



**BHAAAS**

Bosnian-Herzegovinian American  
ACADEMY OF ARTS AND SCIENCES

# Technical and Natural Sciences 2024

**15<sup>TH</sup>**  
**DAYS OF**  
**BHAAAS**



Sarajevo  
June 20-23





# Symposia list:

## **JUNE 20** THU

1. Computer Science and Artificial Intelligence
2. Advanced Electrical Power Systems

## **JUNE 21** FRI

3. Information and Communication Technologies (InfComTec 2024)
4. Data Science and Geographic Information Systems
5. Special event: Workshop "Safety at Work in Civil Engineering"
6. Special event: Roundtable "Code of Ethics in Civil Engineering"

## **JUNE 22** SAT

7. Civil Engineering
8. Special event: Workshop: "Mathematics and Democracy"
9. Special event: BiH Researchers Meetup (with 3MT Student Awards Ceremony)

## **JUNE 23** SUN

10. Advanced Environmental Engineering and Project Management



# Technical and Natural Sciences Symposia Program

## Computer Science and Artificial Intelligence

**Dželila Mehanović** (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

**Adnan Dželihodžić** (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

**Aldin Kovačević** (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

# JUNE 20 THU

## Hotel Hills - room 4

**8:00 – 8:30 Registration**

**08:30-08:45 What's That Pokémon: Image Synthesis using a DCGAN Architecture**

Aldin Kovačević (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

**8:45-09:00 Predictive Modeling of Electric Power Consumption: Evaluating the Efficacy of Linear, Polynomial, SVR, and Random Forest Methods**

Muamer Aličković (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Nedim Karavdić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Haris Begić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

**09:00-09:15 Predictive Modeling of Stock Prices Using Machine Learning: A Comparative Analysis of LSTM, GRU, CNN, and RNN Models**

Adnan Dželihodžić (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina),

Amila Zunić (University of Sarajevo-School of Economics and Business, Sarajevo, Bosnia and Herzegovina),

Emina Zunić Dželihodžić (International University of Sarajevo-Faculty of Business and Administration, Sarajevo, Bosnia and Herzegovina)



# Technical and Natural Sciences Symposia Program

## **09:15-09:30 Smart Classrooms: A Simplified Approach to Face Recognition Using Machine Learning**

Tarlan Jabiyeu (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Samed Jukić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Dželila Mehanović (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Adnan Miljković (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

## **09:30-09:45 Food Recognition and Segmentation Using Detectron2 Framework**

Adnan Mujagić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Amar Mujagić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Dželila Mehanović (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

## **10:00-10:30 Coffee break**

## **10:30-10:45 Predictive Analysis of Chess Player Performance: An Analysis of Factors Influencing Competitive Success Using Machine Learning Techniques**

Amar Mujagić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Adnan Mujagić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Dželila Mehanović (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

## **10:45-11:00 Property Price Prediction**

Šejla Mandžić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Bećir Isaković (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)



# Technical and Natural Sciences Symposia Program

## **11:00-11:15 Development of a new machine learning-based expert system for prediction of service management of infusomat / infusion pump**

Enis Gegić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Jasmin Kevrić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Lejla Gurbeta (Verlab Research Institute for Biomedical Engineering, Medical Devices and Artificial Intelligence, Sarajevo, Bosnia and Herzegovina),

Bećir Isaković (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Zerina Mašetić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

## **11:15-11:30 Automatic Text Summarization for the Bosnian Language Using LSTM Encoder-Decoder Architecture**

Aldin Kovačević (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Dino Kečo (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Bećir Isaković (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

Enis Gegić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)

## **11:30-11:45 Utilization of Machine Learning Techniques for the identification of Enterobacteriaceae in Urinary Tract Infections (UTI) Using Antibiotic**

Amar Mujkić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Monia Avdić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Jasmin Kevrić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Sanja Jakovac (University Clinical Hospital Mostar, Mostar, Bosnia and Herzegovina)



# Technical and Natural Sciences Symposia Program

## **11:45-12:00 Cardiac arrhythmias detection using a hybrid 2D CNN-SVM model**

Amina Tihak (University of Sarajevo, Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina),

Lejla Hrustemović (University of Sarajevo, Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina),

Dužanka Bošković (University of Sarajevo, Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

## **12:00-12:15 Artificial Intelligence Based Fault Detection Using Kalman Filter**

### **Innovation Sequence**

Tarik Hubana (ARTI Analytics Inc., Morgan Hill, USA),

Migdat Hodžić (ARTI Analytics Inc., Morgan Hill, USA)

## **12:30-13:30 Lunch**

## **13:30-13:45 Composing Software Using Domain Driven Design and the Actor Model**

Samir Halilčević (University of Tuzla-Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina),

Edin Pjanić (University of Tuzla-Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina),

Amer Hasanović (University of Tuzla-Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina)

## **13:45-14:00 Safet Alsović: Comparison of Methods for Generating Sevdah Music Lyrics**

Ejub Šabić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Amar Fazlić (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Amar Genjac (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Aldin Kovačević (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina),

Dino Kečo (International Burch University-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, Bosnia and Herzegovina)



# Technical and Natural Sciences Symposia Program

## Advanced Electrical Power Systems

**Maja Muftić Dedović** (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina, BH K CIGRE)

# JUNE 20 THU

## Hotel Hills - room 5

### 8:00 – 8:30 Registration

### 8:30 – 8:45 Agrivoltaics Potential in Bosnia and Herzegovina Vineyards

Samir Avdaković (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Maja Muftić Dedović (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

### 8:45 – 9:00 Fault Diagnostics in Wind Turbines Utilizing Advanced Signal Processing Techniques - A Literature Review

Samir Avdaković (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Maja Muftić Dedović (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Edina Sadiković (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Edna Duran (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Amir Šiljak (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

### 9:00 – 9:15 Effect of Measurement Uncertainty on PV Output Power Estimation

Fatima Mašić (Institute of Metrology of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina)

Zijad Džemić (Institute of Metrology of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina)

Mirza Šarić (International Burch University, Sarajevo, Bosnia and Herzegovina)





# Technical and Natural Sciences Symposia Program

## **9:15 – 9:30 Optimal Placement of Phasor Measurement Units in Power Systems Using Genetic Algorithms**

Maja Muftić Dedović (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Nedis Dautbašić (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Ajdin Alihodžić (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Adin Memić (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Adnan Mujezinović (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Samir Avdaković (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

## **9:30 – 9:45 Design and Construction of Dual-Axis Solar Tracking Using Arduino Electronics**

Adin Memić (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Maja Muftić Dedović (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

## **9:45 – 10:00 Optimal configuration of the radial distribution network using modified genetic and simulated annealing algorithms**

Hajrudin Jupić (University of Tuzla-Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina)

Tatjana Konjić (University of Tuzla-Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina)

Mia Lešić Aganović (University of Tuzla-Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina)

## **10:00-10:30 Coffee break**

## **10:30 – 10:45 Hosting Capacities in Distribution Network Considering Harmonic Emissions**

Asim Majdanac (JP Elektroprivreda BiH d.o.o. Sarajevo, Bosnia and Herzegovina)

Mirza Šarić (International Burch University, Sarajevo, Bosnia and Herzegovina)

Jasna Hivziefendić (International Burch University, Sarajevo, Bosnia and Herzegovina)

Lejla Vuić (International Burch University, Sarajevo, Bosnia and Herzegovina)

## **12:30-13:30 Lunch**



# Technical and Natural Sciences Symposia Program

## Information and Communication Technologies (InfComTec 2024)

**Chair:** Aljo Mujčić, University of Tuzla-Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina/BHAAAS

**Co-chair:** Mujo Hodžić, University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina/BHAAAS

# JUNE 21 FRI

## Hotel Hills - room 4

**13:45 – 14:00 Registration**

**14:00-14:20 Optimizing Sudoku Solutions: Harnessing Parallelization for Lightning-Fast Result**

Elmin Marevac (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

Jana Jerkić (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

Selman Patković (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

Lejla Salkica (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

**14:20-14:40 Design and Implementation of PID Controller for Competitive Control of Two Processes in Real-Time**

Una Drakulić (University of Bihać-Technical Faculty of Bihać, Bosnia and Herzegovina)

**14:40-15:00 Implementation of Smart Parking Using the Internet of Things and Artificial Intelligence**

Elmin Delibašić (BH Telecom dd Sarajevo, Bosnia and Herzegovina)

Aljo Mujčić (University of Tuzla-Faculty of Electrical Engineering, Tuzla, Bosnia and Herzegovina/BHAAAS)

**15:00-15:20 Techno-economic feasibility of replacing copper cable with fiber –a practical solution**

Mujo Hodžić (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina/BHAAAS)

Anis Maslo (BH Telecom d.d. Sarajevo, Bosnia and Herzegovina)

Nermin Goran (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

Jasmin Hodžić (BH Telecom d.d. Sarajevo, Bosnia and Herzegovina)

**15:20-15:40 Development and Evaluation of a Prototype for an Automated Waste Management System Using LiDAR Technology and Arduino-Based Parallel Processing**

Merjem Bajramović (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

Harun Kusić (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

**15:40-16:00 Coffee break**



# Technical and Natural Sciences Symposia Program

## **16:00-16:20 Generating test suites for an embedded ESP8266 system by using black-box testing methods**

Benjamin Pašić (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Aya Ali Al Zayat (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Ingmar Bešić (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Ehlimana Cogo (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Emir Cogo (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

## **16:20-16:40 Hierarchical bottom-up procedural modeling for completion of partial virtual scenes**

Emir Cogo (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Ehlimana Cogo (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Razija Turčinhodžić Mulahasanović (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Selma Rizvić (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

## **16:40 -17:00 Upgrading the Approach Category at Tuzla International Airport**

Mirza Berković (University of Sarajevo-Faculty of Traffic and Communication, Sarajevo, Bosnia and Herzegovina)

Lejla Nikšić (University of Sarajevo-Faculty of Traffic and Communication, Sarajevo, Bosnia and Herzegovina)

Edvin Šimić (University of Sarajevo-Faculty of Traffic and Communication, Sarajevo, Bosnia and Herzegovina)

## **17:00-17:20 Electronics cooling using Phase Change Materials: An experimental study**

Hamza Ćerimović (International University of Sarajevo, Sarajevo, Bosnia and Herzegovina)

Benjamin Duraković (International University of Sarajevo, Sarajevo, Bosnia and Herzegovina)

Tarik Namas (International University of Sarajevo, Sarajevo, Bosnia and Herzegovina)

## **17:20-17:40 An GIS and IoT-enabled Waste Disposal Management System for Smart Cities: Architecture proposal**

Sanid Muhić (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina)

Nermin Goran (University of Zenica-Polytechnic Faculty, Zenica, Bosnia and Herzegovina),

Alen Begović (University of Sarajevo-Faculty of Electric Engineering, Sarajevo, Bosnia and Herzegovina)



# Technical and Natural Sciences Symposia Program

## Data Science and Geographic Information Systems

**Almir Karabegović** (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina, BHAAAS)

**Jasminka Hasić Telalović** (School of Science and Technology, Sarajevo, Bosnia and Herzegovina)

**Mirza Ponjavić** (International Burch University, Sarajevo, Bosnia and Herzegovina)

# JUNE 21 FRI

## Hotel Hills - room 3

### 10:15-10:30 Registration

### 10:30-10:45 Introductory word: Data Science and Geographic Information Systems in Bosnia and Herzegovina

Almir Karabegović (University of Sarajevo-Faculty of Electrical Engineering, Bosnia-Herzegovina / BHAAAS)

### 10:45-11:00 Heritage and challenges of the development of official cartography in the Federation of Bosnia and Herzegovina

Slobodanka Ključanin (University of Mostar, Faculty of Civil Engineering, Architecture and Geodesy; University of Bihać, Technical faculty, Bihać, Bosnia and Herzegovina)

### 11:00-11:15 Improvement in Prediction Performance using Predictive Error Compensated Neural Networks

Ajla Kulaglic (The American University of the Middle East, Kuwait City, Kuwait)

### 11:15-11:30 Enhancing Infrastructure Management: A Deep Dive into Mobile Laser Scanning and Point Cloud Classification

Marina Davidović Manojlović (University of Novi Sad, Faculty of Sciences, Department of Geography, Tourism and Hotel Management, and Geodesy)

Dajana Tešić (University of Novi Sad, Faculty of Sciences, Department of Geography, Tourism and Hotel Management, and Geodesy)

Tijana Tomić (University of Novi Sad, Faculty of Sciences, Department of Geography, Tourism and Hotel Management, and Geodesy)

### 11:30-11:45 The application of aerial and satellite orthophotos in the analysis of land conditions and changes for the needs of spatial planning at the local level

Hamid Čustović (Academy of Sciences and Arts of Bosnia and Herzegovina, Sarajevo, Bosnia-Herzegovina)

Melisa Ljuša (University of Sarajevo-Faculty of Agriculture and Food Sciences, Bosnia-Herzegovina)

Jasmin Taletović (Sarajevo Canton Institute of Planning and Development, Bosnia-Herzegovina)



# Technical and Natural Sciences Symposia Program

## **11:45-12:00 Estimation of Solar Potential on the Sarajevo's Settlement Roofs Using GIS and Partial DSM**

Iva Cibilic (University of Zagreb, Faculty of Geodesy, Croatia)

Vesna Poslončec-Petrić (University of Zagreb, Faculty of Geodesy, Croatia)

Darija Ljubos (Ericsson Nikola Tesla Services, Krapinska 45, Zagreb, Croatia)

## **12:00-12:15 Estimation of Solar Potential on the Sarajevo's Settlement Roofs Using GIS and Partial DSM**

Nedim Mujić (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina, BHAAAS)

Almir Karabegović (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina, BHAAAS)

Erna Mujić (Third Gymnasium Sarajevo, Bosnia and Herzegovina)

## **12:15-12:30 Short discussion (all participants)**

## **12:30-13:30 Lunch**

## **13:30-13:45 GIS supported analysis of the variation of costs for sewage sludge transport to final disposal sites in Bosnia and Herzegovina**

Maja Colovic Daul (Independent contributor)

Mirza Ponjavić (International Burch University, Sarajevo, Bosnia and Herzegovina)

Denis Fontana (Independent contributor)

## **13:45-14:00 Evaluation of the physical topographic model of the Federation of Bosnia and Herzegovina**

Slobodanka Ključanin (University of Mostar, Faculty of Civil Engineering, Architecture and Geodesy; University of Bihać, Technical faculty, Bihać, Bosnia and Herzegovina)

Mirnes Bojić (BNpro B&H, Sarajevo, Bosnia-Herzegovina)

Vladimir Baričević (Ministry of physical planning, construction and state assets, Institute for Spatial Development, Zagreb, Croatia)

Bojan Linardić (Ministry of physical planning, construction and state assets, Institute for Spatial Development, Zagreb, Croatia)

Ivan Landek (Ministry of physical planning, construction and state assets, Institute for Spatial Development, Zagreb, Croatia)

## **14:00-14:15 Determination of the suitable locations for solar parks in Bosnia and Herzegovina**

Edin Hadžimustafić (University of Tuzla- Faculty of Natural Sciences and Mathematics, Bosnia-Herzegovina)

Damir Demirović (University of Tuzla- Faculty of Natural Sciences and Mathematics, Bosnia-Herzegovina)

Dževad Mešanović (University of Tuzla- Faculty of Natural Sciences and Mathematics, Bosnia-Herzegovina)



# Technical and Natural Sciences Symposia Program

## **14:15-14:30 Institutions and Databases for Transparent Monitoring of the Real Estates Market in the Republic of Serbia and Bosnia and Herzegovina**

Jelena Gučević (University of Novi Sad, Faculty of Technical Science, Subotica, Serbia)

Tijana Vujičić (University of Banja Luka Faculty of Architecture, Civil Engineering and Geodesy, Department of Urbanism, Banja Luka, Bosnia-Herzegovina)

Olivera Vasović Šimšić (Academy of Technical and Art Applied Studies Belgrade, Department School of Civil Engineering and Geodesy of Applied Studies, Belgrade, Serbia)

## **14:30-14:45 Mitigating Class Imbalance in Sentiment Analysis of Politicians' Statements**

Medina Kapo (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Emir Buza (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

Amila Akagic (University of Sarajevo-Faculty of Electrical Engineering, Sarajevo, Bosnia and Herzegovina)

## **14:45-15:00 Social Media Sentiment Analysis and Its Impact on Football Club Performance**

Vedran Selak (International Burch University, Sarajevo, Bosnia and Herzegovina)

## **15:00-15:15 Breast Cancer Diagnosis System**

Dzejla Suman (International Burch University, Sarajevo, Bosnia and Herzegovina)

Nadja Fejzic (International Burch University, Sarajevo, Bosnia and Herzegovina)

Dino Keco (International Burch University, Sarajevo, Bosnia and Herzegovina)

## **15:15-15:30 Short discussion (all participants)**

## **15:30-16:00 Coffee break**

## **16:00-16:15 Analysing Object Verticality: A Three-Segment Linear Regression Model**

Adis Hamzić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Muamer Đidelića (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Nedim Kulo (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Nedim Tuno (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Jusuf Topoljak (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Admir Mulahusić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)



# Technical and Natural Sciences Symposia Program

## **16:15-16:30 Automated Image Matching: An Efficient Tool for Georeferencing Historical Cadastral Maps**

Nedim Tuno (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Jusuf Topoljak (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Admir Mulahusić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Muamer Đidelića (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Nedim Kulo (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Adis Hamzić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Dušan Kogoj (University of Ljubljana-Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia)

## **16:30-16:45 Short discussion (all participants)**

## **16:45-17:00 Closing words**





# Technical and Natural Sciences Symposia Program

## Special event: Workshop "Safety at Work in Civil Engineering"

**Chair:** Assoc. Dr. Venera Simonović, Civil Engineering

**Co Chair:** Prof. dr. Naida Ademović

**JUNE 21 FRI**

**Hotel Hills - room 4**

**12:00 - 13:30**

The importance of implementing safety and health at work through the management of the company, directors, health workers and employees. Annual safety goals and planned annual budget for safety. Training of workers, transfer of information, instructions, TBT (toolbox talk) topics for meetings. Reporting an injury at work and the role of the occupational safety engineer as a responsible person.





# Technical and Natural Sciences Symposia Program

## Special event: Roundtable “Code of Ethics in Civil Engineering”

Chair: Chair: doc.dr. Venera Simonović

**JUNE 21 FRI**

**Hotel Hills - room 4**

**10:00 - 11:30**

Bosnia and Herzegovina is the only country in the region that does not have an organized Chamber of Engineers, and therefore no Code of Ethics for that chamber. The House of Peoples of the FBiH reached a conclusion on the necessity of forming and passing the Law on the Engineering Chamber of the FBiH, which would make it operational and thus the Ethics Committee that would regulate violations of duty, professional standards and reputation as well as ethical norms. This is an area that FBiH engineers will be familiar with and will be obliged to comply with, therefore it is important to familiarize them with the categorization of injuries (lighter and more severe), the procedure before the Ethics Committee as well as the disciplinary measures that may be imposed.



# Technical and Natural Sciences Symposia Program

## Civil Engineering

**Chair:** Naida Ademović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, BiH, BHAAAS)

**Co-chairs:** Nerma Lazović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, BiH)

**Sanjin Albinović** (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, BiH)

**Žaneta Ljevo** (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, BiH)

# JUNE 22 SAT

## Hotel Hills - room 4

### 8:00 – 8:30 Registration

### 8:30 – 8:45 Reconstruction and Improvement of Surface Drainage Systems as a Preventive Flood Protection Measure

Nerma Lazović (University of Sarajevo-Faculty of Civil Engineering, Bosnia and Herzegovina)

Ajla Mulaomerović-Šeta (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Haris Kalajdžisalihović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Alma Džubur (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

### 8:45 – 9:00 Bridge Rehabilitation across Time: Navigating Historical Standards to Contemporary Challenges in the Velika Tinja River, Bosnia and Herzegovina

Naida Ademović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina/BHAAAS)

Emina Hajdo (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Emina Hadžalić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Emir Karavelić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Kerim Jahić (Butmir d.o.o., Sarajevo, Bosnia and Herzegovina)

### 9:00 – 9:15 Analysis of Transportation Infrastructure Contract

Žaneta Ljevo (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Sanjin Albinović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Mirza Pozder (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Suada Sulejmanović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Ammar Šarić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Selma Omerčević (Azvirt, Sarajevo, Bosnia and Herzegovina)



# Technical and Natural Sciences Symposia Program

## **9:15 – 9:30 Enhanced Maturity-Strength Model for Predicting Concrete Compressive Strength**

Emir Karavelić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Emina Hajdo (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Emina Hadžalić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Ismar Imamović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Naida Ademović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina/BHAAAS)

## **9:30 – 9:45 Application of the SAmPSONS Tool for Simulation and Visualization of Material Flows in the Sarajevo Sewer System for Preassessment of Potential Future Investment and Reconstruction Scenarios**

Alma Džubur (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina),

Alma Bibović (Institute for Water Management dd, Sarajevo, Bosnia and Herzegovina),

Manfred Schütze (ifak – Institute for Automation and Communication e.V., Magdeburg, Germany)

## **9:45 – 10:00 Bearing Resistance of Strip Foundations: Eurocode 7 and Eurocode 8 Guidelines**

Emina Hadžalić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Nidal Ćulov (Infra d.o.o., Sarajevo, Bosnia and Herzegovina)

Emina Hajdo (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina),

Emir Karavelić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina),

Naida Ademović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina/BHAAAS)

## **10:00-10:30 Coffee break**

## **10:30 – 10:45 Research on the Impact of Extreme Rainfall Events on Torrential Flow**

Mario Krzyk (University of Ljubljana, Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia)

Zdenka Krzyk (Gymnasium Šiška, Ljubljana, Slovenia)

## **10:45 – 11:00 Effective Buckling Length Analysis in Steel Frame Columns: A Comprehensive Review and Novel Approaches**

Emina Hajdo (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina),

Emina Hadžalić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Emir Karavelić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Naida Ademović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina/BHAAAS)

Adnan Ibrahimbegović (Université de Technologie de Compiègne-Alliance Sorbonne Université, Centre de Recherche, Compiègne, France)



# Technical and Natural Sciences Symposia Program

## **11:00 – 11:15 FEM Modeling of Point-Supported Glass**

Emina Ugarak (Instrukta doo, Sarajevo, Bosnia and Herzegovina)

Senad Medić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

## **11:15 – 11:30 Cost Minimization of Water Distribution Systems Using Simulation-Based Optimization**

Zinaid Kapić (Faculty of Technical Engineering, University of Bihać, Bihać, Bosnia and Herzegovina)

Stefan Ivić (University of Rijeka, Faculty of Engineering, Rijeka, Croatia)

## **11:30 – 11:45 Identification of Concrete Fracture Parameters Using Inverse Analysis**

Dino Bradarić (Zanati d.o.o. Maglaj)

Emir Karavelić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Esad Mešić (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina),

Ismar Imamović (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

## **11:45 – 12:00 Treatment and Disposal of Sludge at the Municipal Wastewater Treatment Plant**

Alma Džubur (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

Aljoša Dizdarević (Public Utility Company Water supply and sanitation Sarajevo, Sarajevo, Bosnia and Herzegovina)

Ahmed Busuladžić (Public Utility Company Water Supply and Sanitation Sarajevo, Sarajevo, Bosnia and Herzegovina)

Sanja Delija (Public Utility Company Water Supply and Sanitation Sarajevo, Sarajevo, Bosnia and Herzegovina)

Amra Serdarević (University of Sarajevo-Faculty of Civil Engineering, Sarajevo, Bosnia and Herzegovina)

## **12:00 – 12:15 Incorporation of Phase Change Materials in Straw-Based Composites: Thermal Characterization**

Benjamin Duraković (International University of Sarajevo, Sarajevo, Bosnia and Herzegovina)

Nazifa Peštalić (International University of Sarajevo, Sarajevo, Bosnia and Herzegovina)

Amina Habibović (International University of Sarajevo, Sarajevo, Bosnia and Herzegovina)

**12:30-13:30 Lunch**



# Technical and Natural Sciences Symposia Program

## Special event: Workshop: "Mathematics and Democracy"

### Chairs:

Dženeta Ajanić, Second Gymnasium Sarajevo

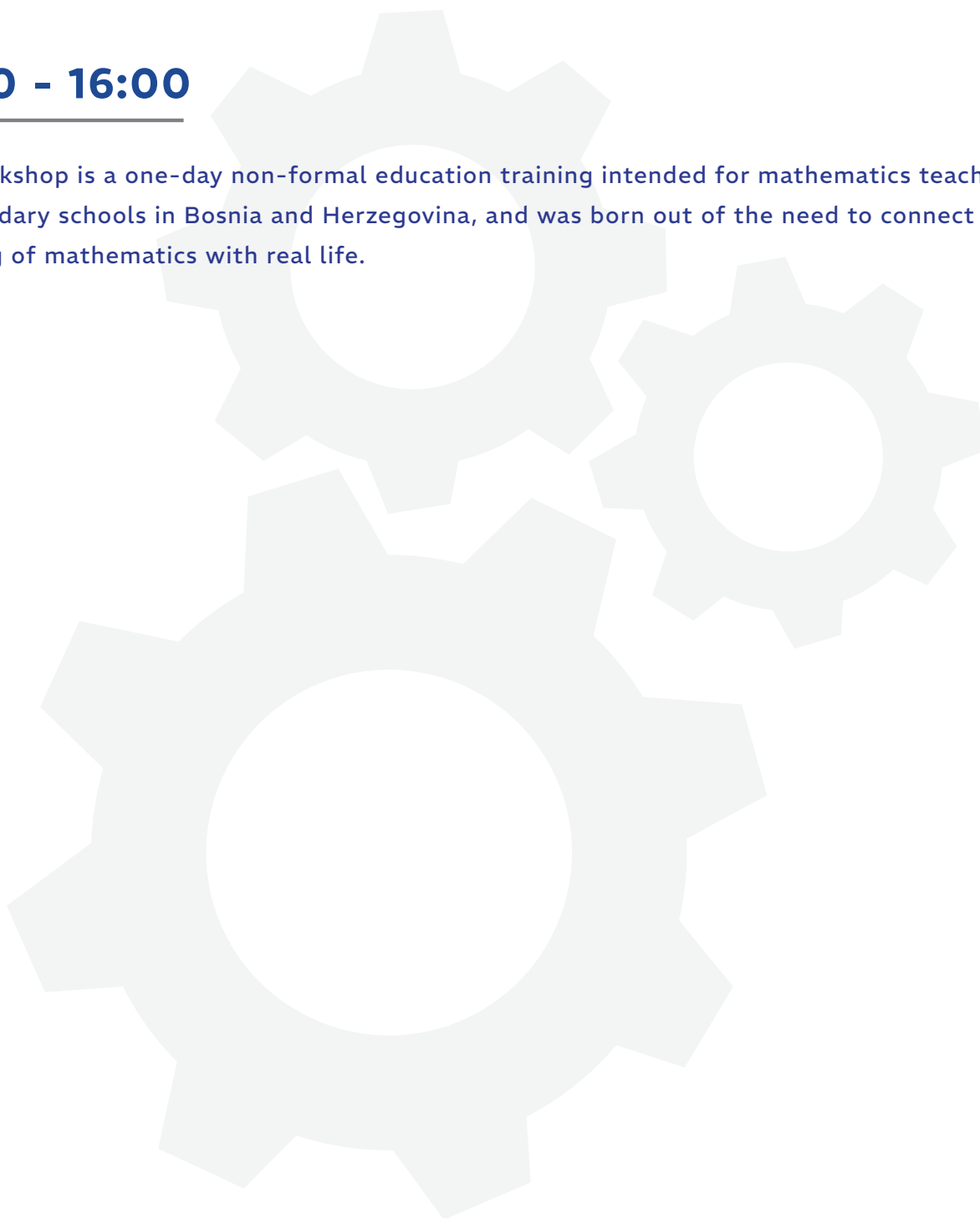
Ismar Volić, Wellesley College Boston

**JUNE 22 SAT**

**Second Gymnasium Sarajevo**

**10:00 - 16:00**

The workshop is a one-day non-formal education training intended for mathematics teachers in secondary schools in Bosnia and Herzegovina, and was born out of the need to connect the teaching of mathematics with real life.





# Technical and Natural Sciences Symposia Program

## Special event: BiH Researchers Meetup (with 3MT Student Awards Ceremony)

**Chair:** Chair: doc.dr. Venera Simonović

**JUNE 22 SAT**

**Hotel Hills**

**Start: 11:30**

Together with our partners BH Futures Foundation we are bringing together researchers, students, professors and industry for our annual meetup.

You will have an opportunity to hear from us, BHFF and ANUBiH, and also to find out who are the winners of the 2023 Bosnia & Herzegovina three-minute thesis (3MT) competition.

3MT competition challenges students (Ph.D., Masters & Undergraduate) to communicate the significance of their research projects to a non-specialist audience in just three minutes and compete for over 20 000 BAM prize money.

1. Engage with each other and a greater researcher community
2. Build a community of young researchers and lay the foundations for future collaboration
3. Disseminate important research information to the general public
4. Build partnerships and friendships between collaborating organisations
5. Showcase the global research excellence of Bosnia & Herzegovina
6. Boost personal careers by gaining visibility and improving communications skills
7. Connect prospective students with world class researchers of Bosnia & Herzegovina origins



# Technical and Natural Sciences Symposia Program

## Advanced Environmental Engineering and Project Management

**Chair: Hajrudin Džafo** (International Burch University of Sarajevo-Faculty of Engineering, Natural and Medical Sciences, Sarajevo, BiH, BHAAAS)

**Co-chair: Adis Bubalo** (University of Mostar-Faculty of Mechanical Engineering, Mostar, BiH)

# JUNE 23 SUN

## Hotel Hills - room 4

**8:00 – 8:30 Registration**

**8:40 – 9:00 5S/6S in Practice – Case Study of Lean Manufacturing Six Sigma Application in Working Conditions of Wood Processing Company**

Ismar Alagić (International University of Sarajevo, Faculty of Engineering and Natural Science, Sarajevo, Bosnia and Herzegovina)

**9:00 – 9:20 Electromobility in Bosnia and Herzegovina: A Review on Electric Vehicles Roadworthiness Testing**

Jasmin Šehović (University of Sarajevo - Faculty of Mechanical Engineering, Department for engines and vehicles, Sarajevo, Bosnia and Herzegovina)

Mirsad Trobradović (University of Sarajevo - Faculty of Mechanical Engineering, Department for engines and vehicles, Sarajevo, Bosnia and Herzegovina)

**9:20 – 9:40 Experimental Testing of the Resistance of Low-alloy Carbon Steel by Low-cyclic Fatigue**

Ermin Bajramović (University of Bihać- Technical Faculty, Bihać, Bosnia and Herzegovina)

Esad Bajramović (University of Bihać – Technical Faculty, Bihać, Bosnia and Herzegovina)

Fadil Islamović (University of Bihać – Technical Faculty, Bihać, Bosnia and Herzegovina)

**9:40 – 10:00 Mobilization of Savings Deposits to Promote Citizen Energy**

Melina Kalem (Regional Center for Information and Education on Sustainable Development in Southeast Europe REIC, Sarajevo, Bosnia and Herzegovina)

Danijela Martinović (University of Sarajevo- Faculty of Economics, Sarajevo, Bosnia and Herzegovina)

Vedad Suljić (Regional Center for Information and Education on Sustainable Development in Southeast Europe REIC, Sarajevo, Bosnia and Herzegovina)

**10:00-10:30 Coffee break**



# Technical and Natural Sciences Symposia Program

## **10:40 – 11:00 Analysis of the Hygroscopicity of Thermally Modified Wood: Alterations, Characterizations, and Implications for Enhanced Performance**

Redžo Hasanagić (University of Bihać, Technical Faculty, Department for Wood Science and Technology, Bihać, Bosnia and Herzegovina)

Selma Mujanić (University of Bihać, Technical Faculty, Department for Wood Science and Technology, Bihać, Bosnia and Herzegovina)

Nejra Alibašić (University of Bihać, Technical faculty, Department for Wood Science and Technology, Bihać, Bosnia and Herzegovina)

Haris Koričić (University of Bihać, Technical faculty, Department for Wood Science and Technology, Bihać, Bosnia and Herzegovina)

Leila Fathi (Shahrekord University, Department of Natural Resources and Earth Science, Shahrekord, Iran)

Mohsen Bahmani (Shahrekord University Department of Natural Resources and Earth Science, Shahrekord, Iran)

## **11:00 – 11:20 Bentonite as a Potential Adsorbent for the Removal of Copper Ions from the Galvanic Industry Wastewater**

Melisa Ahmetović (University of Tuzla - Faculty of Technology, Tuzla, Bosnia and Herzegovina)

Amra Odobašić (University of Tuzla - Faculty of Technology, Tuzla, Bosnia and Herzegovina)

Indira Šestan (University of Tuzla - Faculty of Technology, Tuzla, Bosnia and Herzegovina)

Edisa Papračanin (University of Tuzla - Faculty of Technology, Tuzla, Bosnia and Herzegovina)

## **11:20 – 11:40 Statistical Analysis of the Strength of Welded Wood Joints**

Izet Horman (University of Sarajevo - Faculty of Mechanical Engineering, Sarajevo, Bosnia and Herzegovina)

Ninoslav Beljak

Valentina Timotić (University of East Sarajevo, Faculty of Philosophy, East Sarajevo, Bosnia and Herzegovina)

Aleksandra Kostić (University of Sarajevo - Faculty of Mechanical Engineering, Sarajevo, Bosnia and Herzegovina)

**12:30-13:30 Lunch**



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