Faculty

**Rolando Bautista-Montesano, Renato Galluzzi, Victor Gomez-Aladro, Rogelio Bustamante-Bello, Ricardo Ramirez-Mendoza**  
Tecnológico de Monterrey, Mexico

### Metrics Based on Attention Metadata for Learning Resource and Assessment Repository

**Francesco Maiorana<sup>1</sup>, Andrew Csizmadia<sup>2</sup>, Gretchen M. Richards<sup>3</sup>**  
1: University of Urbino, Italy; 2: Newman University, Birmingham; 3: Jacksonville State University

### Women and Digital Economy: Culture Change or Perpetuation of Inequalities?

**Aimily Lymberaki-Besson, Kontilena-Maria Kotsifakou, Dimitrios Kotsifakos, Christos Douligeris**  
UNIVERSITY OF PIRAEUS, Greece

### Education: An Analysis Based on Systematic Literature Review(SLR)

**Jinlu Shen, Heng Li**  
Zhejiang University, China, China, People's Republic of

### Information-Seeking Behavior of Computing Students while Programming: Educational Learning Uses, Satisfaction of Use, and Inconveniences

**Rex Perez Bringula<sup>1</sup>, Samson Lausa<sup>2</sup>, Annaliza Enocia Catacutan-Bangit<sup>3</sup>, Cereneo Jr. Santiago<sup>4</sup>**  
1: University of the East, Philippines; 2: Northern Negros State College of Science and Technology; 3: National University; 4: Cavite State University – Silang Campus

### Learning process of causes, consequences and solutions to climate change of undergraduate students without background in the subject

**Emilio Clarke-Crespo, Danay Carrillo-Nieves, Pabel Antonio Cervantes-Avilés, Maria de la O Laura del Carmen Cuevas Cancino-Esteva, Ana Yael Vanoye-García**  
Tecnologico de Monterrey, Escuela de Ingeniería y Ciencias

### Sharing of experience on the organization of secure distance exams in African universities in the context of Covid-19

**Ghislain Meryl Saint-Juste Kossingou, Bessan Melckior Dégoé, Kokou Gaglo, Samuel Ouya, Gervais Mendy**  
LIRT/ESP/UCAD, SENEGAL

### Business Models and Business Processes

**Benedikt Betzwieser, Theresa Dick, Matthias Utesch, Helmut Krcmar**  
Technical University of Munich

### Using Augmented Reality in programming learning: A systematic mapping study

**Monica Gomez Rios<sup>1</sup>, Maximiliano Paredes Velasco<sup>2</sup>**

1: Universidad Politécnica Salesiana, Ecuador; 2: Universidad Rey Juan Carlos, España

### A Stand-Alone Simulation Game for the Participation of Wind Producers in Day-Ahead Electricity Markets

**Juan S. Giraldo, Koen Kok, Nikolaos Paterakis**  
Eindhoven University of Technology, Netherlands, The

### Exploring the Programming Concepts Practiced by Scratch Users: An Analysis of Project Repositories

**Ad Zeevaarders<sup>1</sup>, Eftimia Aivaloglou<sup>1,2</sup>**  
1: Open Universiteit, Netherlands, The; 2: University of Leiden, Netherlands, The

### Analysis of Techniques and Tools for Data Visualization Teaching

**Juan J. Cuadrado-Gallego<sup>1</sup>, Miguel A Losada<sup>2</sup>, Yuri Demchenko<sup>3</sup>, Olga Ormandjieva<sup>4</sup>**

1: University of Alcalá, Spain and Concordia University, Canada; 2: University of Alcalá, Spain; 3: University of Amsterdam, The Netherlands; 4: Concordia University, Canada

2:40pm - 2:55pm

### EDISON Data Science Framework (EDSF): Addressing Demand for Data Science and Analytics Competences for the Digital Data Driven Economy

**Yuri Demchenko<sup>1</sup>, Juan J Cuadrado-Gallego<sup>2</sup>, Tomasz Wiktorski<sup>3</sup>, Steve Brewer<sup>4</sup>**  
1: University of Amsterdam, Netherlands, The; 2: University of Alcalá, Spain; 3: University of Stavanger, Norway; 4: University of Southampton, UK

2:55pm - 3:10pm

### How to design a competence-oriented study program for data scientists?

**Yvonne Sedelmaier, Dieter Landes, Ercole Erculei**  
Coburg University of Applied Sciences and Arts, Germany

3:10pm - 3:25pm

### Glassdoor Job Description Analytics - Analyzing Data Science Professional Roles and Skills

**Swapna Gottipati, Kyong Jin Shim, Sarthak Sahoo**  
Singapore Management University

3:45pm

### RT1: Round Table Women in Engineering: Work and study during COVID-19 pandemic

Location: **VIRTUAL ROOM Ada Lovelace**  
Scientific Chair: **Aruquia Peixoto**, CEFET/RJ  
Technical Chair: **Astrid Edlinger**, FH Technikum Wien

Moderator: Aruquia Peixoto

Panelists : Carina Gonzalez, Alicia Garcia Holgado and Anita Kloss-Brandstätter

4:45pm

### SES-03A

Location: **VIRTUAL ROOM Hedy Lamarr**  
Scientific Chair: **Christian Kreiter**, Carinthia University of Applied Sciences  
Scientific Chair: **Christos Douligeris**, University of Piraeus  
Technical Chair: **Astrid Edlinger**, FH Technikum Wien

### A runtime execution environment for machine-learning laboratory work

**Mikael Tollefsen, Ottar Osen**  
NTNU - Norges teknisk-naturvitenskapelige universitet, Norway

### Student perceptions of curriculum-based exit exams in civil engineering education

**Hilal El-Hassan, Mohamed Hamouda, Tamer El-Maaddawy, Munjed Maraqa**  
United Arab Emirates University, United Arab Emirates

### SES-03B

Location: **VIRTUAL ROOM Ada Lovelace**  
Scientific Chair: **Alexandros Liapis**, Hellenic Open University, Special Account for Research Funds  
Scientific Chair: **Iris Groher**, JKU Linz  
Technical Chair: **Niklas Fraissl**, UAS Technikum Wien

### Transmedia Ecosystems, Quality of Experience and Quality of Service in Fog Computing for Comfortable Learning

**Vania V. Estrela<sup>1</sup>, Robert Sroufer<sup>2</sup>, Maria A. de Jesus<sup>3</sup>, Nikolaos Andropoulos<sup>4</sup>, Wilma Dora Huacasi Mamani<sup>5</sup>, Aruquia Peixoto<sup>6</sup>**  
1: UFF (Universidade Federal Fluminense), Niteroi, RJ, Brazil; 2: Management Department, Duquesne University, Pittsburg, PA, USA; 3: PQ, Malvern, PA, USA; 4: Computer Science Department, Technological

### SES-03C

Location: **VIRTUAL ROOM Evelyn Boyd Granville**  
Scientific Chair: **Susan Lord**, University of San Diego  
Scientific Chair: **Monica Ionita Ciolacu**, Technische Hochschule Deggendorf  
Technical Chair: **Julia Kositz**, FH Technikum Wien

### Interest High School Students in STEM Studies, while Preparing STEM Students for Leading Positions

**Stefan Kazula, Beatrice Monique Rich, Klaus Höscher, Ralf Woll**  
Brandenburg University of Technology, Germany

### Dig-Equality FF - A playful approach for researching and fostering gender education in secondary schools

**Barbara Göbl, Oswald Comber, Renate Motschnig, Johannes Felber, Hubert**

### WiP1

Location: **VIRTUAL ROOM Pilar Careaga**  
Scientific Chair: **Diana Andone**, Politehnica University of Timisoara  
Scientific Chair: **Alejandro Macho Aroca**, UNED  
Technical Chair: **Joshua Ngoumou**, Fachhochschule Technikum Wien

### Preferences for Teaching Materials: A Survey on a Multimodal World

**Luis Coelho, Sara Reis, Fátima Coelho**  
CIETI - ISEP, Portugal

### Developing an application to gather and centralize the information obtained from the innovation competencies assessment in massive project-based courses

**Eugenio Bravo**  
Universidad de Chile, FCFM, Helice, Chile

### WiP2

Location: **VIRTUAL ROOM Ye Shuhua**  
Scientific Chair: **Majid Rouhani**, Norwegian University of Science and Technology  
Scientific Chair: **Alejandra Alanis**, TECNOLÓGICO DE MONTERREY  
Technical Chair: **Andrea Hoelzel**, Technikum Wien

### Augmented Reality as a strategy to improve learning in engineering

**Alejandra Alanis, Santa Tejada**  
TECNOLÓGICO DE MONTERREY, Mexico

### Work in Progress: An Automated Management System for References in Programming Code

**Muftah Afrizal Pangestu, - Simon**  
University of Newcastle, Australia

Work-in-Progress:



<p><b>Experiences from the 1st Women in Data Science Conference in Villach, Austria</b></p> <p><b>Oliva Pfeiler<sup>1</sup>, Anita Kloss-Brandstaetter<sup>2</sup></b>  1: KAI, Kompetenzzentrum Automobil- u. Industrieelektronik GmbH; 2: FH Kärnten, Austria</p>	<p>Institute of Iceland, Iceland; 5: UENF, Brazil; 6: CEFET/RJ, Brazil</p> <p><b>Development of Inventor Profiles for Engineering Students to Acquire Exclusive Technology Rights</b></p> <p><b>Ivan Roberto Kawaminami-Garcia, Jose Manuel Nieto-Jailil, Francisco Isaias Gutierrez-Castillo, Eduardo Rodriguez-Alvarez</b> ITESM, Mexico</p>	<p><b>Mayer, Heinrich Fenkart</b> University Vienna, Austria</p> <p><b>How gender affects in the engagement of students in a statistics course?</b></p> <p><b>Karla Beatriz Valenzuela-Ocaña, José Carlos Miranda-Valenzuela</b> Tecnológico de Monterrey, Mexico</p>	<p><b>Virtual Design Office: Proposition of Problem- and Project-Based Learning Solution in the COVID-19 Era and Beyond</b></p> <p><b>Hanen Kooli-Chaabane<sup>1</sup>, Nicolas Peyret<sup>1,2</sup>, Moncef Hammadi<sup>1,2</sup>, Antoine Lanthony<sup>1</sup></b>  1: SUPMECA, France; 2: Quartz EA7393, France</p>	<p><b>Virtual Reality System for training on the operation and programming of a Collaborative Robot</b></p> <p><b>Carlos Vazquez, Armando Roman, Vanía Elizondo, Juan Palacios, Gabriel Zamora</b> ITESM, Mexico</p>
<p><b>A Study on Effect of Generic Management Skills on Logical Thinking Skills in Systems Engineering Exploration</b></p> <p><b>Teema Leangarun, Issarapong Khuankrue</b> King Mongkut's University of Technology Thonburi, Thailand</p>	<p><b>Using AR/VR for Technical Subjects in Vocational Training – Of Substantial Benefit or Just Another Technical Gimmick?</b></p> <p><b>Birga Stender, Johannes Paehr, Thomas N. Jambor</b> Leibniz University Hannover, Germany</p>	<p><b>Building a Truly Inclusive Protocol for Students with Disabilities from an Experience in STEM areas</b></p> <p><b>Maritza Peña-Becerril<sup>1</sup>, Claudia Camacho-Zuñiga<sup>1</sup>, César Martínez-Peña<sup>2</sup>, Julio César González_Balderas<sup>1</sup></b>  1: Tecnológico de Monterrey, Mexico; 2: Universidad Nacional Autónoma de México</p>	<p><b>Work-in-Progress: Syntactic Code Similarity Detection in Strongly Directed Assessments</b></p> <p><b>Oscar Karnalim<sup>1,2</sup>, Simon<sup>1</sup>, Mewati Ayub<sup>2</sup>, Gisela Kurniawati<sup>2</sup>, Rossevine Artha Nathasya<sup>2</sup>, Maresha Caroline Wijanto<sup>2</sup></b>  1: University of Newcastle, Australia; 2: Maranatha Christian University, Indonesia</p>	<p><b>Work-in-Progress: Analysis of the use of Mentoring with Online Mob Programming</b></p> <p><b>Shota Kaieda, Daisuke Saito, Hironori Washizaki, Yoshiaki Fukazawa</b> Waseda University, Japan</p>
<p><b>Synchronous Distance Learning: Students and Faculty Experience from a Gender Perspective</b></p> <p><b>Vianney Lara-Prieto, Josefina Muñoz-Castillo, Carmen L. Salazar-Cano, Carlos Martínez-Torteya, Enrique Díaz de León, Genaro Zavala, Ricardo Swain-Oropeza</b> Tecnologico de Monterrey, Mexico</p>	<p><b>Technical trainers overcoming the challenges of rapid methodological change</b></p> <p><b>Isabel Braun, Sophia Müller, Achim Rössler</b> Vector Informatik, Germany</p>	<p><b>Human Rights for Creative and Experimental Immersion Challenge</b></p> <p><b>Rubén Vázquez Esquivel, Alejandro Acuña López, Marisol Álvarez-Tostado Fernández, Ana Sofía Zárate Álvarez</b> Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico</p>	<p><b>Work-in-Progress: A Novel Data Glove for Psychomotor-Based Virtual Medical Training</b></p> <p><b>Kyle Wilcocks<sup>1</sup>, Argyrios Perivolaris<sup>2</sup>, Bill Kapralos<sup>1</sup>, Alvaro Quevedo<sup>1</sup>, Michael Jenkin<sup>3</sup>, Kamen Kanev<sup>4</sup>, Hidenori Mimura<sup>4</sup>, Makoto Hosoda<sup>4</sup>, Fahad Alam<sup>5</sup>, Adam Dubrowski<sup>1</sup></b>  1: Ontario Tech University; 2: University of Toronto; 3: York University; 4: Shizuoka University; 5: Sunnybrook Health Sciences Centre</p>	<p><b>Work-in-Progress: Pre-college Teachers' Metaphorical Beliefs about Engineering</b></p> <p><b>Fan Yu, Johannes Strobel</b> University of Missouri, United States of America</p>
<p><b>Global Experiences in IDEEA Global Projects</b></p> <p><b>Pedro Antonio Orta Castañon, Horacio Ahuett-Garza, Pedro Daniel Urbina</b> Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico</p>	<p><b>Technical trainers overcoming the challenges of rapid methodological change</b></p> <p><b>Isabel Braun, Sophia Müller, Achim Rössler</b> Vector Informatik, Germany</p>	<p><b>Human Rights for Creative and Experimental Immersion Challenge</b></p> <p><b>Rubén Vázquez Esquivel, Alejandro Acuña López, Marisol Álvarez-Tostado Fernández, Ana Sofía Zárate Álvarez</b> Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico</p>	<p><b>Work-in-Progress: A Novel Data Glove for Psychomotor-Based Virtual Medical Training</b></p> <p><b>Kyle Wilcocks<sup>1</sup>, Argyrios Perivolaris<sup>2</sup>, Bill Kapralos<sup>1</sup>, Alvaro Quevedo<sup>1</sup>, Michael Jenkin<sup>3</sup>, Kamen Kanev<sup>4</sup>, Hidenori Mimura<sup>4</sup>, Makoto Hosoda<sup>4</sup>, Fahad Alam<sup>5</sup>, Adam Dubrowski<sup>1</sup></b>  1: Ontario Tech University; 2: University of Toronto; 3: York University; 4: Shizuoka University; 5: Sunnybrook Health Sciences Centre</p>	<p><b>Work-in-Progress: Using Autonomous Training Resources for a More Inclusive Approach to the Teaching of Computer Networks</b></p> <p><b>Jean Luc Sarrade<sup>1</sup>, Isabelle Lermigaux-Sarrade<sup>2</sup></b>  1: HES-SO, HEG, Switzerland; 2: EPFL, Switzerland</p>
<p><b>Experiences from the 1st Women in Data Science Conference in Villach, Austria</b></p> <p><b>Oliva Pfeiler<sup>1</sup>, Anita Kloss-Brandstaetter<sup>2</sup></b>  1: KAI, Kompetenzzentrum Automobil- u. Industrieelektronik GmbH; 2: FH Kärnten, Austria</p>	<p>Institute of Iceland, Iceland; 5: UENF, Brazil; 6: CEFET/RJ, Brazil</p> <p><b>Development of Inventor Profiles for Engineering Students to Acquire Exclusive Technology Rights</b></p> <p><b>Ivan Roberto Kawaminami-Garcia, Jose Manuel Nieto-Jailil, Francisco Isaias Gutierrez-Castillo, Eduardo Rodriguez-Alvarez</b> ITESM, Mexico</p>	<p><b>Mayer, Heinrich Fenkart</b> University Vienna, Austria</p> <p><b>How gender affects in the engagement of students in a statistics course?</b></p> <p><b>Karla Beatriz Valenzuela-Ocaña, José Carlos Miranda-Valenzuela</b> Tecnológico de Monterrey, Mexico</p>	<p><b>Virtual Design Office: Proposition of Problem- and Project-Based Learning Solution in the COVID-19 Era and Beyond</b></p> <p><b>Hanen Kooli-Chaabane<sup>1</sup>, Nicolas Peyret<sup>1,2</sup>, Moncef Hammadi<sup>1,2</sup>, Antoine Lanthony<sup>1</sup></b>  1: SUPMECA, France; 2: Quartz EA7393, France</p>	<p><b>Virtual Reality System for training on the operation and programming of a Collaborative Robot</b></p> <p><b>Carlos Vazquez, Armando Roman, Vanía Elizondo, Juan Palacios, Gabriel Zamora</b> ITESM, Mexico</p>

Date: Thursday, 22/Apr/2021

8:30am - 12:30pm  
**Conference Online Support Slot 1**  
Location: **VIRTUAL ROOM Vienna**  
Technical Chair: **Julia Kositz**, FH Technikum Wien

9:00am - 10:30am  
**SES-04A**  
Location: **VIRTUAL ROOM Hedy Lamarr**  
Scientific Chair: **Ming-Der May**, Lumphwa University of Science and Technology  
Scientific Chair: **Daisuke Saito**, Waseda University  
Technical Chair: **Marlene Patterer**, FH Technikum Wien

**CreaMe: human augmentation platform for the creation of training in educational lakes inherent to dangerous situations**

**Miguel Angel Lopez Montellano<sup>1</sup>, Rubén Gonzalez Crespo<sup>2</sup>, Juan Manuel Lombardo Enriquez<sup>1</sup>**  
1: Fundación I+D del software libre, Spain; 2: Universidad Internacional de La Rioja

**Not a Silver Bullet, but a Silver Lining: Metamorphic Marking Administration**

**Dave Towey, Matthew Pike**  
University of Nottingham Ningbo China, China, People's Republic of

**Intelligent Virtual Reality Tutoring Systems as a New Generation of Simulators: Requirements and Opportunities**

**Olga Maksimenkova, Fedor Dudyrev, Denis Mikhailenko**  
National Research University Higher School of Economics, Russian Federation

**SES-04B**  
Location: **VIRTUAL ROOM Ada Lovelace**  
Scientific Chair: **Gian Marco Mennecozzi**, Aalborg University  
Scientific Chair: **Herbert Kotschnig**, Fachhochschule Kärnten gem.  
Technical Chair: **Joshua Ngoumou**, Fachhochschule Technikum Wien

**Facilitating learning and startup formation in experience-based courses—A team-centered model**

**Orges Cico<sup>1</sup>, Letizia Jaccheri<sup>2</sup>, Anh Nguyen Duc<sup>3</sup>**  
1: Norwegian University of Science and Technology; 2: Norwegian University of Science and Technology; 3: University of South East Norway

**Project-based learning and training of in-service teachers in programming: Projects as a bridge between training and practice**

**Majid Rouhani, Monica Divitini, Atle Olse**  
Norwegian University of Science and Technology, Norway

**Innovative teaching approaches in Conducting a Large Scale Online Synchronous Fresher's Programming Course**

**Nuwan Kodagoda, Anjali Gamage, Kushnara Suriyawansa, Buddhika Jayasinghe, Shalini Rupasinghe, Devanshi Ganegoda, Thilini**

**SS03A: Special Session Challenges in Remote Learning part 1**  
Location: **VIRTUAL ROOM Pilar Careaga**  
Scientific Chair: **Samir El-Seoud**, The British University in Egypt  
Scientific Chair: **Sébastien Jacques**, University of Tours  
Technical Chair: **Andrea Hoelzel**, Technikum Wien

**Understand My World: An Interactive App for Children Learning Arabic Vocabulary**

**M. Samir Abou El-Seoud<sup>1</sup>, Zeyad Ali<sup>2</sup>, Moutaz Saleh<sup>2</sup>, Dominic Massaro<sup>3</sup>, Baotou Khalifa<sup>2</sup>, Jihad M. AlJa'am<sup>2</sup>, Somaya Al-Maadeed<sup>2</sup>**  
1: The British University in Egypt, Egypt; 2: Dept. of Computer Science & Eng. College of Engineering Qatar University, Qatar; 3: Dept. of Psychology Social Science II University of California California, USA

**A framework of Malicious Vehicles Recognition in Real Time Foggy Weather**

**M. Samir Abou El-Seoud<sup>1</sup>, Islam A.T.F. Taj-Eddin<sup>2</sup>, Omar Karam<sup>1</sup>**

1: Faculty of Informatics and Computer Science, British University in Egypt-BUE, Cairo, Egypt; 2: Faculty of Computers and Information, Assiut University, Assiut, Egypt

**Online Teaching amid COVID-19: The Case of Zoom**

**Non-Traditional Education to Advance Women in Computing Careers in the St. Louis Metro Region**

**Annamaria Szakonyi<sup>1</sup>, Maurice Dawson<sup>2</sup>, Harshini Chellasamy<sup>2</sup>, Andreas Vassilakos<sup>2</sup>**  
1: Saint Louis University, United States of America;  
2: Center for Cyber Security and Forensics Education Illinois Institute of Technology, United States of America

**Computer Vision and NLP based Multimodal Ensemble Attentiveness Detection API for E-Learning**

**Manesha Dimanthi Wijeratne, Gayan Ranepura, Shashikala Geethadhari, Manula Athalage, Anjalie Gamage, Dharshana Kasthurirathna**  
Sri Lanka Institute of Information Technology, Sri Lanka

**SS03B: Special Session Experiential Learning Practices part 1**

Location: **VIRTUAL ROOM Ye Shuhua**  
Scientific Chair: **Despo Ktoridou**, University of Nicosia  
Scientific Chair: **Epaminondas Epaminonda**, University of Nicosia  
Technical Chair: **Dhawal Chudal**, FH Technikum Wien

**PROCESS THINKING IN ENGINEERING EDUCATION**

**Americo Lopes Azevedo**  
Faculdade de Engenharia, Universidade do Porto, Portugal

**Problem Based Learning (PBL) in four-week term block mode teaching**

**Rui Li, Andrew Antiohos**  
Victoria University, Australia

**In-Campus Work and Study: Motivation, Challenges, Benefits, Skills Developed and Impact on Studies**

**Despo Ktoridou**  
University of Nicosia, Cyprus

**A model for experiential learning by replicating a workplace environment in virtual classes**

**Leonidas Efthymiou, Despo Ktoridou, Nondas Epaminonda**  
University of Nicosia, Cyprus

**Implementation of Research-based Experiential Learning for Electrical Engineering Master's Students during Covid-19 Pandemic**

**Agung Wahyu Setiawan**  
Institut Teknologi Bandung, Indonesia

**Jayalath, Anuththara Kurrupu**  
SLIIT, Sri Lanka

**The Importance of the Campus - A Study of the Effects of the Covid-19 Pandemic in a CS2 Course**

**Madeleine Lorås, Børge Haugset, Hallvard Trætteberg**  
Norwegian University of Science and Technology, Norway

**SS03C: Special Session Building teachers' digital competencies part 1**

Location: **VIRTUAL ROOM Tereza Margulova**  
Scientific Chair: **Petros Lamerias**, Coventry University  
Scientific Chair: **Bettina North**, AFBB  
Technical Chair: **Selma Kovacevic**, FH Technikum Wien

**Using the PerFECT Framework to Invent Playful Learning Activities for Exploring the Binary System**

**Nektarios Moutoutzis<sup>1,2</sup>, Nikolaos Apostolos Rigas<sup>1</sup>, Chara Xanthaki<sup>3</sup>, Yiannis Maragkoudakis<sup>1</sup>, Stavros Christodoulakis<sup>1</sup>, Desislava Paneva-Marinova<sup>2</sup>, Lilia Pavlova<sup>4</sup>**  
1: Laboratory of Distributed Multimedia Information Systems and Applications, School of Electrical and Computer Engineering, Technical University of Crete, Chania, Greece; 2: Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, Sofia, Bulgaria; 3: Computer Science Teacher in Secondary Education, Chania, Greece; 4: Laboratory of Telematics, Bulgarian Academy of Sciences, Sofia, Bulgaria

**Towards the Development of a Digital Competency Framework for Digital Teaching and Learning**

**Petros Lamerias<sup>1</sup>, Nektarios Moutoutzis<sup>2</sup>**  
1: Coventry University, United Kingdom; 2: Technical University of Crete, Greece

**Cybersecurity Training in the Healthcare Workforce – Utilization of the ADDIE Model**

**Matthew Pears, Stathis Th Konstantinidis**  
Faculty of Medicine and Health Sciences, University of Nottingham, United Kingdom

**Eliciting Educators' Needs on the Design and Application of Augmented Reality Educational Board Games on Cultural Heritage: The case of CHARMap**

**George Kalmoutzidis<sup>1</sup>, George Ketsiakidis<sup>2</sup>, Lazaros Vrysis<sup>3</sup>, Tao Xi<sup>2</sup>, Xiao Ling Wang<sup>2</sup>, Charalampos Dimoulas<sup>3</sup>**  
1: Infinity Design Labs, Lausanne, France; 2: School of Design, Shanghai Jiao Tong University, Shanghai, China; 3: Aristotle University of Thessaloniki, Thessaloniki, Greece

**TechCheck-K: A Measure of Computational Thinking for Kindergarten Children**

**Emily Relkin, Marina Bers**  
Tufts University, United States of America

**3D Print your Artifacts - 3D Turtle Geometry as an Introduction to Programming**

**Manuel Riel, Ralf Romeike**  
Freie Universität Berlin, Germany

**SES-05B**

Location: **VIRTUAL ROOM Evelyn Boyd Granville**  
Scientific Chair: **Luis Alejandro Ponce Cuspinera**, The Dyson Institute of Engineering and Technology  
Scientific Chair: **Ahmed Elsherbini**, Cairo University  
Technical Chair: **Andrea Hoelzel**, Technikum Wien

**Widening Young People' Aspirations for STEM and DIGITAL Careers: A Case Study of the DIGISTEM Project**

**Opayemi Dele-Ajayi<sup>1</sup>, Emma Anderson<sup>1</sup>, Victor**

**Promethee Spathis<sup>1,2</sup>, Ratan Dey<sup>2</sup>**

1: Sorbonne Université; 2: NYU Shanghai

**Problem-Based Learning in Automation Engineering: Performing a Remote Laboratory Session Serving Various Educational Attainments**

**Anne von Hoegen<sup>1</sup>, Michael Bragard<sup>2</sup>, Svenja von Hoegen<sup>3</sup>, Rik W. De Doncker<sup>1</sup>**  
1: RWTH Aachen, Germany; 2: FH Aachen, Germany; 3: ZfSL Aachen, Germany

**Student Perceptions of an Asynchronous Online Discussion Board Used to Assess the Professional Skills**

**Maurice Danaher<sup>1</sup>, Anthony Rhodes<sup>1</sup>, Ashley Ater kranov<sup>2</sup>**  
1: Zayed University, United Arab Emirates; 2: Washington State University, USA

10:40am  
-  
12:10pm

**SES-05A**

Location: **VIRTUAL ROOM Hedy Lamarr**  
Scientific Chair: **Zofia Katarzyna Bishop**, The University of Sheffield  
Scientific Chair: **Manuel Riel**, Freie Universität Berlin  
Technical Chair: **Joshua Ngoumou**, Fachhochschule Technikum Wien

**Analysis of student motivation in the use of a Physics Augmented Remote Lab during the Covid-19 pandemic**

**Priscila Cadorin Nicolete<sup>1</sup>, Fabricio Herpich<sup>1</sup>,**

**SS04A: Special Session Challenges in Remote Learning part 2**

Location: **VIRTUAL ROOM Pilar Careaga**  
Scientific Chair: **Samir El-Seoud**, The British University in Egypt  
Scientific Chair: **Anne von Hoegen**, RWTH Aachen  
Technical Chair: **Dhawal Chudal**, FH Technikum Wien

**Transitioning from Offline to Online Learning: Issues from Computing Student Perspective**

**Eduardo Tocchetto de Oliveira Júnior<sup>2</sup>, Liane Margarida Rockenbach Tarouco<sup>1</sup>, Juarez Bento da Silva<sup>3</sup>**  
1: Federal University of Rio Grande do Sul, Brazil; 2: Federal Institute of Santa Catarina; 3: Federal University of Santa Catarina

#### **Analysis-Design-Justification (ADJ): A Framework to Develop Problem-Solving Skills**

**Ruben Acuna, Ajay Bansal**  
Arizona State University

#### **A Structural Engineering Lab Based on Virtual Construction Site Visits to Develop Students' Competencies for the New Normality**

**Luis H. Hernandez-Carrasco, Monica D. Hernandez-Sanchez, Miguel X. Rodriguez-Paz**  
Tecnologico de Monterrey, Mexico

#### **Evaluation of remote or virtual laboratories in e-Learning engineering courses**

**Yuanyuan Fan, Ana Evangelista, Indumathi V**  
EIT - Engineering Institute of Technology, Australia

#### **The Writing Factory: Structured Collaborative Academic Writing in Engineering**

**Dieter Uckelmann, Anke Pfeiffer**  
HFT Stuttgart, Germany

#### **SS04B: Special Session Experiential Learning Practices part 2**

Location: **VIRTUAL ROOM Ye Shuhua**  
Scientific Chair: **Leonidas Efthymiou**, University of Nicosia  
Scientific Chair: **Rui Li**, Victoria University  
Technical Chair: **Sylvia Lingo**, UAS Technikum Wien

#### **Development of Network Applications and Services Through Project-Based Learning to Meet 21st Century Skills**

**Vijayalakshmi M, Meenaxi Raikar**  
KLE Technological University

#### **Covid-19 contingency plans: the impact on students' future choices**

**Epaminondas Epaminonda, Despo Ktoridou, Leonidas Efthymiou**  
University of Nicosia, Cyprus

#### **Engaging students in COVID times with immersive learning and Self-driven Challenge Based Learning**

**Xavier Crusat<sup>1</sup>, Mar Martinez<sup>2</sup>**  
1: UPC, Spain; 2: KU Leuven

#### **Integration of Professional Certifications with Information Systems Business Analytics Track**

**Kyong Jin Shim, Swapna Gottipati, Yi Meng Lau**  
Singapore Management University

**Ayodele<sup>2</sup>, Femi Alufa<sup>2</sup>, Rebecca Strachan<sup>1</sup>, Akachukwu Okoli<sup>1</sup>, Kemi Fasae<sup>2</sup>**  
1: Northumbria University, United Kingdom; 2: Stremes Learning, Nigeria

#### **Developing a Real World Escape Room for Assessing Preexisting Debugging Experience of K12 Students**

**Tilman Michaeli, Ralf Romeike**  
FU Berlin

#### **A Lab of Hands-on STEM Experiments for Primary Teachers at CERN**

**T. Nantsou, E.C. Kapatios, G.S. Tombras**  
Department of Physics National and Kapodistrian University of Athens, Athens 15784, Greece

#### **Review of Learning Design Choices of Primary School Programming Courses In Empirical Researches**

**Eleni Fatourou, Nikolaos C. Zygouris, Thanasis Loukopoulos, Georgios I. Stamoulis**  
University of Thessaly, Greece

#### **Boosting the Students and Teachers Cybersecurity Awareness During COVID-19 Pandemic**

**Saed Alrabae<sup>1</sup>, Raed Manna<sup>2</sup>**  
1: United Arab Emirates University, United Arab Emirates; 2: Etisalat, Abu Dhabi, UAE

#### **SS04C: Special Session Building teachers' digital competencies part 2**

Location: **VIRTUAL ROOM Tereza Margulova**  
Scientific Chair: **Petros Lameris**, Coventry University  
Scientific Chair: **Emily Relkin**, Tufts University  
Technical Chair: **Katerina Lanickova**, FH Technikum Wien

#### **Code Reuse and Formative Assessment in Secondary Education**

**Niklas Nystad, Majid Rouhani, Monica Divitini**  
Norwegian University of Science and Technology, Norway

#### **Enhancing the Student Learning Experience by Adopting TDD and BDD in Course Projects**

**Fabio Rocha<sup>1</sup>, Layse Santos Souza<sup>1</sup>, Thiciane Suely Silva<sup>1</sup>, Guillermo Rodriguez<sup>2</sup>**  
1: (GPITIC) - Universidade Tiradentes, Brazil; 2: ISISTAN (UNICEN-CONICET), Argentine

#### **Developing a Platform for using Game-Based Learning in Vocational Education and Training**

**Bettina North<sup>1</sup>, Madeleine Diab<sup>1</sup>, Petros Lameris<sup>2</sup>, Jazmin Zarak<sup>3</sup>, Stephanie Philippe<sup>3</sup>, Josefin Mueller<sup>4</sup>, Helge Fischer<sup>4</sup>**  
1: AFBB, Germany; 2: Coventry University, England; 3: Manzalab, France; 4: Dresden University of Applied Sciences, Germany

#### **First Preliminary Findings from the Implementation of a Rhythm based inclusive Program for Students with Special Educational Needs**

**Elias Kourkoutas, Maria Georgiadi, Eleni Tragoula, Yannis Papatzanis, Katerina Lakiotaki**  
UNIVERSITY OF CRETE

#### **Multimedia as a substitute or complement to an optional lecture**

**Nathalie Guilbert**  
EBI, France

#### **A 3D Rhythm-based Serious Game for Collaboration Improvement of Children with Attention Deficit Hyperactivity Disorder (ADHD)**

**Marina Giannarakis<sup>1</sup>, Nektarios Moumoutzis<sup>1</sup>, Yiannis Papatzanis<sup>2</sup>, Elias Kourkoutas<sup>3</sup>, Katerina Mania<sup>1</sup>**  
1: Laboratory of Distributed Multimedia Information Systems and Applications, School of Electrical and Computer Engineering, Technical University of Crete, Chania, Greece; 2: Professional musician,

**Maresha Caroline Wijanto, Oscar Karnalim, Mewati Ayub, Hapnes Toba, Robby Tan**  
Maranatha Christian University, Indonesia

#### **A Mixed Reality Approach Enriching the Agricultural Engineering Education Paradigm, against the COVID-19 Constraints**

**Dimitrios Loukatos<sup>1</sup>, Emmanouil Zoulias<sup>2</sup>, Ioannis-Vasileios Kyrtopoulos<sup>1</sup>, Eleftherios Chondrogiannis<sup>1</sup>, Konstantinos G. Arvanitis<sup>1</sup>**  
1: Dept. of Natural Resources Management & Agricultural Engineering, Agricultural University of Athens; 2: Health Sciences, Faculty of Nursing, National and kapodistrian University of Athens

#### **Synchronous E-learning in Higher Education during the COVID-19 Pandemic**

**Sebastien Jacques, Abdeljalil Ouahabi, Thierry Lequeu**  
University of Tours, France

#### **Integrating Intrusive and Non- Invasive Techniques to Detect Real Time Drivers' Fatigue**

**Ann Nosseir**  
British University in Egypt, Egypt

#### **Face Morphing Attacks: A Threat to eLearning?**

**Christian Rathgeb, Katrin Pöppelmann, Christoph Busch**  
Hochschule Darmstadt, Germany

#### **STCo: Steering Committee meeting**

Location: **Webex Room Labana of Cordoba**  
Scientific Chair: **Manuel Castro**, Universidad Nacional de Educación a Distancia  
Technical Chair: **Stefanie Lietze**, FHTW  
EDUCON Steering Committee meeting  
by invitation only

12:15pm

**CB3: Cyber Break**

Location: **VIRTUAL ROOM Vienna**

1:30pm

12:30pm

**Conference Online Support Slot 2**

Location: **VIRTUAL ROOM Vienna**

6:30pm

Technical Chair: **Andrea Hoelzel**, Technikum Wien

1:30pm

**K3: Keynote 3 María Isabel Pozzo National University of Rosario, Argentina**

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Ann Nosseir**, British University in Egypt

Scientific Chair: **Evija Mirke**, Riga Technical University

Technical Chair: **Julia Kositz**, FH Technikum Wien

Women in Engineering From an Underexplored Dimension: The Completion of Postgraduate Dissertation. A Latin American Perspective The presence of women in engineering is an issue of great importance for the expansion of this academic discipline and for the success of women's claims. The slogan of the EDUCON 2021 Conference shows the relevance of this concern. In this sense, analyzes of different indicators have been undertaken, for example: the number of female engineers among graduates, teachers, roles in companies, in management positions, whether longitudinal or cross-sectional, at different moments and places. This presentation examines an underexplored dimension, which is the performance of women engineers in postgraduate studies; specifically, through the completion of their dissertation, a problematic goal in various fields of knowledge and geographical areas. This review is focused in the Latin American region and is carried out from the university virtual repositories, which in...

2:10pm

**K4: Keynote 4 Olga Viberg EECS - School of Electrical Engineering and Computer Science, Media Technology & Interaction Design, KTH Royal Institute of Technology, Stockholm, Sweden**

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Andreas Pester**, The British University in Egypt

Technical Chair: **Julia Kositz**, FH Technikum Wien

Fostering Students' Self-Regulated Learning to Support Study Success: A Learning Analytics Approach Being able to self-regulate one's own learning is critical for academic success, especially in increasingly emerged online educational settings worldwide. Self-regulated learning (SRL) is a transferable lifelong learning skill that can also guide students' future paths to study and work. It is furthermore associated with students' wellbeing. Still, SRL is challenging and difficult for students, because many of them are not capable of accurately calibrating their own learning processes. SRL can be taught and learned. When developing relevant technology-supported mechanisms, we should take affordances of learning analytics that refers to the measurement, collection, analysis and reporting of data about learners and their learning environment. Learning analytics for SRL can help us to understand the SRL process and based on this understanding, further develop relevant supports tools to...

3:00pm

**SES-06A**

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Georgios Alyfantis**, National

School of Public Administration and Local

Government

Scientific Chair: **Martin Lehner**, UAS Technikum

Wien

Technical Chair: **Julia Kositz**, FH Technikum Wien

4:30pm

**A Data Science-based Approach for Identifying Counseling Needs in first-year Students**

**Axel C.H. Böttcher**, **Veronika Thurner**, **Tanja Häfner**, **Jochen Hertle**

University of Applied Sciences Munich, Germany

**Revisit of automated marking techniques for programming assignment**

**Janani Tharmaseelan**, **Kalpani Manathunga**, **Shyam Royal**, **Dharshana Kasthurirathna**, **Tharsika Thurairasa**

SLIIT, Sri Lanka

**Attempts to improve the curriculum based on ongoing research into Generic Skills**

**Koji Kawasaki**, **Yoshikatsu Kubota**, **Kuniaki Yajima**

National Institute of Technology, Sendai College, Japan

**An attempt to develop students' generic skills by raising their awareness in experimental practice**

**Kuniaki Yajima**, **Koji Kawasaki**, **Takashi Shirane**, **Yoshikatsu Kubota**

National Institute of Technology, Sendai college, Japan

**Coding Club: a K-12 good practice for a STEM learning community**

**Stavroula P. Mithou<sup>1</sup>**, **Nektarios Moutoutzis<sup>2,3</sup>**, **Dimitrios Loukatos<sup>4</sup>**

1: Coding Club GreekCodersK12, Greece; 2: Laboratory of Distributed Multimedia Information Systems and Applications, ECE School, Technical University of Crete, Chania, Greece; 3: Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences; 4: Dept. of Natural Resources Management & Agricultural Engineering, Agricultural University of Athens, Greece

**SS05A: Special Session Education in the new Normal (eMadrid: EdNN) part 1**

Location: **VIRTUAL ROOM Pilar Careaga**

Scientific Chair: **Carlos Delgado Kloos**, Universidad

Carlos III de Madrid

Scientific Chair: **Ahmad Samer Wazan**, Zayed

university

Technical Chair: **Dhawal Chudal**, FH Technikum

Wien

**SES-06B**

Location: **VIRTUAL ROOM Ada Lovelace**

Scientific Chair: **Orges Cico**, NTNU

Scientific Chair: **Safia Ouhbi**, UAE University

Technical Chair: **Marlene Patterer**, FH Technikum

Wien

**Word2Mouth – An eLearning platform catered for Low-Income Countries**

**James Rea**, **Anandha Gopalan**

Imperial College London, United Kingdom

**Build your own robot**

**Pedro Plaza<sup>1</sup>**, **Manuel Castro<sup>1</sup>**, **Elio Sancristobal<sup>1</sup>**, **Félix Garcia-Loro<sup>1</sup>**, **Rosario Gil<sup>1</sup>**, **Antonio Menacho<sup>1</sup>**, **Manuel Blázquez<sup>1</sup>**, **Blanca Quintana<sup>1</sup>**, **Sergio Martín<sup>1</sup>**, **Francisco Mur<sup>1</sup>**, **Alejandro Macho<sup>1</sup>**, **Pablo Baizán<sup>1</sup>**, **Manuel Carrasco<sup>1</sup>**, **German Carro<sup>1</sup>**, **África López-Rey<sup>1</sup>**, **Clara Pérez<sup>1</sup>**, **Russ Meier<sup>2</sup>**, **Edmundo Tovar<sup>3</sup>**

1: UNED, Spain; 2: Milwaukee School of Engineering, United States; 3: UPM, Spain

**Teacher Training during Covid-19: A Case Study of the Virtual STEM Hub Project in Africa**

**Temidayo Falade**, **Opeyemi Dele-Ajayi**, **Nissi Madu**, **Bosun Tijani**

Co-creation Hub, Nigeria

**Creating Learning Environments Within the Constraints of Higher Education - a Case Study of a First-Year Computing Program**

**Madeleine Lorås**, **Trond Aalberg**

Norwegian University of Science and Technology, Norway

**Sentiments and Performance in an Introductory Programming Course Based on PBL**

**Suenny Mascarenhas Souza**, **Roberto Almeida Bittencourt**

UEFS - State University of Feira de Santana, Brazil

**SS05B: Special Session Internet of Things and Industry 4.0 Education (I4.0-Edu'21)**

Location: **VIRTUAL ROOM Ye Shuhua**

Scientific Chair: **Dario Assante**, Università

Telematica Internazionale UNINETTUNO

Scientific Chair: **Gergely Takács**, Slovak University

of Technology in Bratislava

Technical Chair: **Maximilian Saudino**, FH

Technikum

**SES-06C**

Location: **VIRTUAL ROOM Evelyn Boyd Granville**

Scientific Chair: **Promethee Spathis**, Sorbonne

Universite

Scientific Chair: **Jalal Kawash**, University of Calgary

Technical Chair: **Susanna Strobl**, FH Technikum

Wien

**Distributed applications in gamification of the learning process**

**Martin Zagar**, **Matija Sipek**, **Nikola Draskovic**,

**Branko Mihaljevic**

RIT Croatia, Croatia

**Role of Gamification in Engineering Education: A Systematic Literature Review**

**Anil Yasin Ar<sup>1</sup>**, **Asad Abbas<sup>2</sup>**

1: School of Business, Department of International Business and Logistics Tecnologico de Monterrey, Campus Querétaro, Mexico; 2: Writing Lab, Institute for the Future of Education, Tecnologico de Monterrey, Monterrey, Mexico

**Teaching Software Quality Assurance with Gamification and Continuous Feedback Techniques**

**Georg Moser**, **Raoul Vallon**, **Mario Bernhart**,

**Thomas Grechenig**

Vienna University of Technology, Austria

**Avatars and badges, are there differences between genders?**

**Brenda N. Santos - Guevara**, **Elvira G. Rincon Flores**

Tecnológico de Monterrey, Mexico

**Student Experiences of Practical Activities During the Covid-19 Pandemic**

**Zofia K Bishop**, **Thomas Howard**, **Panagiotis**

**Lazari**, **Ben Taylor**, **Peter Trend**, **Adam Funnell**

Multidisciplinary Engineering Education, University of Sheffield, United Kingdom

**The Application of a Laboratory Practical Training for Technical Subjects in Engineering Education**

**Leonid Leonidovich Khoroshko**, **Peter**

**Alexandrovich Ukhov**, **Alexey Leonidovich**

**Khoroshko**

Moscow Aviation Institute (National Research

University), Russian Federation

**WiP3**

Location: **VIRTUAL ROOM Tereza Margulova**

Scientific Chair: **María del Mar Martínez Díaz**, KU

Leuven/ EIT InnoEnergy

Scientific Chair: **Samir El-Seoud**, The British

University in Egypt

Technical Chair: **Katja Landstetter**, FH Technikum

Wien

**Work-in-Progress: An agile approach to**



### Towards a Cloud-Based University Accelerated By the Pandemic

**Carlos Delgado Kloos**, Carlos Alario-Hoyos, Carmen Fernández-Panadero, Pedro J. Muñoz-Merino, Iria Estévez-Ayres, Mario Muñoz-Organero, María Blanca Ibáñez, Pedro Manuel Moreno-Marcos, Boni García  
Universidad Carlos III de Madrid, Spain

### Why students' self-regulation is key towards the new normality?

**Ignacio Noguero**, Bernardo Tabuena, **Edmundo Tovar**  
Universidad Politécnica de Madrid, Spain

### Data science meets standardized game learning analytics

**Cristina Alonso-Fernández**, Antonio Calvo-Morata, Manuel Freire, Iván Martínez-Ortiz, **Baltasar Fernández-Manjón**  
Faculty of Informatics, Complutense University of Madrid, Spain

### Providing Learning Success as a Service: A Structured Literature Review

**Sophie Heim**, Clemens Drieschner, Holger Wittges, Helmut Krcmar  
Technical University of Munich, Germany

### iLabs as an online laboratory platform: A case study at Stanford University during the COVID-19 Pandemic

**Mohammad Asif Zaman**, Lars Thorben Neustock, Lambertus Hesselink  
Stanford University, United States of America

### Teaching Operating Systems in the Time of COVID-19

**Eloy Anguiano**, Rosa M Carro, **Alvaro Ortigosa**, Pilar Rodríguez  
UNIVERSIDAD AUTONOMA DE MADRID, Spain

### Education 4.0: AI empowers smart blended learning process with Biofeedback

**Monica Ionita Ciolacu**<sup>1</sup>, Paul Svasta<sup>2</sup>  
1: Technische Hochschule Deggendorf, Computer Science Faculty, Germany; 2: University Politehnica Bucharest, UPB CETTI, Romania

### BOBShield: An Open-Source Miniature Ball and Beam Device for Control Engineering Education

**Gergely Takács**, Erik Mikuláš, Anna Vargová, Tibor Konkoly, Patrik Šima, Lukáš Vadovič, Matúš Biro, Marko Michal, Matej Šimovec, Martin Gulán  
Slovak University of Technology in Bratislava, Slovak Republic

### Open educational resources for Industry 4.0: supporting the digital transition in an European dimension

**Dario Assante**, Elpidio Romano, Marta Flamini  
Università Telematica Internazionale UNINETTUNO, Italy

### Education in Cyber Physical Systems Security: The Case of Connected Autonomous Vehicles

**Sophia McCall**, Cagatay Yucel, Vasilios Katos  
Bournemouth University, United Kingdom

### Internet of energy: new scenarios, opportunities, challenges and educational solutions

**Dario Assante**<sup>1</sup>, Clemente Capasso<sup>2</sup>, Manuel Castro<sup>3</sup>, Hamid Doost<sup>4</sup>, Sergio Martin<sup>3</sup>, Ottorino Veneri<sup>2</sup>  
1: Università Telematica Internazionale UNINETTUNO, Italy; 2: Istituto Motori - National Research Council of Italy; 3: Universidad Nacional de Educación a Distancia; 4: Fachhochschule des Mittelstands

### SES-07B

Location: **VIRTUAL ROOM Ada Lovelace**  
Scientific Chair: **Douglas Lecorchick**, Berea College  
Scientific Chair: **Stathis Th Konstantinidis**, University of Nottingham  
Technical Chair: **Marlene Patterer**, FH Technikum Wien

### Women engineers' advancement to management and leadership roles: enabling resources and implications for higher education

**Melissa J. Marinelli**<sup>1</sup>, Sally A. Male<sup>1</sup>, Linley A. Lord<sup>2</sup>  
1: The University of Western Australia, Australia; 2: Curtin University, Singapore

### Strengthening of Women's Leadership in STEM educational environment through social NETWORKS: case of success with international network.

**Laura Eugenia Romero Robles**, María Gabriela Ortiz Martínez, María Ileana Ruiz Cantisani, Vianney Lara Prieto, Rubi Román Salgado  
ITESM campus Monterrey, Mexico

### STEM & Gender equity: empowering women in vulnerable environments

**María Ileana Ruiz-Cantisani**, **Denisse Ileana Lopez-Ruiz**, Natalia Suárez-Cavazos, Jazzmin Novelo-Villegas, Elvira G. Rincón-Flores, María Yolanda Burgos-Lopez  
Tecnológico de Monterrey, Mexico

### Design and conduct of clinical research: Raising awareness of ethical aspects in biopharmaceutics for students of Biotechnology Engineering

**Angélica Lizeth Sánchez López**<sup>1</sup>, Yocanxóchit Perfecto Avalos<sup>1</sup>, Héctor Franco Villarreal<sup>2</sup>, Eduardo Francisco Pérez de Lara González<sup>2</sup>  
1: Tecnológico de Monterrey, Escuela de Ingeniería y Ciencias; 2: Hospital La Misión, México

### Developing Global Engineers through Interdisciplinary PBL and Design Thinking

### formative assessment in higher education

**Aleksander Larsen Skrede**<sup>1</sup>, Øystein Bjelland<sup>1</sup>, Evelyn Honoré-Livermore<sup>2</sup>  
1: Department of ICT and Natural Sciences, Norwegian University of Science and Technology, Norway; 2: Department of Electronic Systems, Norwegian University of Science and Technology, Norway

### Work in Progress: Creative Coding and Computer Science Education – From Approach to Concept

**Vincenzo Fragapane**, Bernhard Standl  
Karlsruhe University of Education, Germany

### Work-in-Progress: Data Science Framework for Environmental Protection Education

**Mateo Sokac**<sup>1</sup>, Paula Pufek<sup>2</sup>, Marko Milardic<sup>2</sup>, Branko Mihaljevic<sup>2</sup>, Stasa Puskaric<sup>2</sup>, Martin Zagar<sup>2</sup>  
1: Aarhus University Hospital, Denmark; 2: RIT Croatia, Croatia

### Teaching Software Engineering During Covid-19 - Constraint or an Opportunity?

**Royal Sivan**, Hadas Chassidim  
Shamoon College of Engineering, Israel

### Work in Progress: Pedagogy of Engineering Ethics: A Bibliometric and Curricular Analysis

**Osama Nasir**, Saamia Muntaha, Rana Tallal Javed, **Junaid Qadir**  
Information Technology University, Pakistan

### Safe environments and female role models: important factors for girls approaching STEM-related careers through robotics initiatives

**Cinthya Paola Fernández-de la Peña**, Víctor Antonio Gómez-Aladro, Lamberto Álvarez-Palacios, Carlos Alejandro Díaz-Tufino  
Tecnológico de Monterrey, Mexico

### SES-07C

Location: **VIRTUAL ROOM Pilar Careaga**  
Scientific Chair: **Saed Alrabaa**, United Arab Emirates University  
Scientific Chair: **Pedro Antonio Orta Castañón**, Instituto Tecnológico y de Estudios Superiores de Monterrey  
Technical Chair: **Susanna Strobl**, FH Technikum Wien

### Improved Power Engineering Curriculum: Analysis in a Year 3 Course in Electrical Engineering

**Hua Chai**, Jayashri Ravishankar, Ke Meng, **Matthew Priestley**  
University of New South Wales, Australia

### Hands-on teaching with microcontrollers

**Carlos Ruiz Zamarreño**  
Public University of Navarra, Spain

### Teaching Team Collaboration in Cybersecurity: A Case Study From the Transactive Memory Systems Perspective

**Kay Yoon**, Sang-Yoon Chang  
University of Colorado Colorado Springs, United States of America

### SQHeLper: A block-based syntax support for SQL

**Sven Jacobs**, Steffen Jaschke  
Universität Siegen, Germany

### Student perceptions of emergency remote civil engineering pedagogy

**Munjed Maraqa**<sup>1</sup>, **Ashraf Aly Hassan**<sup>1,2</sup>, Mohamed Hamouda<sup>1</sup>, Hilal El-Hassan<sup>1</sup>, Amr Eldieb<sup>1</sup>  
1: United Arab Emirates University, United Arab Emirates; 2: University of Nebraska Lincoln, Lincoln, NE

### Flipped mastery and gamification to teach Computer networks in a Cybersecurity Engineering Degree during COVID-19

**Cesar Caceres-Taladriz**

4:30pm

-  
6:00pm

### SES-07A

Location: **VIRTUAL ROOM Hedy Lamarr**  
Scientific Chair: **Eugenio Bravo**, Universidad de Chile  
Scientific Chair: **Vincenzo Fragapane**, Pädagogische Hochschule Karlsruhe  
Technical Chair: **Julia Kositz**, FH Technikum Wien

### Quantitative Exploration of International Female and Male Students in Undergraduate Engineering Programs in the USA

**Susan Lord**<sup>1</sup>, Matthew Ohland<sup>2</sup>, Russell Long<sup>2</sup>, Richard Layton<sup>3</sup>  
1: University of San Diego, United States of America; 2: Purdue University, United States of America; 3: Layton Consulting, United States of America

### Creating Inclusive Engineering and Computer Science Classes – the impact of Covid-19 on Student Experiences and Perceptions of Gender Inclusivity

**Melissa J. Marinelli**, **Sally A. Male**, Elaine Chapman  
The University of Western Australia, Australia

### The Impact of Combining Storytelling with Lecture on Female Students in Software Engineering Education

**Sofia Ouhbi**, Mamoun Adel M. Awad  
Dept. Computer Science & Software Engineering, United Arab Emirates University

### Mentoring program: women supporting women

**María Ileana Ruiz-Cantisani**, Vianney Lara-Prieto, Rebeca M. García-García, María Gabriela Ortiz-Martínez, Elvira G. Rincón-Flores, Laura E. Romero-Robles  
Tecnológico de Monterrey, Mexico

### Women for Leadership in Engineering: a link Between Students and High-Impact Projects

**Rebeca María García García**, **Rosella Soriano**

**Gonzalez, Vianney Lara Prieto, Jorge Membrillo-Hernández**  
Instituto Tecnológico Y De Estudios Superiores De Monterrey, Mexico

**Goudarz Poursharif, Tamer P. Doss, Rebecca Broadbent, Gillian Knight**  
Aston University, United Kingdom

Universidad Rey Juan Carlos, Spain

### Women Engineers Empowerment through Linked Experiences

**Vianney Lara-Prieto, Rebeca M. García-García, M. Ileana Ruiz-Cantisani, M. Yolanda Burgos-López, Patricia Caratozzolo, Esmeralda Uribe-Lam, Laura E. Romero-Robles, Jorge Membrillo-Hernández**  
Tecnologico de Monterrey, Mexico

### Applying machine learning to a virtual serious game for neuropsychological assessment

**Javier Marín-Morales, Irene Alice Chicchi Giglioli, Lucía Carrasco Ribelles, Mariano Alcañiz Raya**  
Instituto de Investigación e Innovación en Bioingeniería (i3B), Universitat Politècnica de València, Spain

### SS06A: Special Session Education in the new Normal (eMadrid: EdNN) part 2

Location: **VIRTUAL ROOM Ye Shuhua**  
Scientific Chair: **Edmundo Tovar**, Universidad Politécnica de Madrid  
Scientific Chair: **Mohammad Asif Zaman**, Stanford University  
Technical Chair: **Dhawal Chudal**, FH Technikum Wien

### SS06B: Special Session Challenges in Remote Learning part 3

Location: **VIRTUAL ROOM Tereza Margulova**  
Scientific Chair: **Matthias Gottlieb**, Technical University of Munich  
Scientific Chair: **Antonina Hammermüller**, FH Kärnten  
Technical Chair: **Valentin Krendl**, FH-Technikum Wien

### Studying the Students' Learning in LoT@UNED

**Llanos Tobarra, Antonio Robles-Gomez, Rafael Pastor-Vargas, Roberto Hernandez, Juan M. Haut**  
Dpt. Communications and Control Systems, UNED, Spain

### Adaptation to emergency remote teaching by students with distinct ICT backgrounds

**Jorge Manuel Mendonça<sup>1</sup>, Maria de Lurdes Silva<sup>2</sup>, Carla Manuela Pinto<sup>3</sup>**  
1: Polytechnic of Porto - School of Engineering, Portugal; 2: Polytechnic of Porto - Porto Accounting and Business School and CEOS,PP; 3: Polytechnic of Porto - School of Engineering and Centre for Mathematics of the University of Porto

### Students' Emotions Using an Algorithm Experimentation Tool in the New Normal

**J. Ángel Velázquez-Iturbide, Daniel Palacios-Alonso**  
Universidad Rey Juan Carlos, Spain

### Distance learning during Covid-19: Lessons learned and Case studies from Egypt

**Ahmed Elsherbin<sup>1</sup>, Mohamed A. Aboul-Dahab<sup>2</sup>, Mohamed Mostafa Fouad<sup>2</sup>, Mohamed F. Abdelkader<sup>3</sup>**  
1: Cairo University, Egypt; 2: Arab Academy for Science and Technology and Maritime Transport, Egypt; 3: Port Said University, Egypt

### BeA (Blended e-Assessment): Adapting to the COVID-19 world

**Martín Llamas-Nistal, Fernando Ariel Mikic-Fonte, Manuel Caero-Rodríguez, Martín Liz-Dominguez**  
atlanTTic, Universidade de Vigo, Spain

### A Cognitive Style-based Usability Evaluation of Zoom and Teams for Online Lecturing Activities

**Heba Ismail<sup>1</sup>, Huda Khafaji<sup>1</sup>, Hamda Fasla<sup>1</sup>, AbdulRehman Younis<sup>1</sup>, Saad Harous<sup>2</sup>**  
1: ADU, Abu Dhabi University, UAE; 2: UAEU, UAE University, UAE

### Promoting Computational Thinking through Visual Block Programming Tools

**Pedro Plaza<sup>1</sup>, Manuel Castro<sup>1</sup>, Jose Manuel Sáez-López<sup>1</sup>, Elio Sancristobal<sup>1</sup>, Rosario Gil<sup>1</sup>, Antonio Monacho<sup>1</sup>, Félix García-Loro<sup>1</sup>, Blanca Quintana<sup>1</sup>, Sergio Martín<sup>1</sup>, Manuel Blázquez<sup>1</sup>, Alejandro Macho<sup>1</sup>, Pablo Baizán<sup>1</sup>, Francisco Mur<sup>1</sup>, German Carro<sup>1</sup>, Clara Pérez<sup>1</sup>, Ramón Carrasco<sup>1</sup>, África López-Rey<sup>1</sup>, Miguel Rodríguez-Artacho<sup>1</sup>, Jose Antonio Ruipérez-Valiente<sup>2</sup>**  
1: UNED, Spain; 2: MIT, USA

### Supporting effective education for special needs children in Saudi Arabia during COVID-19 pandemic

**Hosam El-Sofany<sup>1</sup>, Nirmla Sharma<sup>1</sup>, Samir A. El-Seoud<sup>2</sup>**  
1: King Khalid University, Saudi Arabia; 2: British University in Egypt (BUE), Cairo, Egypt

### Which Virtualization Technology is Right for My Online IT Educational Labs?

**Ahmad Samer Wazan<sup>1</sup>, Mohammad Amin Kuhail<sup>1</sup>, Kadhim Hayawi<sup>1</sup>, Rémi Venant<sup>2</sup>**  
1: Zayed University, United Arab Emirates; 2: Le Mans University, France

**Date: Friday, 23/Apr/2021**

**8:30am - 12:30pm** **Conference Online Support Slot 1**  
Location: **VIRTUAL ROOM Vienna**  
Technical Chair: **Julia Kositz**, FH Technikum Wien

**9:00am - 10:30am** **SES-08A**  
Location: **VIRTUAL ROOM Hedy Lamarr**  
Scientific Chair: **Andreas Pester**, The British University in Egypt  
Scientific Chair: **Irene Rothe**, Bonn-Rhein-Sieg University of Applied Sciences  
Technical Chair: **Joshua Ngoumou**, Fachhochschule Technikum Wien

### Advanced System to Measure UX in Online Learning Environments

**Ariel A. Lopez-Aguilar, Rogelio Bustamante-Bello, Sergio A. Navarro-Tuch**  
Tecnologico de Monterrey, Mexico

**Computer Science Majors' Experiences of Their Distance Education Caused by**

**SES-08B**  
Location: **VIRTUAL ROOM Ada Lovelace**  
Scientific Chair: **Anjalee Gamage**, Sri Lanka Institute of Information Technology  
Scientific Chair: **Gerd Christian Krizek**, University of Applied Sciences  
Technical Chair: **Maximiliano Marino Zulli**, FH Technikum Wien

### Pros and cons of Blockchain-based approaches in Education

**Duaa Omar Abuhamdi<sup>1</sup>, Omar Alfandi<sup>2</sup>**  
1: Abu Dhabi polytechnic, United Arab Emirates; 2: Zayed University, United Arab Emirates

**Pushing the 5G edge into the Principles of Communications Course**

**SES-08C**  
Location: **VIRTUAL ROOM Evelyn Boyd Granville**  
Scientific Chair: **Sathya Prasad**, PES University  
Scientific Chair: **Axel C.H. Böttcher**, University of Applied Sciences Munich  
Technical Chair: **Dhawal Chudal**, FH Technikum Wien

### Scripting an Integrated Learning and Work Process to Scaffold Online Action-oriented Learning

**Yongwu Miao<sup>1,2</sup>, Yuan Li<sup>4</sup>, Mingjie Pu<sup>3</sup>, Xiaogang Du<sup>2,3</sup>**  
1: The University of Duisburg-Essen, Germany; 2: Wuhan E-competence Education Scientific LMT., China; 3: Wuhan Woostar Electricity LMT, China; 4: Wuhan Polytechnic

**SES-08D**  
Location: **VIRTUAL ROOM Pilar Careaga**  
Scientific Chair: **Habib M. Kammoun**, University of Sfax  
Scientific Chair: **Kyong Jin Shim**, Singapore Management University  
Technical Chair: **Stefanie Lietze**, FHTW

### CS-Students' Behavior in Times of Corona

**Peter Salhofer**  
FH JOANNEUM, Austria

### Shifting the Flipped Classroom Online: Experiences from a Postgraduate Course on Usability Evaluation During COVID-19 Lockdown

**Maria Rigou<sup>1</sup>, Michalis Xenos<sup>2</sup>, Semira Maria**

**SES-08E**  
Location: **VIRTUAL ROOM Ye Shuhua**  
Scientific Chair: **Thomas Klinger**, Fachhochschule Kaernten - gemeinnuetzige Privatstiftung  
Scientific Chair: **Veronika Thurner**, Hochschule München  
Technical Chair: **Nicole Sagmeister**, University of Applied Sciences Technikum Wien

### An Online-Tool for career planning of women in STEM: From research to application

**Johanna M. Wertz<sup>1</sup>, Miriam Schmitt<sup>2</sup>, Esther Borowski<sup>1</sup>, Uwe Wilkesmann<sup>2</sup>, Ingrid Isenhardt<sup>1</sup>**  
1: IMA, RWTH Aachen University, Germany; 2: zhb, TU Dortmund, Germany

**the COVID-19 Pandemic**  
**Emma Riise, Viggo Kann**  
KTH Royal Institute of Technology, Sweden

**Artificial Intelligence as a Gear to Preserve Effectiveness of Learning and Educational Systems in Pandemic Time**

**Salah Bouktif<sup>1</sup>, Ayisha Manzoor<sup>2</sup>**  
1: UAE University; 2: UAE University

**A Step that Paves the Way of Teaching Modern Electrical Circuits**

**Georgia I. Eleftheriou<sup>1</sup>, Efstratios C. Kapotis<sup>2</sup>, Hector E. Nistazakis<sup>2</sup>, George T. Kalkanis<sup>1</sup>**  
1: National and Kapodistrian University of Athens, Greece; 2: Department of Physics, Section of Electronic Physics, National and Kapodistrian University of Athens

**Utilization of Existing Resources to Support Active Distance Learning during Covid-19 Pandemic in Developing Country**

**Agung Wahyu Setiawan**  
Institut Teknologi Bandung, Indonesia

**An Outcome Based Approach for Applied Mechanics Courses using Bloom's Taxonomy and ABET Criteria**

**Khurshid Alam, Sayyad Zahid Qamar, Abdullah Al Shabibi**  
Sultan Qaboos University

**based on a blended lab platform**

**Zhengguang Xu<sup>1</sup>, Xiaojun Hei<sup>1</sup>, Daiming Qu<sup>1</sup>, Wei Li<sup>2</sup>**  
1: Huazhong University of Science and Technology, China, People's Republic of; 2: Wuhan Easy Start Technology Company limited, China, People's Republic of

**Learning Spaces for a Competency-based Model: Post-occupancy Evaluation.**

**Elvira G. Rincon Flores<sup>1</sup>, Jesus Alexei Mendoza Moreno<sup>1</sup>, Eunice Lopez Camacho<sup>2</sup>, Juanjo Mena<sup>3</sup>**  
1: Tecnologico de Monterrey, Mexico; 2: Independent researcher, United States; 3: Universidad de Salamanca, España

**The Design and Evaluation of a Hands-on Course on Cloud Computing Environment**  
**Muhammad Wannous**  
Kobe Institute of Computing, Japan

**The Data Management of the Language of Trauma Narrative Communication**

**Shy Wei Chin<sup>1</sup>, Seng Tong Chong<sup>1</sup>, Abu Bakar Musa<sup>1</sup>, Kee Shyuan Loh<sup>2</sup>**  
1: UNIVERSITI TENAGA NASIONAL, Malaysia; 2: Universiti Kebangsaan Malaysia, Malaysia

**Contribution for the continuity of courses at the University of Bangui in the context of COVID-19**

**Nadege Gladys Ndassimba, Ghislain mervyl Kossingou, Edgard Ndassimba, Samuel Ouya**  
University Cheikh Anta Diop of Dakar, Senegal, Laboratory of Computing, Networks and Telecoms (LIRT)

**Polarizing Effect: Challenges of an Accelerated Digitalization caused by Sars-Cov-2**

**Manuel Mayer<sup>1</sup>, Matthias Gottlieb<sup>2</sup>, Markus Brandstätter<sup>1</sup>**  
1: FOM Hochschule, Germany; 2: Technische Universität München, Germany

**Cultivating entrepreneurship in higher education during a crisis condition: crisis related issues discussed in entrepreneurship literature**

**Isabel M. João<sup>1,2</sup>, João M. Silva<sup>1,3</sup>**  
1: ISEL - Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa.; 2: CEG-IST, Instituto Superior Técnico, Universidade de Lisboa; 3: CQE, Instituto Superior Técnico, Universidade de Lisboa

**Microelectronics Education Environment: Training for the Semiconductors Market**  
**Raphael Ronald Noel Souza<sup>1</sup>, Agord Pinto Jr.<sup>2</sup>**  
1: University of Campinas - Unicamp, Brazil; 2: University of Campinas - Unicamp, Brazil

**Gender and Diversity aspects in Engineering Education and their impact on the design of engineering curricula**  
**Brit-Maren Block, Marie Gillian Guerne**  
Leuphana University of Lüneburg, Germany

**Evangelou<sup>2</sup>**  
1: Department of Management Science and Technology, University of Patras, Greece; 2: Department of Computer Engineering and Informatics, University of Patras

**Assessing Individuals within Teams in Project-Based Learning Courses – Strategies, Evaluation and Lessons Learnt**

**Nicola Brown**  
Massey University, New Zealand

**Lab Course on Electrical Drive Trains Based on Students' Participation**

**Jörg Kammermann<sup>1</sup>, Alexandra Strasser<sup>2</sup>, Ilona Rauh<sup>1</sup>, Julian Taube<sup>1</sup>, Hans-Georg Herzog<sup>1</sup>**  
1: Institute of Energy Conversion Technology; Technical University of Munich (TUM), Germany; 2: ProLehre | Media and Didactics; Technical University of Munich (TUM), Germany

**Evaluating the remote examination process applied by the Hellenic Open University (HOU) during COVID-19 pandemic: Students' opinions.**

**Alexandros Liapis, George Vorvilas, Alkis Korovesis, Dimitra Aggelopoulou, Nikos Karousos, Efstathios Efstathopoulos**  
Hellenic Open University, Greece

**Findings for Flexible Digital Model (MFD) Courses to enhance women participation in Industrial and Systems Engineering Courses**

**Maria Rubi Forte-Celaya, Luis Fernando Reséndez-Maqueda, Alejandro Sandoval-Correa, Ricardo Swain-Oropeza**  
Tecnologico de Monterrey, Mexico

**EMPOWERING YOUNG WOMEN IN THE CARIBBEAN REGION IN STEM**

**Lucy García-Ramos<sup>1</sup>, Rita Peña-Baena<sup>1</sup>, Alicia García-Holgado<sup>2</sup>, Amparo Camacho<sup>1</sup>, María Gabriela Calle<sup>1</sup>**  
1: Universidad del Norte, Colombia; 2: Universidad de Salamanca, España

**Women in science and technology studies. A study about the influence of parents on their children's choice of speciality. And about the trend of the different specialities in Spanish students**

**Lucía Alonso-Virgós<sup>1</sup>, Marián Diaz Fondón<sup>2</sup>, Jordan Pascual Espada<sup>2</sup>, Rubén González Crespo<sup>1</sup>**  
1: universidad internacional de la rioja - UNIR, Spain; 2: universidad de oviedo

**Women in engineering academic programs: a dynamic modelling approach of south Mexico**

**Jorge A. Gonzalez-Mendivil, Miguel X. Rodriguez-Paz, Israel Zamora-Hernandez, Alicia G. Herrera**  
Tecnologico de Monterrey, Mexico

10:30am

-

11:10am

**K5: Keynote 5 Manuel Castro UNED, Madrid, Spain**

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Valerie Varney**, TH Köln

Scientific Chair: **Olga Oreshkina**, Bauman Moscow State Technical University

Technical Chair: **Joshua Ngoumou**, Fachhochschule Technikum Wien

**Women in TEL Engineering, A Synergy Life**

This plenary will show a trip during the last thirty years around Technology Enhanced Learning (TEL) Engineering and my personal vision of their evolution on my hands and on the three close woman around my academy framework in different areas, activities, geographical areas but maintaining a new approach of gender and diversity that accompanied all my professional life devoted to engineering and education, international activities and associations. Years of evolution, changes, new personal best surfing in a hostile environment but with the help and support of a lot of colleagues around the world with a similar vision, change and go ahead.

11:10am

-

12:10pm

**RT2: Remote laboratory VISIR: recent advances, initiatives, federation, limitations and future**

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Gustavo R. Alves**, Polytechnic of Porto - School of Engineering

Scientific Chair: **Maria Marques**, Polytechnic of Porto

Technical Chair: **Marlene Patterer**, FH Technikum Wien

12:00pm

-

1:00pm

**CB4: Cyber Break**

Location: **VIRTUAL ROOM Vienna**

12:30pm

-

6:30pm

**Conference Online Support Slot 2**

Location: **VIRTUAL ROOM Vienna**

Technical Chair: **Marlene Patterer**, FH Technikum Wien

1:00pm

-

2:30pm

**SES-09A**

Location: **VIRTUAL ROOM**

**Hedy Lamarr**

Scientific Chair: **Zalao**

**Aginako**, University of the

Basque Country

Scientific Chair: **Grigoris**

**Daskalogrigorakis**, Technical

University of Crete

Technical Chair: **Julia Kositz**,

FH Technikum Wien

**SES-09B**

Location: **VIRTUAL ROOM**

**Ada Lovelace**

Scientific Chair: **Christian**

**Kreiter**, Carinthia University of

Applied Sciences

Scientific Chair: **Gerd**

**Christian Krizek**, University of

Applied Sciences

Technical Chair: **Sebastian**

**Palme**, FH Technikum Wien

**SES-09C**

Location: **VIRTUAL ROOM**

**Evelyn Boyd Granville**

Scientific Chair: **Jinlu Shen**,

Zhejiang University, China

Scientific Chair: **Zouheir**

**Trabelsi**, UAE University

Technical Chair: **Ruth**

**Lünenborg**, FH Technikum

Wien

**Open-source multi-purpose remote**

**SES-09D**

Location: **VIRTUAL ROOM**

**Pilar Careaga**

Scientific Chair: **Christian**

**Rathgeb**, Hochschule

Darmstadt

Scientific Chair: **Maria Rigou**,

University of Patras

Technical Chair: **Maximiliano**

**Marino Zulli**, FH Technikum

Wien

**SES-09E**

Location: **VIRTUAL ROOM Ye**

**Shuhua**

Scientific Chair: **Olga**

**Maksimenkova**, National

Research University Higher

School of Economics

Scientific Chair: **Martin Zagar**,

RIT Croatia

Technical Chair: **Dhawal**

**Chudal**, FH Technikum Wien

**THE IMPACT OF**

**A Serious Game for**

**PBL Approach in Online**

**Specifics of developing**



**PHYSICAL COMPUTING AND COMPUTATIONAL PEDAGOGY ON GIRLS' SELF-EFFICACY AND COMPUTATIONAL THINKING PRACTICE**

**Sarantos Psycharis<sup>1</sup>**, Konstantinos Kalovrektis<sup>2</sup>, Apostolos Xenakis<sup>3</sup>, Ioannis Paliokas<sup>4</sup>, Matthaios Patrinoopoulos<sup>5</sup>, Petros Georgiakakis<sup>6</sup>, Paraskevi Iatrou<sup>7</sup>, Paraskevi Theodorou<sup>8</sup>, Theodora Papapageorgiou<sup>9</sup>, Vasiliki Ntourou<sup>10</sup>

1: ASPETE, Greece and Hellenic Society for STEM Education; 2: University of Thessaly; 3: University of Thessaly; 4: Hellenic Open University, Patras, Greece; 5: Education Work Coordinator of 2nd Regional Centre for Educational Planning of Attica; 6: STE(A)M & ST(R)EAM teacher; 7: Msc STEM; 8: Msc Telecommunications; 9: Msc ICT; 10: Msc in Education Sciences, Primary School Teacher

**The experience of women students in engineering and mathematics careers: a focus group study**

**Alicia García-Holgado<sup>1</sup>**, Sonia Verdugo-Castro<sup>1</sup>, Angeles Dominguez<sup>2</sup>, Itzel Hernández-Armenta<sup>2</sup>, Francisco José García-Peñalvo<sup>1</sup>, Andrea Vázquez-Ingelmo<sup>1</sup>, M. Cruz Sánchez-Gómez<sup>1</sup>

1: GRIAL Research Group, University of Salamanca, Spain; 2: Tecnológico de Monterrey, Mexico

**Pedagogical Innovations With A Gender Approach To Increase Computer Programming Self-Efficacy In Engineering Students**

**Patricia Jimenez, Jimena Pascual, Javiera Espinoza, Sofia San Martin, Franco Guidi**  
Pontificia Universidad Católica de Valparaíso, Chile

**How does the Corona Pandemic Influences Women's Participation in Massive Open Online Courses in STEM?**

**Catrina Tamara John, Christoph Meinel**  
Hasso Plattner Institute, Germany

**The influence of students' computer science learning experience on their perception of computational thinking**

**Jiachu Ye, Xiaoyan Lai, Gary K.W. Wong**  
The University of Hong Kong, Hong Kong S.A.R. (China)

**SES-10A**

Location: **VIRTUAL ROOM Hedy Lamarr**  
Scientific Chair: **Maritza Peña-Becerril**, Tecnológico de Monterrey  
Scientific Chair: **Jörg Kammermann**, Technical University of Munich (TUM)

**Mobile Phones used in a Software Engineering Course: Usability Evaluation and Educational Effectiveness**

**Semira Maria Evangelou, Georgia Stamoulakatou, Michalis Xenos**  
University of Patras, Greece

**A Stand-Alone Simulation Game for the Participation of Wind Producers in Day-Ahead Electricity Markets**

**Juan S. Giraldo, Koen Kok, Nikolaos G. Paterakis**  
Eindhoven University of Technology, Netherlands, The

**Cybersecurity Teaching Expert Development Project by KOSEN Security Educational Community**

**Keiichi Yonemura<sup>1</sup>**, Hideyuki Kobayashi<sup>2</sup>, Jun Sato<sup>3</sup>, Hisashi Taketani<sup>4</sup>, Shinya Oyama<sup>5</sup>, Satoru Yamada<sup>6</sup>, Satoru Izumi<sup>2</sup>, Hiroyuki Okamoto<sup>7</sup>, Youichi Fujimoto<sup>8</sup>, Yoshinori Sakamoto<sup>9</sup>, Kentaro Noguchi<sup>9</sup>, Seiichi Kishimoto<sup>10</sup>

1: National Institute of Technology, Kisarazu College, Japan; 2: National Institute of Technology, Sendai College, Japan; 3: National Institute of Technology, Tsuoka College, Japan; 4: National Institute of Technology, Tsuyama College, Japan; 5: National Institute of Technology, Hakodate College, Japan; 6: National Institute of Technology, Ishikawa College, Japan; 7: National Institute of Technology, Anan College, Japan; 8: National Institute of Technology, Kumamoto College, Japan; 9: KOSEN; 10: National Institute of Technology, Kochi College, Japan

**A Study of Using Virtual Currency in a Discrete Mathematics Course**

**Darina Dicheva<sup>1</sup>, Breonte Guy<sup>1</sup>, Vassil Yorgov<sup>2</sup>, Christo Dichev<sup>1</sup>, Keith Irwin<sup>1</sup>, Charles Mickle<sup>1</sup>**  
1: Winston-Salem State University, United States of America; 2: Fayetteville State University, United States of America

**Bridging the Gap: Adapting a Security Education Platform to a New Audience**

**Gian Marco Mennecozzi, Kaspar Hageman, Thomas Kobber Panum, Ahmet Türkmen, Rasmi-Vlad Mahmoud, Jens Myrup Pedersen**  
Aalborg University, Denmark

**SES-10B**

Location: **VIRTUAL ROOM Ada Lovelace**  
Scientific Chair: **JIMENA PASCUAL**, PONTIFICIA UNIVERSIDAD CATOLICA DE VALPARAISO  
Scientific Chair: **Michalis Xenos**, University of Patras

**laboratory for IoT education**

**Daniele Pirrone, Claudio Fornaro, Dario Assante**  
Università Telematica Internazionale Uninettuno, Italy

**Going Virtual: Teaching Practical Skills of Circuit Design and Programming for Heterogeneous Groups Online**

**Armin Gruenewald, Christian Giesser, Steffen Buechner, Christian Gibas, Rainer Brueck**  
University of Siegen, School of Life Sciences, Germany

**Greek MOOC of experiments with simple materials for students generates significant findings for teachers and Physics education**

**T. Nantsou, E.C. Kaptotis, G.S. Tombras**  
Department of Physics National and Kapodistrian University of Athens, Athens 15784, Greece

**Co-creating with TalkTech developing attributes through international digital collaborative projects**

**Diana Andone<sup>1</sup>, Mark Frydenberg<sup>2</sup>**  
1: Politehnica University of Timisoara, Romania; 2: Bentley University

**Digitization of an Electronic Instrumentation Laboratory Practice: Measurement of an LDR with Arduino**

**Isabel M. Moreno-García, M. Carmen Salado-Saavedra, Victor Pallares-Lopez**  
Universidad de Córdoba, Spain

**Digitization of an Electronic Instrumentation Laboratory Practice: Measurement of an LDR with Arduino**

**Isabel M. Moreno-García, M. Carmen Salado-Saavedra, Victor Pallares-Lopez**  
Universidad de Córdoba, Spain

**SES-10C**

Location: **VIRTUAL ROOM Evelyn Boyd Granville**  
Scientific Chair: **Isabelle Lermigeaux-Sarrade**, EPFL  
Scientific Chair: **Laura Eugenia Romero Robles**, ITESM campus Monterrey  
Technical Chair: **Judith**

**Robotics Competition in Resource-Poor Environments: Maze Solver Robot**

**Suprabha Jadhav, Kalind Karia, Prasad Trimukhe, Sourav Jena, Kavi Arya e-Yantra, IIT Bombay, India**

**Towards a 21st century personalised learning skills taxonomy**

**Rupert Ward<sup>1</sup>, Oliver Phillips<sup>1</sup>, David Bowers<sup>2</sup>, Tom Crick<sup>3</sup>, James Davenport<sup>4</sup>, Paul Hanna<sup>5</sup>, Alan Hayes<sup>4</sup>, Alastair Irons<sup>6</sup>, Tom Prickett<sup>7</sup>**  
1: University of Huddersfield, United Kingdom; 2: The Open University, United Kingdom; 3: Swansea University, United Kingdom; 4: University of Bath, United Kingdom; 5: Ulster University, United Kingdom; 6: University of Sunderland, United Kingdom; 7: University of Northumbria, United Kingdom

**Attack Specification Language: Domain Specific Language for Dynamic Training in Cyber Range**

**Sobia Arshad<sup>1</sup>, M. Masoom Alam<sup>1</sup>, Saif Al-Kuwari<sup>2</sup>, M. Haider Ali Khan<sup>1</sup>**  
1: Cybersec Lab, COMSAT University Islamabad, Pakistan; 2: College of Science and Engineering Hamad Bin Khalifa University, Qatar

**Creativity in Criticality: tools for Generation Z students in STEM**

**Patricia Caratozzolo<sup>1</sup>, Alvaro Alvarez-Delgado<sup>2</sup>, Samira Hosseini<sup>3</sup>**  
1: School of Engineering, campus Santa Fe, Tecnológico de Monterrey, CDMX, Mexico; 2: School of Social Science, campus Santa Fe, Tecnológico de Monterrey, CDMX, Mexico; 3: WritingLab, TecLabs, Vicerrectoría de Investigación y Transferencia de Tecnología, Monterrey, Mexico

**SES-10D**

Location: **VIRTUAL ROOM Tereza Margulova**  
Scientific Chair: **Anandha Gopalan**, Imperial College London  
Scientific Chair: **Peter Salhofer**, FH JOANNEUM  
Technical Chair: **Maximiliano**

**and implementing remote classes in chemistry with hearing impaired students at a technical university of a general type**

**Olga Alexeevna Oreshkina, Valentina Ivanovna Aslamazova**  
Bauman Moscow State Technical University, Russian Federation

**Acquiring an overcoming attitude in students of computer technologies by troubleshooting challenge**

**Luis Humberto Gonzalez Guerra, Román Martínez Martínez**  
Tec de Monterrey, Mexico

**The Tec21 model educational and its perception. An educational innovation for student-based learning**

**Rafael Benítez-Medina, Saul Juárez-Ordóñez, Miguel Eduardo Uribe-Paczka**  
Tecnológico de Monterrey, Mexico

**Basic Distributed Algorithms Visual Simulations for Distributed Systems Students**

**Alexander Richard, Jesse Francis, Jalal Kawash**  
University of Calgary, Canada

**Pilot study on effectiveness of a virtual game training on executive functions**

**Irene Alice Chicchi Giglioli<sup>1</sup>, Sara Mussoni<sup>2</sup>, Pietro Cipresso<sup>2,3</sup>, Javier Marin-Morales<sup>1</sup>, Giuseppe Riva<sup>2,3</sup>, Mariano Alcañiz Raya<sup>1</sup>**  
1: Instituto de Investigación e Innovación en Bioingeniería (I3B), Universitat Politècnica de Valencia, Valencia, Spain; 2: Department of Psychology, Catholic University of the Sacred Heart, Milan, Italy; 3: ATN-P Lab, Department of Psychology, IRCSS Auxologico Italiano, Milano, Italy

2:30pm

-

4:00pm



Technical Chair: **Julia Kositz**, FH Technikum Wien

### Product validation in creative processes: a gender perspective in industrial design projects.

**Juan-Carlos Rojas**<sup>1,3</sup>, **Juan Luis Higuera Trujillo**<sup>2,1</sup>, **Gerardo Muniz**<sup>1</sup>, **Javier Marin-Morales**<sup>2</sup>

1: Escuela de Arquitectura, Arte y Diseño, Tecnológico de Monterrey, Mexico; 2: Institute for Research and Innovation in Bioengineering (i3B), Universidad Politécnica de Valencia, Spain; 3: Writinglab, Teclabs, Vicerrectoria de Investigación y Transferencia de Tecnología, Tecnológico de Monterrey, Mexico

### Termolabo Project: Design and Implementation of Thermo-Fluids Systems Online Laboratory

**Oswaldo Andrés Vanegas**

**Guillén**<sup>1,2</sup>, **Javier Muñoz**

**Anton**<sup>2</sup>, **Jose Leonardo**

**Benavides Maldonado**<sup>3</sup>, **Johanna Patricia Zumba**

**Gamboa**<sup>1</sup>

1: Universidad de Guayaquil, Ecuador; 2: Universidad Politécnica de Madrid, Spain; 3: Universidad Nacional de Loja, Ecuador

### A continuous feedback system during COVID-19 online teaching

**Reolyn Heymann**<sup>1</sup>, **David T. Risinamhodzi**<sup>2</sup>

1: University of Johannesburg, South Africa; 2: Walter Sisulu University, South Africa

### DigiCulture – course for enhancing digital competences

**Diana Andone**, **Radu Vasiu**,

**Vlad Mihaescu**, **Silviu Vert**,

**Andrei Ternauciu**, **Mugur Mocofan**

Politehnica University of Timisoara, Romania

### A survey for the distance education process in the National School of Public Administration and Local Government (ESDDA): a necessity or an opportunity to modernise learning?

**Anastasia Papastylianou**,

**Georgios Alyfantis**

National School of Public Administration and Local Government, Greece

Technical Chair: **Niklas Fraissl**, UAS Technikum Wien

### Teachers' Readiness for Remote Teaching During COVID-19 Pandemic: The Case of Latvia

**Evija Mirke**<sup>1</sup>, **Liliana Tzivian**<sup>2</sup>

1: Riga Technical University, Latvia; 2: Latvia University, Latvia

### The inclusion of Sustainability in the Electrical Engineering degree: an integrative initiative of the University of The Basque Country (Campus Bizia Lab)

**Zalao Aginako**, **Juan Carlos**

**Citores**, **Maria Begoña**

**Peña-Lang**, **Oier Oñederra**,

**Jon Setien**, **Julen Momoitio**

University of the Basque Country, Spain

### Techniques and Technologies for the Administrative Support of Distance Education in Junior High Schools in the Corona Virus Age

**John Sarlis**, **Dimitrios**

**Kotsifakos**, **Christos**

**Douligeris**

UNIVERSITY OF PIRAEUS,

Greece

### Active learning methodologies in STEM degrees jeopardized by COVID19

**Alpha Pernia-Espinoza**<sup>1</sup>,

**Andres Sanz-Garcia**<sup>2</sup>, **F. Javier**

**Martinez-de-Pison-Ascacibar**<sup>1</sup>, **Fermin**

**Navaridas-Nalda**<sup>3</sup>

1: Department of Mechanical Engineering, EDMANS Research Group, University of La Rioja, Logroño-La Rioja, Spain; 2: Department of Mechanical Engineering, University of Salamanca, Bejar-Salamanca, Spain; 3: Department of Education Sciences, University of La Rioja, Logroño-La Rioja, Spain

### Teaching Efficient Computer Science and Cybersecurity courses amidst the COVID-19 pandemic

**Erald Troja**, **Joan E.**

**DeBello**, **Nicole Roman**

St. John's University, United States of America

Technical Chair: **Lichtenegger**, Technikum Wien

### Teamwork with an Automatic Tutoring Environment as Learning Strategy in Programming courses

**Armandina Juana Leal**

**Flores**, **Luis Humberto**

**Gonzalez Guerra**

Tec de Monterrey, Mexico

### Analyzing the emotions of students' parents at higher education level throughout the COVID-19 pandemic: An empirical study based on demographic viewpoints

**Asad Abbas**<sup>1</sup>, **Samira**

**Hosseini**<sup>1</sup>, **Jose Escamilla**<sup>2</sup>,

**Luis Pego**<sup>3</sup>

1: Writing Lab, Institute for the Future of Education,

Tecnológico de Monterrey,

Monterrey, Mexico; 2: Institute for the Future of Education,

Tecnológico de Monterrey,

Monterrey, Mexico; 3: Inteligencia Audiencias,

Tecnológico de Monterrey,

Monterrey, Mexico

### Multipurpose Use of Quizzes in Teaching

**Irene Rothe**<sup>1</sup>, **Marco**

**Winzker**<sup>1</sup>, **Willi**

**Pustowalow**<sup>2</sup>

1: Bonn-Rhein-Sieg University of Applied Sciences,

Germany; 2: German

Aerospace Center, Institute of

Aerospace Medicine,

Gravitational Biology,

Cologne, Germany

irene.rothe@h-brs.de

### Work-in-Progress: Interdisciplinary projects in times of COVID-19 crisis – challenges, risks and chances

**Felix Huening**, **Marcel**

**Stuettgen**

University of Applied Science

Aachen, Germany

### Work in Progress: Addressing Barriers for Women in STEM in Mexico

**Ana Karen Rangel Lappe**,

**Dennys Torres-Sanchez**,

**Ana Barbara Garza Fuentes**,

**Patricia Caratozzolo**

Instituto Tecnológico de

Estudios Superiores de

Monterrey, Mexico

### Work-in-Progress: Closing the Gaps: Diversity in Programming Education

**Iris Groher**, **Barbara**

**Sabitzer**, **Heike Demarle-**

**Meusel**, **Lisa Kuka**,

**Alexander Hofer**

JKU Linz, Austria

Technical Chair: **Marino Zulli**, FH Technikum Wien

### The Effect of a Pre-Writing Strategy on the Writing Apprehension Levels of Science Students

**Chrysoula Tzima**,

**Lefkothea-Vasiliki Andreou**

Department of Biological

Applications and Technology,

University of Ioannina,

Greece

### A Proposal for a Hybrid Syllabus Search Tool that Combines Keyword Search and Content Based Classification

**Takayuki Sekiya**<sup>1</sup>, **Tomohiro**

**Tatejima**<sup>1</sup>, **Yoshitatsu**

**Matsuda**<sup>2</sup>, **Kazunori**

**Yamaguchi**<sup>1</sup>

1: The University of Tokyo,

Japan; 2: Seikei University

### Online versus Face-to-face Collaborative Learning: Perceptions of Students and Instructors of Technical Writing for Engineers

**Wesam Khairy Morsi**, **Hala**

**Medhat Assem**

The British University in

Egypt, Egypt

### ISOLDE univSity

**wOmen LeaDER**

**Isabel M. Moreno-Garcia**,

**Azahara Lopez-Toledano**

Universidad de Córdoba,

Spain

### Investigating the Situation of Brazilian Undergraduate Students during the COVID-19 Pandemic

**Vanessa Dantas**<sup>1</sup>, **Cassia**

**Isac**<sup>2</sup>, **Cleyton Caetano**

**Souza**<sup>3</sup>, **Adenice Ferreira**<sup>4</sup>,

**Aruquia Peixoto**<sup>5</sup>

1: UFPB – Campus IV; 2:

IFRJ – Campus Paracambi; 3:

IFPB – Campus Monteiro; 4:

CEFET/RJ; 5: UFPE

4:00pm

-

4:15pm

4:15pm

-

4:55pm

### CB5: Cyber Break

Location: **VIRTUAL ROOM Vienna**

### K6: Invited Speech Lisa Bosman Purdue Polytechnic Institute at Purdue University (West Lafayette, IN, USA)

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Wesam Khairy Morsi**, The British University in Egypt

Scientific Chair: **Martha Paloma González**, Tecnológico de Monterrey

Technical Chair: **Julia Kositz**, FH Technikum Wien

Best Practices in Teaching the Entrepreneurial Mindset: Motivation, Implementation, and Dissemination Dr. Lisa Bosman, PhD in Industrial Engineering, is an Assistant Professor in the Department of Technology Leadership and Innovation within the Purdue Polytechnic Institute at Purdue University (West Lafayette, IN, USA). Her STEM education research interests include the entrepreneurial mindset, energy education, interdisciplinary education, and faculty professional development. Dr. Bosman's desire to increase STEM (science, technology, engineering, mathematics) education accessibility and attainment have resulted in her founding of the Purdue University iAGREE Labs (www.iagree.org). Dr. Bosman has authored over 50 publications in international and national journals and conferences. In addition, she has recently authored the text, Teaching the entrepreneurial mindset to engineers (Springer-Verlag GmbH, 2018); a second text

(focused on integrating the entrepreneurial mindset in discipline...

4:55pm

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5:25pm

**AW1: Award Ceremony**

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Michael Auer**, CTI

Scientific Chair: **Aruquia Peixoto**, CEFET/RJ

Technical Chair: **Julia Kositz**, FH Technikum Wien

- EDUCON Meritorious Service Awards presented by Russ Meier, IEEE Educational Society Past President
- EDUCON Best Paper Awards presented by Alberto Cardoso, Member of the Steering Committee of EDUCON, Managing Chair of the EDUCON'21 Award committee
- EDUCON Best Video Contest Award "Advertising My Paper", presented by Christian Madritsch, Publicity and Social Media Committee Chair

5:25pm

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6:00pm

**CC: Closing Ceremony**

Location: **VIRTUAL ROOM Hedy Lamarr**

Scientific Chair: **Henrique Santos**, University of Minho

Scientific Chair: **Despo Ktoridou**, University of Nicosia

Technical Chair: **Julia Kositz**, FH Technikum Wien

Speakers

- Announcement of the next conference: Habib Kammoun, Ilhem Kallel, University of Sfax, Tunisia
- Message from IEEE Region 8: Magdalena Salazar Palma, IEEE Region 8 Past Director and IEEE EDUCON Steering Committee member
- Message from the President elected of the IEEE Educational Society, Martin Llamas Nistal
- Acknowledgements: Christian Kollmitzer, Conference Chair
- Some academic results of EDUCON'21 and Farewell: Andreas Pester, Conference and Program Chair
- Photo session

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