



GEORGE EMIL PALADE
UNIVERSITY OF MEDICINE,
PHARMACY, SCIENCE, AND
TECHNOLOGY OF TARGU MURES

Faculty of Engineering and
Information Technology

The 16th International Conference

INTER-ENG 2022

Interdisciplinarity in Engineering



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interdisciplinarity in engineering

2022

CONFERENCE PROGRAM

“George Emil Palade” University of Medicine, Pharmacy, Science
and Technology of Târgu Mureş
Faculty of Engineering and Information Technology

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6 - 7 October 2022
Târgu Mureş, Romania

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Opening Ceremony

Thursday, October 6th; 10:00 – 10:30

On-line, Faculty of Engineering and Information Technology

Welcome Addresses:

Prof.dr. Leonard AZAMFIREI - Rector

Conf. dr. Péter Oláh – Vice Rector

Prof. dr. habil. eng. Liviu MOLDOVAN –

- Dean of the Faculty of Engineering and Information Technology

Mihály Levente KOVÁCS, Vice-president of Mures County Council

Special Invited talk:

Thursday, October 6th; 10:30 – 13:00

Aula Magna – A200 & On-line, Faculty of Engineering and Information Technology

Green Transition?

Dr. eng. Harri Kiiski – CEO, Azomureş S.A.

Cybersecurity in Industrial Automation

Laurentiu Busi – Global Software and Hardware Development Engineering Team Leader,
Continental Automotive Systems

Privacy protection for mobile applications

Prof. dr. eng. Bogdan Robu – GIPSA-lab laboratory Control Systems Department, Université
Grenoble Alpes, France

Process Mining with Neural Network Technologies

Prof. dr. habil. László Kovács – University of Miskolc, Department of Information Technology

Using a Learning Factory for Teaching, Research and Training

Prof. dr. eng. Dan Centea – McMaster University, Hamilton, Ontario, Canada

Airborne Wind Energy

Prof. dr.eng. Ahmad Hably – Université Grenoble Alpes, France

Ecohydrology for Water Security

Dr. Rahmah Elfithri – UNESCO-IHP, Paris, France

Water-Energy-Food- Environment Nexus Approach by Case Study: A Novel Standalone Solar-Driven Agriculture Greenhouse - Desalination System

Prof. dr. eng. Abdelazim M. Negm - Water and Water structures Engineering Department, Zagazig University, Egypt

Integration of Industry 4.0 Technologies for Smart Cities Development

Prof. dr. Ahmed Hussein Ibrahim - Zagazig University, Egypt.

Parallel Sessions

Thursday, October 6th; 14:00 – 16:00

Locations: A208, A214, A308, A309, A316 & On-line - Faculty of Engineering and Information Technology

Thursday, October 6th; 16:00 – 18:00

Location: On-line - Faculty of Engineering and Information Technology

Encrypt 4.0: Final Valorization Conference Joint Cyber Workforce Development Initiative to Enable The European Industry to Overcome the Shortage of Cybersecurity Professionals

Thursday, October 6th; 12:00 – 13:45, 14:00 – 17:30

Aula Magna – A200, Faculty of Engineering and Information Technology

Innovative Technologies, Advanced Manufacturing and Materials
Room: Online A308 – Faculty of Engineering and Information Technology
Thursday, October 6th 2022; 14:00 – 15:50, 16:00 – 18:00

Session chairs:

- Gabriela Strnad – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Mariana Domnica Stanciu – Transilvania University of Brasov, România and Technology of Târgu Mureș
Ildiko Peter – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Răzvan Cazacu – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Microstructural And Mechanical Properties of Dissimi-Lar Joining of Aluminum And Steel (2)

Hamza Essoussi, Sara Orkhis, Fatima Zahra Bougueraa, Said Ettaqi

Mechanical Characterization of Hybrid Biocomposite Film Chitosan Starch Reinforced By Fiber Raphia (24)

Fatima Zahra Bougueraa, Sara Orkhis, Hamza Essoussi, Said Ettaqi

Study of The Corrosion Resistance of Titanium Implants In Vitro According To Variations In Influencing Factors And Comparison With Cobalt-Chromium (35)

Maryam Amhal, Anissa Regragui, Chouaib Rifki, Hassan Chaair, Antonio Montes Herrera, Deseada María De Los Santos Martínez

Physical-Chemical and Morphological Characterization of Chitosan Extracted From Shrimp Shells (37)

Sara Orkhis, Fatima Zahra Bougueraa, Hamza Essoussi, Said Ettaqi

The Influence of Generating The Stabilizer Moment of The Anti-Roll Bar On Different Constructive Areas of It By Modeling (4)

Alexandru Dobre

Non-Destructive Testing Methods Employed In The Production Processes of Electronic Modules From The Automatic Gearboxes (47)

Sergiu Adrian Ogorean, Liviu Moldovan

A Mathematical Method of Modeling Multi-Wired Class of Flexibility 5 Copper Conductors (50)

Cristina Havadtői, Daniel Dragomir-Stanciu, Liviu Moldovan

Reducing Scraps by Analyzing and Optimizing the Precision Investment Casting Technological Flow Parameters (85)

Liviu-Dorin Pop, Sándor-Dániel Majlath

3D Modelling of Shoe Lasts' Fitting Components To Reduce Waste In Footwear Manufacturing (51)

Mariana Costea, Aura Mihai, Arina Seul

Computer-Generated Shoe Lasts Using 3D Scanned Data And Anthropometric Measurements (52)

Arina Seul, Diana-Roxana Viziteu, Aura Mihai, Antonela Curteza, Mariana Costea

Study on the Behavior of a Beam Prototype for a Van Rear Drive Axle (56)

Alexandru Dobre, Alexandru Chiriac

Study of The Properties of Some Composite Materials Used In The Automotive Industry (59)

Maria Luminita Scutaru, Vasile Gheorghe, Mihail-Marius Limban

Experimental Study of The Coefficient of Thermal Conductivity for MAT Composite Materials Used in Automotive Engineering (60)

Maria Luminita Scutaru, Vasile Gheorghe, Eliza Chircan, Mihail-Marius Limban

The Assessment of the Leaching Behavior of Metallurgical Wastes for a Sustainable Circular Economy (81)

Dana-Adriana Ilutiu-Varvara, Marius Tintelecan, Claudiu Aciu, Ioana-Monica Sas-Boca

Initial Evaluation of The Performances of A Sled-Type Forest Cableway (61)

Daniel Lates, Razvan Alexandru Inte, Mihai Chirca, Marius Dranca, Claudiu Oprea

Contribution Regarding The Production of PLA Products Through 3D Printing, FDM Technology, Use In The Automotive Industry (64)

Sorin Cristian Albu

The Acoustic Spectral Evolution of Violins Before And After Varnishing (65)

Mariana Domnica Stanciu, Silviu Marian Nastac, Adriana Savin

Identifying The Constructive Features of Historical Violins Using Computer Tomography (66)

Mariana Domnica Stanciu, Silviu Marian Nastac, Vladut Petru Gutas

Concernig Aspects For Analysis And Ergonomic Design Looking At For The Medical Problems of The Violin Chin Rest Support (69)

Bogdan Bucur, Daiana Ciurba

Development And Design of PMLS Components For Handling of Specialty Heavy Loads (71)

Bogdan Ioan Gaita, Dan Codrut Petrilean, Dorin Tataru, Anton Darsy

Flange-Type Joints Connected By Preloaded High Strength Bolts (9)

Ionut Iacob Chindris, Claudia Pondichi-Alb, Tudor Hoda

Impact of Non-Structural Road Elements On Noise Pollution, A Case Study In Cluj-Napoca, Romania (12)

Vladimir Marusceac, Alexandra Denisa Danciu, Madalina Ciotlaus

Impact of Soil Type Transition On Circular Tunnels Behavior (14)

Madalina Ciotlaus, Vladimir Marusceac, Alexandra Denisa Danciu

Road Bridges On Tied-Arches With Composite Steel-Concrete Deck. The Issue of Stability of The Arches And Constructive Aspects (6)

Mircea Suciu, Stefan Gutiu, Catalin Moga, Alexandra Denisa Danciu

Determination of The Optimal Thickness of The Floors of Multi-Storey Concrete Structures With Modal Analysis (68)

Marius Botis, Costel Plescan

Assessment Of the Safety Level for A Structural Wall Belonging to A Building with An ACC Masonry Structure Confined by Dispersed Reinforced Concrete Columns

Razvan Andrei Iernutan, Luminita Monica Plesa

Management and Education for Sustainable Manufacturing
Room: Online A309 – Faculty of Engineering and Information Technology
Thursday, October 6th 2022; 12:00 – 16:00

Session chairs:

- Mihaela Bucur – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Sorina Moica – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Cristina Veres – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Business 4.0 Trends And Students Learning Outlook In The Business Engineering Education (1)

Bogdan Fleaca, Elena Fleaca, Radu D. Stanciu

Preventing Failure In The Implementation of ERP Systems Through An Operational Reorganization of Erp Software Companies (22)

Diogo Almeida, Luís Pinto Ferrerira, Francisco Silva, José Sá, Maria Teresa, Paulo Ávila

Continuous Improvement In The Logistics of The Automotive After-Sales Area (23)

José Miguel Moreira, Maria Teresa, Marisa Oliveira, Francisco Silva, Luís Pinto Ferreira

Burnout And Professional Coping Mechanisms Present In The Machine Building Industry (27)

Camelia Angelica Dambean

A Study On The Sustainability of The Online/Hybrid Education System Within The Faculty of Civil Engineering (Technical University of Cluj-Napoca) (28)

Dana Elena Morar, Anamaria Sorina Ciplea, Dorina Sucala

Automotive Comfort: State of The Art And Challenges (41)

Bianca Mihaela Cășeriu, Petruța Blaga

Challenges In Building An Ecosystem For Inclusive Innovation As A Prerequisite For Scaling Up Inclusive And Grassroots Innovation (42)

Liviu Moldovan

Role of Technology, Business And Policy In Supporting Inclusive And Grassroots Innovation (43)

Liviu Moldovan

Teachers' Digital Skills In Tourism Sector To Tackle The Challenges of Tourism Enterprises (44)

Ana-Maria Moldovan

Dispersion of Infectious Aerosols Through Different Mechanical System In A Cardiac Intensive Care Unit (17)

Florin-Emilian Țurcanu, Sebastian-Valeriu Hudișteanu, Nelu Cristian Cherecheș, Marina Verdeș, Ana Diana Ancaș, Cătălin-George Popovici, Vasiliică Ciocan, Larisa Anghel

Evaluation of Patient Satisfaction At The Orthopedics Traumatology Department (45)

Flaviu Moldovan, Tiberiu Bataga

Assuring The Quality of Medical Services At A Medical Center In Romania (46)

Flaviu Moldovan, Tiberiu Bataga

Supply Chains And Their Associated Risks In Romanian Companies (48)

Stefan Nagy-Bota¹, Liviu Moldovan, Iulia E. Varga

Is Technology Taking Over The Efl Classroom? (53)

Adrian Năznean, Andreea-Romana Ban

The Importance of Mentoring For The Profession of An Engineer (54)

Arina Florența Modrea, Andreea-Romana Ban

The Role of Production Indicators In Optimizing The Production Activity of A Company (58)

Petruta Blaga

The Impact of Industry 4.0 On Business Models (62)

Admira Boshnyaku

New Requirements For The Development of Quality Standards of Medical Exoskeletons As A Result of The Unexpected Near Miss Events (63)

Liviu Cristian Chis, Monica Chis, Liviu Moldovan

A perspective on the Romanian national system of vocational training: factors, challenges and solutions (82)

Marius Veres, Cristina Veres

Streamlining Production by Implementing a Control Center System (76)

Alexandrina-Simona Pitea, Dumitrita-Ioana Apafaian, Cristina Veres

Quality Control Basic Tools in Automotive Industry (79)

Egri Maria-Diana, Dumitrița-Ioana Apăfăian, Veres Miklos Marius

Power Systems, Energy Efficiency and Renewable Technologies

Room: A214 – Faculty of Engineering and Information Technology

Thursday, October 6th 2022; 12:00 – 16:00

Session chairs:

Gheorghe Grigoras – "Gheorghe Asachi" Technical University of Iasi

Cristian-Dragoş Dumitru – "George Emil Palade" University of Medicine, Pharmacy,
Science and Technology of Târgu Mureş, România

Adrian Gligor – "George Emil Palade" University of Medicine, Pharmacy, Science and
Technology of Târgu Mureş, România

A Comparative Analysis of The Electric Light Sources For The Dc Or Ac Microgrid Use (11)

Mariana Dumitrescu

Dc Power Microgrid With Renewable Sources Design Case Study (15)

Mariana Dumitrescu

Mathematical Modelling And Design of Photovoltaic System For Free-Standing Application (16)

Sebastian-Valeriu Hudişteanu, Florin-Emilian Turcanu, Nelu-Cristian Cherecheş, Marina Verdeş, Ana Diana Ancaş, Cătălin-George Popovici, Vasiliică Ciocan

Comparative Study of Three Methods For The Estimation of The Weibull (K, C) Parameters For Wind Speed: Case Study In Tangier-Med Port (18)

Anas Elmejdki, Khalid Hati, Abdellah El-Hajjaji, Hilal Essaouini

Assessing The Modernization Process of A Transformer Fleet In The Electric Distribution Networks. Case Study In Romania (20)

Ecaterina Chelaru, Gheorghe Grigoras, Livia Noroc, Stefania Galbau, Bogdan-Constantin Neagu, Ovidiu Ivanov

Modelling of Neutral-Stratified Atmospheric Boundary Layer With Commercial Cfd Software For The Horizontal Homogeneity Thermo-Fluid Problem (21)

Anas Sofi, Narjisse Amahjour, Abderrahman El Kharrim, Yassine Toufique

Overhead Transmission Lines Capacity Management Based On Different Weather Conditions (26)

Constantin Zetu, Bogdan-Constantin Neagu, Gheorghe Grigoras, Ovidiu Ivanov, Mihai Gavrilas

A Study of Four Types of Neural Networks With An Error Correction Approach Applied To Predict Wind Speed (29)

Madhiarasan Manoharan, Brahim Belmahdi, Mohamed Louzazni

Forecast of Photovoltaic Plant Output Using Long Short-Term Memory (Lstm) Network: North Morocco Case Study (3)

Rachid Herbazi, Khadija Hoummada, Lotfi Habib Allah, Ibrahim Hadj Baraka, Mustapha Diani, Adil Chahboun

Modeling And Studying The Effect of Current And Voltage In The Solar Cell Dynamic Parameters (30)

Mohamed Louzazni, Brahim Belmahdi, Manoharan Madhiarasan

Forecasting Solar Radiation Using Machine Learning Algorithms: New Optimization Method (31)

Brahim Belmahdi, Manoharan Madhiarasan, Mohamed Louzazni, Abdelmajid El Bouardi

Optimal Restoration of A Microgrid (32)

Lucian Ioan Dulău

Optimization of Power Cost For A Community With Distributed Sources And Electric Vehicles (33)

Lucian Ioan Dulău, Dorin Bică

Employment of Blockchain Technology In The Field of Renewable Energy (49)

Masoumeh Amirifard, Hamed Taherdoost

Intelligent Solar Photovoltaic Development Model for University Campus Buildings

Cristian-Dragos Dumitru, Adrian Gligor, Vlăsa Ilie

Automation, Robotics, Biomedical Technologies and Intelligent Systems
Room: Online A316 – Faculty of Engineering and Information Technology
Thursday, October 6th 2022; 12:00 – 16:00

Session chairs:

- Mircea Dulău – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Zoltán Germán-Salló – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Stelian-Emilian Oltean – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Adrian-Vasile Duka – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Simulation of A Multivariable Control Solution For A Fractional Distillation Column Process Affected By Uncertainties (10)

Mircea Dulau, Stelian-Emilian Oltean

Numerical Modeling of A Desalination Process Through The Ion-Exchange Membranes of A Electrodialysis Cell (13)

Viorel Ionescu

PAPR Reduction of Multi-Antenna Systems (Mimo-Ofdm) Using Probabilistic Algorithms (19)

Lahcen Amhaimar, Ali Elyakoubi, Mohamed Bayjja, Abdellah Bakhouyi, Younes Nadir

Design And Performance of A Compact Two Inset-Fed Patch Mimo Antenna For 5G Networks (40)

Mohsin Beniysa, Aziz Dkiouak, Aziz El Janati El Idrissi, Alia Zakriti, Mohssine El Ouahabi

A Brain-Computer Interface-Based Simulation of Vending Machine By The Integration Between Gtec Unicorn Eeg Headset And Labview Programming Environment Using P300 Speller And Udp Communication (55)

Oana Andreea Rusanu

Dynamic Utility-Improving Time Series Data Perturbation Framework (57)

Adrian-Silviu Roman

Extension of The Chord Method To The Space R^n (7)

Bela Finta

Entropy Metrics In Hrv Signal Analysis (72)

Zoltan German-Sallo

Educational Trends In Biomedical Signal Processing (73)

Zsolt-Albert Barabás, Zoltan German-Sallo

Web-Based PLC Integrated Process Simulator For Automated Testing (74)

Tudor Covrig, Adrian Gligor, Adrian Duka

Comparative Study of Three Types of Controllers For Variable Speed Wind Turbine (8)

Chaimae Dardabi, Abdelouahed Djebli

Process Mining of Parallel Sequences with Neural Network Technologies

László Kovács, Erika Baksáné Varga, Péter Mileff

Software Implementation and Benchmarking of TinyJAMBU on Programmable Logic Controllers (80)

Adrian-Vasile Duka

Industrial Robot Arm Based And Image Processing Sorting Solution

Ovidiu-Alexandru Roşca, Elena-Emilia Nebunu-Barac, Tudor Covrig