



# GEOEDUCATION FOR MINING, ARCHITECTURE, AND CIVIL ENGINEERING PHEDCS 2023 ALMATY

## PROGRAMME BOOK



SATBAYEV  
UNIVERSITY

15-16 JUNE 2023 - SATBAYEV UNIVERSITY, ALMATY, KAZAKHSTAN

SATPAEV St.22, ALMATY

HYBRID CONFERENCE

SUPPORTED BY D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY



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# Information

## CONFERENCE OBJECTIVE

The conference intends to bring together scientists and entrepreneurs from various branches related to geospatial knowledge. The primary goal is focused on the most efficient ways to integrate professionally and crowdsourced geospatial data into civil, architectural, and environmental engineering. To meet this challenge, we are planning to hold several scientific sessions and the ISPRS WG V/6 Workshop. Special attention will be given to the close-range photogrammetry, UAS, LiDAR, and open-sourced geospatial technologies suitable for the conference's key directions.

## KEY DIRECTIONS

- Civil Engineering (Territory Management, BIM, Surveying, Facility Management)
- Architecture (Urban Planning, Architectural Surveys, HBIM)
- Mining (Surveying, Environmental Impact)
- Environmental Engineering (Environmental Impact of Construction, Geohazards)
- Fundamental Sciences (Geology, Geography, Geophysics, Archaeology)

## CONFERENCE TOPICS

1. Innovative geospatial technologies in multidisciplinary training and knowledge exchange of AEC majors.
2. Teaching innovative geospatial technologies to get learning skills in assessing the environmental impact of construction.
3. BIM and geospatial education for building life cycle support.
4. Geospatial education for civil engineering.
5. Digital Twins and their geospatial educational constituent.
6. Real estate management and its geospatial educational constituent.
7. Smart Cities and their geospatial educational constituent.
8. Geospatial technologies for facilities management.

## WG V/6 Workshop BIM and Geospatial Technologies

1. Training and retraining of specialists in the field of BIM technologies. New specialties and scientific directions.
2. Modern measurement and data processing tools for the implementation of BIM.
3. Implementation of the tasks of design, construction and operation of facilities at all stages of the life cycle using BIM.
4. Remote sensing and laser scanning in the implementation of BIM technologies and modeling.
5. New opportunities for mining industry management using BIM.
6. The use of BIM for solving applied problems in the field of architecture, urbanism, ecology, transport, real estate transactions, etc.

## CONFERENCE VENUE:

SATBAYEV UNIVERSITY

ADDRESS: SATPAEV St.22, ALMATY

GMK BUILDING (Mining and metallurgical building)

Opening ceremony: Dossym Suleyev Science And Culture Center

The rest of the program: Room nr. 207

## Programme

Day 1, June 15

10:00-10:30 - Opening ceremony (Dossym Suleyev Science And Culture Center)

10:30-12:00 - Session Title - BIM and Construction Management (Dossym Suleyev Science And Culture Center)

Moderator Vach, Karel; Pavelka, Karel

15 min - WG V/6 PRESENTATION Vach, Karel; Shults, Roman

15 min - GEOTECHNOLOGIES AND MINERALLURGY FOR THE PRODUCTION OF METALS FROM DEPOSITS OF NEW TYPE Bitimbaev, Marat, Zhakupovich

30 min - DIGITAL BUILT ENVIRONMENT - FUTURE GOAL FOR THE NEXT DECADE BUT WE NEED TO START NOW! Nechyba, Jaroslav

30 min - BIM AND UAV PHOTOGRAMMETRY FOR SPATIAL STRUCTURES SUSTAINABILITY MONITORING Shults, Roman; Annenkov, Andriy

12:00-13:00 - Lunch

13:00-15:00 - Session Title BIM for Transport Management (Room nr. 207)

Moderator Svaty, Zdenek; Dlesk, Adam

30 min - AUTOMATED DETECTION AND VECTORIZATION OF ROAD ELEMENTS IN HIGH RESOLUTION ORTHOGRAPHIC IMAGES Svatý, Zdeněk; Vrtal, Pavel; Kouhout, Tomáš; Nouzovský, Luboš

30 min - ISIM - INFRASTRUCTURES & STRUCTURES INFORMATION MODELING: A NEW CONCEPT OF BIM FOR INFRASTRUCTURES Inzerillo, Laura; Acuto, Francesco; Pisciotta, Alessandro; Mantalovas, Konstantinos; Dunn, Iain Peter; Di Mino, Gaetano

30 min - A BIM/GIS DIGITALIZATION PROCESS TO EXPLORE THE POTENTIAL OF DISUSED RAILWAYS IN ITALY Garramone, Manuel; Scaioni, Marco

30 min - MEASURING ROAD STRUCTURES USING A MOBILE MAPPING SYSTEM Grešla, O.; Jašek, P.

15:30 - Dinner

## Day 2, June 16

### 10:00-12:00 -Session Title - GIS Applications to Infrastructure (Room nr. 207)

Moderator **Levin, Eugene; Pollert Jaroslav**

30 min - **SPATIAL BIG DATA TO SUPPORT NASA COLLABORATIVE INTERACTIVE DATA SCIENCE ACADEMY** **Levin, Eugene; Gupta, Vibhuti**

30 min - **A BRIEF ANALYSIS OF THE FEASIBILITY OF THE HBIM/GIS INTEGRATION IN THE INFRASTRUCTURE HERITAGE CONSERVATION: THE CASE OF THE MAIN LINE OF THE CHINESE EASTERN RAILWAY(CER)** **Xu, Jianzhuo; Scaioni, Marco**

20 min - **THE METHOD OF MULTI-CRITERIA ANALYSIS FOR DETERMINING THE FLOODHAZARDOUS AREA AND THE DEVELOPMENT OF PROTECTIVE STRUCTURES** **Apshikur, B.; Kurmangaliyev, T.B.; , Goltsev, A.G.; Alimkulov, M. M.; Kapasov, A. K.**

20 min - **OPTIMIZATION GEOMETRIC MODELS OF TRANSPORT NETWORK TRACING USED IN CITY PLANNING** **K. A. Kuspekov**

20 min - **AUTOMATED SYSTEM FOR OPTIMIZING THE MOVEMENT OF URBAN PASSENGER TRANSPORT USING GIS** **Abedzhanova, Aray Saylaubekkyzy; Dzhaxylykov, Amantay Frunzevich; Rasskazov, Pavel Alexandrovich; Apshikur, Baytak; Islyam, Gulnara Islyamovna**

### 12:00-13:00 - Lunch

### 13:00-14:30 - Session Title BIM & Civil Engineering I (Room nr. 207)

Moderator **Pavelka, Karel; Seredovich, Vladimir**

30 min - **CURRENT CHALLENGES AND TRENDS IN GEOSPATIAL SOLUTIONS FOR DIGITAL CONSTRUCTION** **Seredovich, Vladimir**

20 min - **INTEGRATION OF SPATIALLY ORIENTED DATA FROM IOT TO FACILITY MANAGEMENT AND BIM** **Dlesk, Adam; Strogonov, Vadim; Vach, Karel; Pollert, Jaroslav**

20 min - **HARNESSING PHOTOGRAMMETRY FOR WHITE WATER SLALOM COURSES IN NATURAL RIVER BEDS: AN INNOVATIVE APPROACH FOR COURSE DESIGN AND ANALYSIS** **Pollert, Jaroslav; Strogonov, Vadim**

20 min - **APPLICATION OF AIRBORNE THERMAL IMAGERY TO MONITOR URBAN INFRASTRUCTURE OBJECTS** **Olga, Brovkina; Daniel, Kopkáně; Mojmír, Polák; Adam, Bednařík; Jan, Hanuš**

### 14:30-15:00 - Coffee break

Session Title - BIM & Civil Engineering II (Room nr. 207)

Moderator Pavelka, Karel; Seredovich, Vladimir

20 min - ANALYSIS OF POSSIBLE GEODETIC APPROACHES FOR 3D MODEL CREATION IN BIM

Pavelka, Karel; Běloch, Lukáš; Pavelka, Karel

20 min - DIFFERENT DATA JOINING AS A BASIC MODEL FOR HBIM – A CASE PROJECT ST.PATALEIMON

IN SKOPJE Pavelka jr., Karel; Rapuca, Almedina; Kuzmanov, Pane; Pavelka, Karel

20 min - THE FEATURES OF SPORTS COMPLEX 'SUNKAR' MONITORING BY TERRESTRIAL LASER

SCANNING Shults, Roman; Seitkazina, Gulnur; Soltabayeva, Saule

20 min - HYDROSTATIC LEVELLING SENSOR FOR MONITORING HEIGHT SHIFTS OF BUILDINGS

Lechner, J.; Drozda, J.; Vach, K.; Dlesk, A.

Session Title Digital Technologies for Mining Engineering (Room nr. 207)

Moderator Zhautikov, Bakhyt; Dina, Alshimbayeva

30 min - GEOPHYSICAL STUDIES OF ROCK DISTRESS IN MINING OPERATIONS IN COMPLEX

GEOLOGICAL CONDITIONS Rysbekov, Kanay; Nurpeissova, Marzhan; Kassymkanova, Khaini-

Kamal; Kyrgyzbayeva, Guldana; Soltabaeva, Saule; Amralinova, Bakytzhan; Salkynov, Arnat

30 min - INSAR APPLICATION IN DETECTION OF VERTICAL AND HORIZONTAL DEFORMATIONS IN THE

TENGIZ OILFIELD OF KAZAKHSTAN Bayramov, Emil; Buchroithner, Manfred; Kada, Martin; Aliyeva, Saida

30 min - DEVELOPMENT OF AUGMENTED REALITY APPLICATION FOR PHYSICS AND GEOPHYSICS

LABORATORY Arymbekov, Beken Sagatbekovich; Turekhanova, Kunduz; Alipbayev, Daniyar;

Tursanova, Yelmira

16:30 - Closing Ceremony (Room nr. 207)

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