16th IEEE International Conference
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AICT 2022
INTERNATIONAL CONFERENCE

**APPLICATION
OF INFORMATION
AND COMMUNICATION
TECHNOLOGIES - AICT2022**
12-14 October 2022, Washington DC

16^(th) International Conference on

APPLICATION of INFORMATION and
COMMUNICATION TECHNOLOGIES

CONFERENCE PROGRAM

12-14- October 2022

Time Zone: ETD (Eastern Daylight Time) / GMT - 4

PROGRAM AT A GLANCE

12 October 2022
Format: Hybrid / Location: GWU (SEH B1270)
Address: 800 22nd St NW, Washington DC

09:00 – 09:30	Registration / Reception
09:30 – 10:00	Opening and Welcoming Addresses
10:00 – 11:00	Keynote Session
11:00 – 11:30	Coffee Break / Networking Session
11:30 – 12:30	Keynote Session
12:30	Group Photo of all participants (SEH B1270)
12:30 – 13:30	Lunch
13:30 – 15:30	Concurrent Technical Sessions

13 October 2022
Format: Hybrid / Location: GWU (SEH 2990, 2000)
Address: 800 22nd St NW, Washington DC

10:00 – 10:30	Keynote Session
10:30 – 11:00	Coffee Break / Networking Session
11:00 – 13:00	Concurrent Technical Sessions
13:00 – 14:00	Lunch
14:00 – 16:00	Concurrent Technical Sessions

14 October 2022
Format: Virtual (Zoom) / Location: Washington Center of ADA University
Address: 1627 21st Street NW, Washington DC

09:30 – 11:30	Concurrent Technical Sessions
11:30 – 12:00	Coffee Break / Virtual Networking Session
12:00 – 14:00	Concurrent Technical Sessions
14:00 – 14:30	Wrap-up / Closing of AICT2022

AICT2022 International Conference

OCTOBER, 2022

Time Zone: ETD (Eastern Daylight Time) / GMT - 4

Location:

Science and Engineering Hall, room B1270

800 22nd St NW, Washington DC

12 October 2022

Location: SHE, room B1270

For Virtual Participation

VIRTUAL ROOM – 1

09:30–10:00	WELCOMING MESSAGES

Prof. Stephen Kaisler, *AICT2022 Program Chair, George Washington University, US*

Prof. John Lach, *Dean, School of Engineering and Applied Science, George Washington University, US*

Prof. Sencer Yeralan, *Dean, School of IT & Engineering, ADA University, Azerbaijan*

Prof. Paolo Garza, *Department of Control and Computer Engineering, Politecnico di Torino, Italy*

Mr. Bakhtiyar Aslanbeyli, *BP, Vice President for the Caspian region, Communications and External Affairs*

Dr. Abzetdin Adamov, *AICT2022 General Chair / IEEE Azerbaijan Chapter / ADA University, Azerbaijan*

10:00–11:00	KEYNOTE SESSION

Moderator: **Prof. Stephen Kaisler**

10:00-10:30	*Speaker:* **Professor Tarek El-Ghazawi**
	IEEE Fellow, Chair of Electrical and Computer Engineering Department, George Washington University, US
	Title: Advances in High-Performance Computing

10:30-11:00	*Speaker:* **Professor Marco Mellia**
	IEEE Fellow, Department of Control and Computer Engineering, Politecnico di Torino, Italy
	Title: AI for Network Traffic Analysis. How NLP can help in understanding internet traffic?

11:00–11:30	Coffee Break / Networking Session

11:30–12:30	KEYNOTE SESSION
	Moderator: **Prof. Stephen Kaisler**

11:30-12:00	*Speaker:* **Mr. Christopher Geiger**
	Internal Audit Director, Lockheed Martin, US
	Title: Advances in Environmental, Social, and Governance (ESG) Data Analysis and Assurance
12:00-12:30	*Speaker:* **Dr. Javid Huseynov**
	Associate Professor of Applied Analytics, School of Professional Studies, Columbia University, US
	Title: Data and AI-driven Storytelling

12:30–13:30	**Lunch**

13:30–15:30	TECHNICAL SESSION
	Location: SHE, room B1270

For Virtual Participation
VIRTUAL ROOM – 1

SESSION 1.

DATA SCIENCE AND ADVANCED ANALYTICS

Location: SEH, room B1270

Session Chair: **Dr. Jamaladdin Hasanov**

Time: 13:330	Virtual Room 1

An Ontological Approach to the Development of Analytical Platform Language Toolkits
Lyudmila Lyadova, Nikolai Suvorov, Viktor Zayakin, Elena Zamyatina, HSE University, Perm, Russia

Corpus approach to research the structure of homovisemes in Russian oral speech and their visual perception
Myasoedova M.A., Eliseev A.V., Myasoedova Z.P., Farkhadov M.P., V. A. Trapeznikov Institute of Control Sciences of RAS, Moscow, Russia

A Syntax-based BSGCN Model for Chinese Implicit Sentiment Analysis with Multi-classification
Lifang Fu, Shuai Liu, Northeast Agricultural University, Harbin, China

Ontology-Based Development of Domain-Specific Languages via Customizing Base Language
Grigoriy Kulagin, HSE University Perm, Russia; Ivan Ermakov, Perm State University Perm, Russia; Lyudmila Lyadova, HSE University Perm, Russia

Event Series Generation and Analysis Based on Multifaceted Ontology
Viktor Zayakin, Lyudmila N. Lyadova, Viacheslav Lanin, Elena Zamyatina, HSE University, Perm, Russia; Mikhail Smirnov, Perm State University, Perm, Russia; Nada Matta, University of Technology of Troyes, Troyes, France

Quantitative and Semantic Analysis of Texts in Turkic Languages using Universal Declaration of Human Rights (UDHR).
Abzetdin Z. Adamov, ADA University, Baku, Azerbaijan

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AICT2022 International Conference

OCTOBER, 2022

Time Zone: ETD (Eastern Daylight Time) / GMT - 4

Location:

Science and Engineering Hall (SEH), rooms: 2000, 2990

800 22nd St NW, Washington DC

13 October 2022

Location: SEH, room 2000

For Virtual Participation
VIRTUAL ROOM – 1

10:00–10:30	**KEYNOTE SESSION**
	Moderator: **Dr. Abzatdin Adamov,** *AICT2022 General Chair, ADA University, Azerbaijan*

10:00-10:30	*Speaker:* **Dr. David Alan Grier,** *Associate Professor Emeritus, International Science &* *Technology Policy, George Washington University* *Title:* Advancing the Avaricious Discipline

10:30–11:00	**Coffee Break / Networking Session**

11:00–16:00 | **CONCURRENT TECHNICAL SESSIONS**

For Virtual Participation

VIRTUAL ROOM – 1

SESSION 2

HIGH PERFORMANCE COMPUTING

Location: SEH, room 2000

Session Chair: **Prof. Hurriyet Ok**

Time: 11:00–13:00 | **Virtual Room 1**

Sign Language Hand Gesture Recognition Method based on Machine Learning
Fargana J. Abdullayeva, Kamala Sh. Gurbanova, Institute of Information Technology of ANAS, Baku, Azerbaijan

A Novel Blockchain-Integrated Distributed Data Storage Model with Built-in Load Balancing
Obadah Hammoud, National University of Science and Technology, Moscow, Russia; Ivan A. Tarkhanov, State Academic University for Humanities / Federal Research Center "Computer Science and Control" of Russian Academy of Sciences

A Comparative Study of Large Automata Distributed Processing
Cheikh BA, Universit´e Gaston Berger de Saint-Louis, Saint-Louis, Senegal

Performance analysis of transfer learning based deep neural networks in Alzheimer classification
Mohammad Jaber Hossain, Juan Luis Nieves, University of Granada, Granada, Spain

Benchmarking How Classification Models Deal with High Dimension of Features
Nuno Pombo, Eduardo Paulos, University of Beira Interior, Covilha, Portugal

On approaches of investigating multi-layered medical images for implicit features
Jamaladdin Hasanov, ADA University, Baku, Azerbaijan

13:00–14:00   Lunch

SESSION 3.1.

MACHINE LEARNING AND OTHER AI TECHNIQUES

Location: SEH, room 2000

Session Chair: **Prof. Paolo Garza**

Time: 14:00–16:00	**Virtual Room 1**

Analysis of Normal and Pathological Heart Rate Variability Based on Electrocardiogram Data   *Anastasya A. Gusarova, Elena E. Goldenok, Nataly A. Lukyanova, Krasnoyarsk State Medical University named after Professor V.F. Voyno-Yasenetsky, Krasnoyarsk, Russian Federation; Daria V. Semenova, Grigory N. Chernov, Siberian Federal University, Krasnoyarsk, Russian Federation; Nataly V. Mishina, Federal Siberian Research and Clinical Center, Krasnoyarsk, Russian Federation*
Reinforcement Learning Based Robot Control   *Ziyaddin Guliyev, Ali Parsayan, Baku Higher Oil School, Baku, Azerbaijan*
Time-of-Flight Cameras in Space: Pose Estimation with Deep Learning Methodologies   *Alkis Koudounas, Flavio Giobergia, Elena Baralis, Politecnico di Torino, Turin, Italy*
Improving BERT Classification Performance on Short Queries About UNIX Commands Using an Additional Round of Fine-Tuning on Related Data   *Grady McPeak, The George Washington University, Washington DC, USA*
Network Intrusion Detection using Supervised and Unsupervised Machine Learning   *Lala Shahbandayeva, George Washington University, Washington, DC, USA; Ulviyya Mammadzada, Ilaha Manafova, Sevinj Jafarli, Abzetdin Z. Adamov, ADA University, Baku, Azerbaijan*

For Virtual Participation
VIRTUAL ROOM – 2

SESSION 4.

SIGNAL PROCESSING

Location: SEH, room 2990

Session Chair: **Dr. Kashif Nisar**

Time: 11:00–13:00	Virtual Room 2

Novel method for abstracting synchronization signal using beam pattern recognition for 5G RF repeaters *Kyung-yong Lee, Jae-Seon Jang, Access network technology department kt Seoul, Korea*
Real-time sleep prediction using a virtual sensor to estimate Heart Rate Variability (HRV) through Respiratory Rate (RR) *Luigi Pugliese, Massimo Violante, Politecnico di Torino, Turin, Italy; Sara Groppo, Sleep Advice Technologies Srl Turin, Italy*
Discrete Hilbert Transform via Memristor Crossbars for Compact Biosignal Processing *Lei Zhang, Zhuolin Yang, Kedar Aras, Gina C. Adam; Georgre Washington University, Washington DC, USA; Igor R. Efimov, Northwestern University, Evanston IL, USA*
An Improved Hybrid LDPC Decoder over Rayleigh Fading Channel *Reza Biazaran, Hermann J. Helgert, George Washington University, Washington DC, USA*
Low Complexity Blind SLM for PAPR reduction of HF XL systems *Junbing Li, Xiaoping Zeng, Congji Yin, Chenxi Bai, Chongqing University, Chongqing, China; Guojun Li, Chongqing University of Posts and Telecommunications, Chongqing, China*

13:00–14:00   Lunch

SESSION 5.

EMERGING TRENDS AND TECHNOLOGIES IN ICT APPLICATION

Location: SEH, room 2990

Session Chair: **Dr. Amine El Moutaouakil**

Time: 14:00–16:00	Virtual Room 2

Turnstile Access based on Facial Recognition and Vaccine Passport Verification
Shams Aliyeva, Ali Parsayan, Baku Higher Oil School Baku Higher Oil School, Baku, Azerbaijan

Developing Voice Chatbot for Learning Maritime English
Khlebalov Fedor, Viacheslav Lanin, HSE University, Perm, Russia; Svetlana Strinyuk, Admiral Makarov State University of Maritime and Inland Shipping, Saint Petersburg, Russia

Genetic Algorithm for RCPSP With Fuzzy NPV
Aleksandr M. Bulavchuk, Daria V. Semenova, Siberian Federal University, Krasnoyarsk, Russian Federation

Algorithms To Increase Data Reliability In Video Transcription
Fayzullo Makhmadiyarovich Nazarov, Yarmatov Sherzodjon Shokir ogli, Eshtemirov Bunyod Sherali ogli, Samarkand State University, Samarkand, Uzbekistan

Age of Information Analysis for Intermittent Updating Through a Gilbert Elliot Erasure Channel
Parisa Rafiee, Omur Ozel, George Washington University, Washington DC, USA

Peer Assessment as an Example of Cooperative Learning Strategies in Graduate and Undergraduate Engineering Courses
Amine El Moutaouakil, College of Engineering UAE University Al Ain, United Arab Emirates

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Location:
Washington Center of ADA University
1627 21st Street NW, Washington DC

Format: Zoom Sessions

14 October 2022

In Virtual format

09:30–14:00   **CONCURRENT TECHNICAL SESSIONS**

VIRTUAL ROOM – 1

SESSION 3.2

MACHINE LEARNING AND OTHER AI TECHNIQUES

Session Chair: **Dr. Samir Rustamov**

Time: 09:30–11:30	Virtual Room 1

Mechanisms for Using Image Properties and Neural Networks in Identification Of Micro-Objects
Isroil I Jumanov, Rustam A Safarov, Olimjon I Djumanov, Samarkand State University, Samarkand, Uzbekistan

Multiagent Reinforcement Learning for Integrated Network: Applying to a Part of the Road Network of Krasnoyarsk City
Timofei Tislenko, Daria V. Semenova, Nadezhda V. Kononova, Siberian Federal University, Krasnoyarsk, Russian Federation; Elena E. Goldenok, Krasnoyarsk State Medical University, Krasnoyarsk, Russian Federation; Nataly Sergeeva, Analytics Groups LLC "R.D.Science", Krasnoyarsk, Russian Federation

A Memory Efficient Deep Reinforcement Learning Approach For Snake Game Autonomous Agents
Rafat Rahman Tushar, Shahnewaz Siddique, North South University, Dhaka, Bangladesh

Artificial Intelligence in Medicine for Chronic Disease Classification Using Machine Learning
Mekhriddin Rakhimov, Ravshanjon Akhmadjonov, Shahzod Javliev, Tashkent University of Information Technologies named after Muhammad Al-Khwarizmi, Tashkent, Uzbekistan

A Global Pointer based Entity Relation Extraction Method for Chinese Pulmonary Nodule Medical Records
Tao Shuheng, Chen Yi, Shanghai Institution of Computing Technology, Shanghai, China; Wang Jiping, Shanghai Polytechnic University, Shanghai, China

11:30–12:00   Break / Virtual Networking Session

SESSION 6.

COMMUNICATION, NETWORK AND HARDWARE

Session Chair: **Dr. Ali Parsayan**

Time: 12:00–14:00	Virtual Room 1

CovScan: Smart non-contact IR-Temperature scanning and online database system integrated with RFID authentication
Ghulam Hyder Palli, Badar Muneer, Bhawani Shankar Chowdhry, Faisal karim Shaikh, Mehran University of Engineering & Technology Jamshoro, Sindh, Pakistan

Interference Resistant Position Awareness for Collision Avoidance in Dense Drones Swarming
Syed Hussain Ali Kazmi, Faizan Qamar, Rosilah Hassan, Universiti Kebangsaan Malaysia, Selangor, Malaysia; Kashif Nisar, University Malaysia Sabah, Sabah, Malaysia

Hardware Acceleration of FIR Filter Implementation on ZYNQ SoC
Guner TATAR, Fatih Sultan Mehmet Vakıf University; Salih BAYAR, Marmara University, Istanbul, Turkey; Ihsan CICEK, Gebze Technical University, Kocaeli, Turkey

Proactive Computer Network Monitoring based on Homogeneous LSTM Ensemble
Ramiz Shikhaliyev, Institute of Information Technology Azerbaijan National Academy of Sciences, Baku, Azerbaijan

Anomaly Detection in Cyber-Physical Systems based on BiGRU-VAE
Rasim Alguliyev, Lyudmila Sukhostat, Aykhan Mammadov, Institute of Information Technology of Azerbaijan National Academy of Sciences, Baku, Azerbaijan

VIRTUAL ROOM – 2

SESSION 7.

ICT IN EDUCATION, BUSINESS ADMINISTRATION, GOVERNANCE AND FINANCE

Session Chair: **Dr. Jamaladdin Hasanov**

Time: 09:30–11:30	Virtual Room 2

Application of Information Technologies for Solving Economic Problems: In-depth Analysis of Okun's Law for Azerbaijan   *Wadim Strielkowski, University of California, Berkeley, United States; Aida Guliyeva, Ulviyya Rzayeva, Aynur Jabbarova, Azerbaijan State University of Economics, Baku, Azerbaijan*
Simulation Model in Real-Time Application for Emergency Response Management System using Genetic Algorithm   *Jefferson A. Costales, Michael F. Tanaya, Eulogio "Amang" Rodriguez Institute of Science and Technology, Manila, Philippines*
A Business Recommender System Based on Zones and Commercial Data   *Mai Abusair, Rania Dameh, Ruba Egbaria, Salsabeel Alzaqa, An-Najah National University, Palestine*
Applying Deep Learning in Forecasting Stock Index: Evidence from RTS Index   *Fuzuli Aliyev, ADA University, Baku, Azerbaijan; Neman Eylasov, Kutahya Dumlupinar University, Kutahya, Türkiye; Nijat Gasim, Dokuz Eylül University, Izmir, Türkiye*
A risk-aware approach to stock portfolio allocation based on Deep Q-Networks   *Jacopo Fior, Luca Cagliero, Politecnico di Torino, Turin, Italy*

11:30–12:00	**Break / Virtual Networking Session**

SESSION 8.

ICT IN MEDICINE AND HEALTH CARE

Session Chair: **Dr. Mufti Mahmud**

Time: 12:00–14:00	Virtual Room 2

Advantages of Redis in-memory database to efficiently search for healthcare medical supplies using geospatial data
Gulara Muradova, Mehran Hematyar, Azerbaijan Technical University, Baku, Azerbaijan; Jala Jamalova, Azerbaijan State Oil and Industry University Baku, Azerbaijan

Prediction of hepatocellular carcinoma using a machine learning algorithm
Masuma Mammadova, Zarifa Jabrayilova, Lala Karayeva, Aytan Ahmadova, Institute of Information Technology of Azerbaijan National Academy of Science, Baku, Azerbaijan

Automated detection of myocardial infarction using ECG-based artificial intelligence models: a systematic review
Pedro Segura-Saldana, Frank Britto-Bisso, David Villaseca Pacheco, Ana Lucia Manrique, Gisella M. Bejarano Nicho, Universidad Peruana Cayetano Heredia, Lima, Peru; Mayita L. Alvarez-Vargas, Torres de Salud National Research Center, Lima, Peru

Empowering Diabetes Patients by Providing Machine Learning-Driven Predictions and Personalized Visualization Results
Ankit Gupta, Nada Basit, University of Virginia, Charlottesville, Virginia

Formation of Unified Digital Health Information Space in Healthcare 4.0 Environment and interoperability issues
Masuma Mammadova, Aytan Ahmadova, Institute of Information Technology of Azerbaijan National Academy of Science, Baku, Azerbaijan

Information Extraction from Arabic Medications Leaflets
Adnan Yahya, Hala Salameh, Maram Belbeisi, Noor Shamasneh, Birzeit University, Birzeit, Palestine

Detecting Parkinson's Disease from Electroencephalogram Signals: An Explainable Machine Learning Approach
Mohammod Abdul Motin, Rajshahi University of Engineering & Tech., Rajshahi, Bangladesh; Mufti Mahmud, David J. Brown, Nottingham Trent University, Nottingham, UK

VIRTUAL ROOM – 1

14:00–14:30	WRAP-UP / CLOSING OF AICT2022
	VIRTUAL GROUP PHOTO (with open cameras)