

# PCI 2023



## 5th INTERNATIONAL CONFERENCE ON PROBLEMS OF CYBERNETICS AND INFORMATICS

# PROGRAM

August 28-30, 2023  
Baku, Azerbaijan

[pci.cyber.az](http://pci.cyber.az)

## Time-Table of the Conference

<b>28 August (Monday)</b>	
09:00 – 10:00	Registration
10:00 – 10:45	Opening Ceremony (Hall 1)
10:45 – 11:15	Coffee break
11:15 – 13:15	Plenary Session (Hall 1)
13:15 – 14:30	Lunch break
14:30 – 16:10	Section "Intelligent Systems" (Hall 1)
	Section "Optimization and Optimal Control Problems" (Hall 2)
	Section "Mathematical Statistics and Queuing Theory" (Hall 3)
16:10 – 16:30	Coffee break
16:30 – 18:00	Section "Intelligent Systems" (Hall 1)
	Section "Optimization and Optimal Control Problems" (Hall 2)
	Section "Mathematical Statistics and Queuing Theory" (Hall 3)
<b>29 August (Tuesday)</b>	
09:30 – 11:30	Plenary Session (Hall 1)
11:30 – 12:00	Coffee break
12:00 – 13:15	Section "Intelligent Systems" (Hall 1)
	Section "Optimization and Optimal Control Problems" (Hall 2)
	Section "Modelling and Inverse Problems" (Hall 3)
13:15 – 14:30	Lunch break
14:30 – 15:50	Section "Intelligent Systems" (Hall 1)
	Section "Optimization and Optimal Control Problems" (Hall 2)
	Section "Modelling and Inverse Problems" (Hall 3)
15:50 – 16:10	Coffee break
16:10 – 17:30	Section "Intelligent Systems" (Hall 1)
	Section "Optimization and Optimal Control Problems" (Hall 2)
	Section "Modelling and Inverse Problems" (Hall 3)
18:00	Coach travel and excursions

<b>30 August (Wednesday)</b>	
09:30 – 11:30	Plenary Session (Hall 1)
11:30 – 12:00	Coffee break
12:00 – 13:15	Section "Intelligent Systems" (Hall 1)
	Section "Applied Problems" (Hall 2)
	Section "Information Technologies" (Hall 3)
13:15 – 14:30	Lunch break
14:30 – 15:50	Section "Fuzzy and Stochastic Modeling" (Hall 1)
	Section "Applied Problems" (Hall 2)
	Section "Information Technologies" (Hall 3)
15:50 – 16:10	Coffee break
16:10 – 17:30	Section "Applied Problems" (Hall 1)
	Section "Information Technologies" (Hall 2)
17:30 – 18:00	Closing Ceremony (Hall 1)

The place where the conference will be held:

Institute of Control Systems,  
B.Vahabzadeh Street 68, Baku AZ1141, Azerbaijan

## Organizing Committee

Chair: Hafiz Pashayev (Azerbaijan)

Co-Chair: Ali Abbasov (Azerbaijan)

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- Agayeva, Cherkez (Türkiye)
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- Melikov, Telman (Azerbaijan)
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- Nuriyev, Urfat (Türkiye)
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## Program Committee

Chair: Rasim Alguliyev (Azerbaijan)

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Co-chair: Fikret Aliev (Azerbaijan)

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### Members:

- Aliev, Telman (Azerbaijan)
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- Aliyev, Soltan (Azerbaijan)
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- Efthimios, Providas (Greece)
- Guliyev, Hamlet (Azerbaijan)
- Hajiyeve, Asef (Azerbaijan)
- Hajiyeve, Chingiz (Türkiye)
- Hasanov, Elman (Türkiye)
- Huseynov, Sharif (Latvia)
- Imanov, Gorkhmas (Azerbaijan)
- Kasimbeyli, Refail (Türkiye)
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- Litman, Amelie (France)
- Lozovanu, Dmitrii (Moldova)
- Mahmudov, Elimhan (Türkiye)

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- Mehdiyeva, Galina (Azerbaijan)
- Melikov, Agassi (Azerbaijan)
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- Pogoriliy, Sergey (Ukraine)
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- Rustamov, Samir (Azerbaijan)
- Rzayev, Ramin (Azerbaijan)
- Sirajov, Bakhtiyar (Austria)
- Sladkowski, Aleksander (Poland)
- Tadumadze, Nodar (Georgia)

## Technical Support Committee

Executive secretary of the Conference: Dr. Tofiq BABAYEV

### **Members:**

- Abbaszade, Narmin
- Ahmadova, Nigar
- Aliyeva, Aygun
- Aliyeva, Aynur
- Alizada, Tahir
- Azimov, Rustem
- Imanova, Firangiz
- Karimov, Etiram
- Mammadov, Vusal
- Serova, Esmira

# Program

## 5th International Conference on Problems of Cybernetics and Informatics (PCI, August 28-30, 2023)

**28 August (Monday)**

**10.00 - 10.45**

**Opening Ceremony**

**Hall 1**

**[JOIN ZOOM](#)**

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Ali Abbasov, Director General of the Institute of Control Systems (Azerbaijan), full member of the Azerbaijan National Academy of Sciences

- Ulkar Sattarova, Chairperson of the State Quality Assurance Agency of the Ministry of Science and Education of the Republic of Azerbaijan
- Fariz Ismailzade, Executive Vice Rector of the ADA University (Azerbaijan)
- Asaf Hajiyeu, Secretary General of the Parliamentary Assembly of the Black Sea Economic Cooperation (PABSEC), full member of the Azerbaijan National Academy of Sciences
- Yedilkhan Amirgaliyev, Institute of Information and Computing Technologies (Kazakhstan), corresponding member of the National Academy of Sciences of the Republic of Kazakhstan
- Elchin Aliyev, President of SINAM Company (Azerbaijan)

**10.45 - 11.15**

**Coffee break**

**11.15 - 13.15**

**Plenary Session**

**Hall 1**

[JOIN ZOOM](#)

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Prof. Aminaga Sadigov

1. Refail Kasimbeyli. Generalized derivatives and optimality conditions in nonconvex analysis and some calculus rules. (Eskişehir Technical University, Türkiye)
2. Roman A. Polyak. How difficult is a Linear Programming problem? (George Mason University, USA)
3. Agassi Melikov. Queuing-Inventory Theory: The Origin, State of the Art, Direction of Development. (Institute of Control Systems, Ministry of Science and Education, Azerbaijan)

**13.15 - 14.30**

**Lunch break**

**14.30 - 16.10**

**Section “Intelligent Systems”**

**Hall 1**

[JOIN ZOOM](#)

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Prof. Rza Bashirov

1. Telman Aliev, Gambar Guluyev. Asif Rzayev, Fakhrad Pashayev, Narmin Rzayeva. Intelligent system for signaling the beginning of accidents on drilling rigs based on the wattmeter charts. (Institute of Control Systems, Azerbaijan)
2. Ramiz Aliguliyev, Tural Badalov. Performance evaluation of algorithms for anomaly detection using Apache Spark. (Institute of Information Technology, Azerbaijan)



3. Gulchin Abdullayeva, Sayyara Gidayatzada. Monitoring of indicators ensuring environmental safety of drinking water. (Institute of Control Systems, Azerbaijan)
4. Masuma Mammadova, Sabina Mammadzada. Principles of formation of transliteration rules for the Azerbaijani language using expert systems. (Institute of Information Technology, Azerbaijan)
5. Laman Taghiyeva, Narmin Hasanova, Masuda Omarova, Samir Rustamov. Sentiment Analysis of Social Media Comments Using Machine Learning Algorithms. (ADA University, Azerbaijan)
6. Kamran Jafarzade. The role of GPT models in education: challenges and solutions. (Institute of Information Technology, Azerbaijan)

**16.10 - 16.30**

**Coffee break**

**16.30 -  
18.00**

## **Section “Intelligent Systems”**

**Hall 1**

**[JOIN ZOOM](#)**

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Prof. Mais Farkhadov

1. Telman Aliev, Naila Musaeva. Decision-making technologies in bridge structure monitoring systems based on the noise model. (Institute of Control Systems (Azerbaijan), Azerbaijan University of Architecture and Construction)
2. Masuma Mammadova, Zarifa Jabrayilova, Lala Garayeva. Selecting a machine learning algorithm for the prediction of hepatocellular carcinoma with the determination of key indicators. (Institute of Information Technology, Azerbaijan)
3. Rustam Azimov. Analysis of the use of methods and feature groups for author recognition on the example of texts in the Azerbaijani language. (Institute of Control Systems, Azerbaijan)
4. Ellada I. Ibragimova, Daria Semenova, Aleksandr Soldatenko. Comparison of two heuristic algorithms for Correlation Clustering problem solving. (Siberian Federal University, Russia)

5. Ismayil Ismayilov. Multidisciplinary expert system for etymologization of oghuz ethnonyms. (The Azerbaijan National Aerospace Agency, Azerbaijan)
6. Elviz Ismayilov, Araz R. Aliev. A model for optimization of feature extraction in recognition systems based on parallel algorithms. (Azerbaijan State Oil and Industry University, Azerbaijan)

**14.30 -  
16.10**

## **Section “Optimization and Optimal Control Problems”**

**Hall 2**

**[JOIN ZOOM](#)**

**Meeting ID: 464 484 4552**

**Passcode: 963604**

*Moderator* – Prof. Kamil Mansimov

1. Elimhan Mahmudov, Dilara Mastaliyeva. Optimal Control of Elliptic Type Polyhedral Inclusions. (Istanbul Technical University, Türkiye)
2. Kamil Aida-Zade, Vugar Hashimov. The problem of control with feedback of the power of moving sources with optimization of measurement points heating of plate. (Institute of Control Systems, Azerbaijan)
3. Kamil Mansimov, Rashad Mastaliyev. Necessary optimality conditions for dynamic systems described by ordinary stochastic difference equations. (Institute of Control Systems, Azerbaijan)
4. Telman Melikov, Gulnar Hajieva. Necessary conditions for a minimum in the problems of variation with delayed argument in the presence of various types of degenerations. (Institute of Mathematics and Mechanics, Azerbaijan)
5. Hamlet Guliyev, Khayala Seyfullayeva. Optimal control problem with coefficients for the equation of vibrations of a elastic plate with discontinuous solution. (Baku State University, Azerbaijan)

**16.10 - 16.30**

**Coffee break**

**16.30 -  
18.00**

## **Section “Optimization and Optimal Control Problems”**

**Hall 2**

**[JOIN ZOOM](#)**

**Meeting ID: 464 484 4552**

**Passcode: 963604**

*Moderator* – Prof. Elimhan Mahmudov

1. Vagif Abdullayev, Samir Guliyev. On the use of delayed state information for optimal control synthesis. (Azerbaijan State Oil and Industry University, Institute of Control Systems, Azerbaijan)
2. Samir Quliyev, Vaqif Abdullayev. Control of Dynamic Systems with Lumped Parameters Based on Current and Delayed Feedback. (Azerbaijan State Oil and Industry University, Azerbaijan)
3. Rashad Mamedov, Sardar Gasimov, Gasim Gasimov. Optimal control problem with minimum energy for the process of heat transfer in rarefied media with heat-conduction viscosity. (Azerbaijan State Oil and Industry University, Azerbaijan)
4. Jamila Asadova. A numerical approach to the problem of optimal control of vibrational processes. (Institute of Control Systems, Azerbaijan University of Architecture and Construction, Azerbaijan)
5. Vugar Hashimov. Optimal control with nonlinear feedback of the power of sources during heating of the rod. (Institute of Control Systems, Azerbaijan)
6. Hasan Nagiev. Representativeness of sample statistics in solution of a stochastic two-criteria control problem. (Institute of Mathematics and Mechanics, Azerbaijan)

**14.30 -  
16.10**

## **Section “Mathematical Statistics and Queuing Theory”**

**Hall 3**

**[JOIN ZOOM](#)**

**Meeting ID: 391 446 7924**

**Passcode: 7K9JT8**

*Moderator* – Prof. Alexander Moiseev

1. Tahir Khaniev, Basak Gever, Zulfiye Hanalioglu. Investigation of upper bound for the ruin probability by approximate methods in a nonlinear risk model with gamma claims. (TOBB University of Economics and Technology, Ankara, Türkiye)
2. İbrahim Öztaş, Nurgül Okur, Hasan Hüseyin Gül. Determining Probability Distribution of Resources Contributing to Electrical Energy Generation in Türkiye by Maximum Entropy Method. (Giresun University, Türkiye)
3. Iniya L, Sivakumar B. Optimal Control of Service Rates of Discrete - Time (s,S) Queueing - Inventory Systems with Finite Buffer. (Madurai Kamaraj University, Madurai, Tamil Nadu, India)
4. Hasan Hüseyin Gül. q-Rayleigh Distributions: Properties, Estimation and Applications. (Giresun University, Türkiye)
5. Elena Danilyuk, Daria Kuznetsova, Svetlana Moiseeva. Asymptotic Analysis of Retrial Queueing System MMPP/M/1 with Impatient Customers, Collisions and Unreliable Server. (National Research Tomsk State University, Russia)

**16.10 - 16.30**

**Coffee break**

**16.30 -  
18.00**

## **Section “Mathematical Statistics and Queuing Theory”**

**Hall 3**

[JOIN ZOOM](#)

**Meeting ID: 391 446 7924**

**Passcode: 7K9JT8**

*Moderator* – Prof. Agassi Melikov

1. Ekaterina Doroshenko, Ekaterina Titarenko. Retrial queueing system  $M[n]/M/1$  with feedback and impatient customers. (Tomsk Polytechnic University, Tomsk, Russia)
2. Ekaterina Fedorova, Ivan Lapatin, Olga Lizyura, Alexander Moiseev, Anatoly Nazarov, Svetlana Paul. Asymptotic analysis of two-phase queueing system with service rate degradation and heterogeneous customers. (Tomsk State University, Russia)

3. Alexander Golovin, Alexander Rumyantsev. On Multiresource Queues with Multiserver Customers. (Institute of Applied Mathematical Research, Karelian Research Centre, RAS, Russia)
4. Petre Babilua, Elizbar Nadaraya. On the One Nonparametric Estimate of Poisson Regression Function. (Ivane Javakhishvili Tbilisi State University, Georgia)
5. Omari Purtukhia, Valeriane Jokhadze, Ekaterine Namgalauri. Martingale representation and the problem of nonlinear filtration. (Ivane Javakhishvili Tbilisi State University, Georgia)
6. Elshan Ibayev, Omarova Konul. Investigation of a boundary function of a semi-Markov process using inverse Laplace transform. (Institute of Control Systems, Azerbaijan)

**29 August (Tuesday)**

**9.30 - 11.30**

**Plenary Session**

**Hall 1**

[JOIN ZOOM](#)

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Dr. Samir Rustamov

1. Yedilkhan Amirgaliyev, Beibut Amirgaliyev, Perizat Omarova. Methods of data mining and their industrial applications. (Institute Information and Computational Technologies CS MES RK, Kazakhstan)
2. Janusz Kacprzyk. AI-assisted decision making and AI-enabled decision support for complex problem solving. (Warsaw University of Technology, Poland)
3. Rza Bashirov. Modelling disease – drug networks with Petri nets. (Eastern Mediterranean University, Türkiye)

**11.30 - 12.00**

**Coffee break**

**12.00 -  
13.15**

**Section “Intelligent Systems”**

**Hall 1**

[JOIN ZOOM](#)

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Prof. Ramin Rzayev

1. Chingiz Hajiyev, Demet Cilden-Guler. Small Satellite Attitude Estimation with Uncertain Process Noise. (Istanbul Technical University, Türkiye)
2. Mais Farkhadov, Olga Blinova, Dmitriy Kachalov, Valentin Smirnov. Development of an interface for the rapid construction of formal contextual queries for searching for information in large arrays of information. (Institute of Control Sciences of RAS, Russia)
3. Muhammad Jalil Ahmad, Korhan Günel. Exploring the Learning Potential of ELM from Finite Difference Solutions for Heat Equations. (University of Maryland Baltimore County, USA)

4. Rumiyya Alili, Minura Hajisoy, Narmina Mahmudova, Nihat Abdullayev, Jamaladdin Hasanov. Breast Cancer Detection and Classification. (ADA University, Azerbaijan)
5. Anar Mammadli, Elviz Ismayilov. Application of deep learning technologies in serious games. (High Performance Computing Center, Azerbaijan)

**13.15 - 14.30**

**Lunch break**

**14.30 -  
15.50**

## **Section “Intelligent Systems”**

**[JOIN ZOOM](#)**

**Hall 1**

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Dr. Gulchin Abdullayeva

1. Telman Aliev, Gambar Guluyev. Asif Rzayev, Fakhrad Pashayev. An intelligent system for monitoring the beginning of malfunctions in oil wells. (Institute of Control Systems, Azerbaijan)
2. Elshan Baghirov. Evaluating the performance of different machine learning algorithms for Android malware detection. (Institute of Information Technology, Azerbaijan)
3. Asif Ganbayev. Combining GAN with Other Machine Learning Techniques for Improving Customs Fraud Detection. (Academy of the State Customs Committee of the Azerbaijan Republic, Azerbaijan)
4. Azer Kerimov. Signal recognition method based on additive convolution of two proximity criteria. (Institute of Control Systems, Azerbaijan)
5. Masuma Mammadova, Zarifa Jabrayilova, Nargiz Shikhaliyeva. Decision-making based on information in medical media resources. (Institute of Information Technology, Azerbaijan)

**15.50 - 16.10**

**Coffee break**

**16.10 -  
17.30**

## **Section “Intelligent Systems”**

**Hall 1**

[JOIN ZOOM](#)

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator – Dr. Elshan Mustafayev*

1. Olga Krivorotko, Nikolay Zyatkov. Modeling of the COVID-19 epidemic in the Russian regions based on deep learning. (Sobolev Institute of Mathematics SB RAS, Moscow Institute of Physics and Technology, Russia)
2. Rachid Ben Said, İman Askerbeyli. Attention-based CNN-BiLSTM deep learning approach for Network Intrusion detection system in Software defined networks. (Ankara university, Türkiye)
3. Ayham Shahoud, Dmitriy Shashev, Stanislav Shidlovskiy. Enhancing the Street Geometry Extraction by Fusion of Thermal/Visible Images for Visual Servoing. (Tomsk State University, Russia)
4. Mikayil Sadigzade, Resmiye Nasiboglu, Efendi Nasibov. A Generating System for Creating a Training Set to Convert Table Images into HTML Files. (Dokuz Eylül University, Türkiye)
5. Vugar Aliyev, Merab Pkhovelishvili, Natela Archvadze, Zurab Gasitashvili, Zaza Tsiramua. Hybrid prediction method using experts and models. (AMIR Technical Services Company, Azerbaijan)

**12.00 -  
13.15**

## **Section “Optimization and Optimal Control Problems”**

**Hall 2**

[JOIN ZOOM](#)

**Meeting ID: 464 484 4552**

**Passcode: 963604**

*Moderator – Prof. Hamlet Guliyev*

1. K. Gulnaz Bulbul, Refail Kasimbeyli. An Improvement to the Augmented Lagrangian Based Hybrid Subgradient Method for Aircraft Maintenance Routing Problem. (Eskisehir Technical University, Türkiye)



2. Çerkez Ağayeva. Optimal control problem for stochastic delayed switching systems. (Muş Alparslan Üniversitesi, Türkiye)
3. Hamlet Guliyev, Hikmat Tagiyev. Optimal control problem for second order hyperbolic equations with non-local condition with control in coefficients. (Baku State University, Azerbaijan)
4. Vagif Abdullayev, Soltanali Jafarli. On a loaded optimal control problem with multipoint conditions. (Azerbaijan State Oil and Industry University, Institute of Control Systems, Azerbaijan)
5. Zhala Ahmadova. On a control problem for a variable structure with fractional Caputo derivatives. (Baku State University, Azerbaijan)

**13.15 - 14.30**

**Lunch break**

**14.30 -  
15.50**

## **Section “Optimization and Optimal Control Problems”**

**Hall 2**

[JOIN ZOOM](#)

**Meeting ID: 464 484 4552**

**Passcode: 963604**

*Moderator* – Dr. Yegana Ashrafova

1. Petro Stetsyuk, Andreas Fischer, Olha Khomiak. An exact nonsmooth penalty approach for a special class of linear programs. (V.M.Glushkov Institute of Cybernetics of the NAS of Ukraine, Ukraine)
2. Fidan Nuriyeva. Heuristic Algorithm for Solving Travelling Salesman Problem: Adding the Endpoints of the Longest Edges. (Dokuz Eylul University, Türkiye)
3. Nurgül Okur, Rovshan Aliyev. Some Hermite-Hadamard-Type Integral Inequalities for Multidimensional Log-Convex Stochastic Processes. (Giresun University, Türkiye)
4. Adem Şhitoğlu, Çerkez Ağayeva. Comparison of Optimal Solutions of Clusters Created Using Clustering Algorithm with Meta-Heuristic Algorithms in Capacity Vehicle Routing Problem. (Muş Alparslan University, Türkiye)
5. Nataliia Semenova, Mariia Lomaha, Viktor Semenov. Solvability conditions for the vector lexicographic optimization problems. (V.M. Glushkov Institute of Cybernetics of NAS of Ukraine, Ukraine)

**15.50 - 16.10**

**Coffee break**

16.10 -  
17.30

## Section “Optimization and Optimal Control Problems”

Hall 2

[JOIN ZOOM](#)

Meeting ID: 464 484 4552

Passcode: 963604

*Moderator* – Prof. Kamil Aida-zade

1. Gulseren Cicek, Elimhan N. Mahmudov. Optimization of the hyperbolic type differential inclusions described by polyhedral set valued mappings. (Istanbul University, Türkiye)
2. Yeşim Aygül, Onur Ugurlu, Urfat Nuriyev. A Depth First Search-based Algorithm for the Minimization of the Largest Connected Component in Networks. (Ege University, Türkiye)
3. Volodymyr Vasyanin, Olexander Trofymchuk, Liudmyla Ushakova. Exact and approximate solution problem of managing the reserve of capacity of arcs a communication network. (Institute of Telecommunications and Global Information Space of the NAS of Ukraine, Ukraine)
4. Mykola Zhurbenko.  $\varepsilon$ -subgradient algorithm with space transformation. (V.M. Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine, Ukraine)
5. Majid Abbasov, Artyom Sharlay. Shooting method for finding cost optimal trajectory. (St. Petersburg State University, Russia)

12.00 -  
13.15

## Section “Modelling and Inverse Problems”

Hall 3

[JOIN ZOOM](#)

Meeting ID: 391 446 7924

Passcode: 7K9JT8

*Moderator* – Dr. Anar Rahimov

1. Besarion Shanshiashvili. Parameter Identification of One Class of Nonlinear Systems Using Hammerstein Model with Feedback. (Georgian Technical University, Georgia)
2. Kozin Igor, Narzullayev Ulugbek, Cheverda Oleksandr. Fragmentary Models for Some Classes of Vehicle Routing Problems. (Zaporizhzhia National University, Ukraine)
3. Tatiana Zvonareva, Olga Krivorotko. Identifiability analysis for source problem of quasi-hyperbolic equation. (Sobolev Institute of Mathematics SB RAS, Russia)
4. Hameed Husam Hameed, Hayder Al-Saedi, Mohammed Al-Mayyah. Mathematical Modelling for Cholera Epidemic in Iraq. (Technical Institute of AL-Suwerah, Middle Technical University, Iraq)
5. Gabil Yagub, Merve Zengin. On the variation formulation of the inverse problem of determining the complex potential depending from time variable in a nonlinear Schrödinger equation with the special gradient term. (Kafkas University, Türkiye)
6. Anar Rahimov. An approach to solution to problem for restoring sources of special type in parabolic equation. (Institute of Control Systems, Azerbaijan)

**13.15 - 14.30**

**Lunch break**

**14.30 -  
15.50**

## **Section “Modelling and Inverse Problems”**

**Hall 3**

[\*\*JOIN ZOOM\*\*](#)

**Meeting ID: 391 446 7924**

**Passcode: 7K9JT8**

*Moderator* – Prof. Mahir Rasulov

1. Yegana Ashrafova, Sevinc Rasulova. Problem on a determination of places and capacities of sources in the hyperbolic systems. (Baku State University, Institute of Control Systems, Azerbaijan)
2. Ali Abbasov, Ramin Rzayev, Tunjay Habibbayli. Formation of the flight path of a quadcopter under overland monitoring by the hybrid modeling system. (Institute of Control Systems, Azerbaijan)

3. Shakir Yusubov, Minayye Huseynova. On the unique solvability of a nonlocal boundary value problem for fourth-order hyperbolic equation with impulsive actions. (Baku State University, Azerbaijan)
4. Sahib Ramazanov, Rehile Askerbeyli. Power Analysis of Mann Whitney, Two Sample Kolmogorov Smirnov and Wald-Wolfowitz Runs Tests: Comparison with Monte Carlo Simulation in the Case of Variance Heterogeneity. (Karabük University, Türkiye)

**15.50 - 16.10**

**Coffee break**

**16.10 -  
17.30**

## **Section “Modelling and Inverse Problems”**

**Hall 3**

[JOIN ZOOM](#)

**Meeting ID: 391 446 7924**

**Passcode: 7K9JT8**

*Moderator* – Prof. Khanlar Gamzaev

1. Khanlar Gamzaev, Sergey Leonov, Sevil Huseynzade, Sevinc Kerimova. Identification of the parameter of the single-phase flow model in the reservoir with the power law of filtration. (Azerbaijan State Oil and Industry University, Azerbaijan)
2. Elvin Azizbayov, Yashar Mehraliyev. On the solvability of a time nonlocal inverse boundary value problem for the longitudinal wave propagation equation. (Academy of Public Administration under the President of the Republic of Azerbaijan, Azerbaijan)
3. Ilgar Mamedov, Aynura Abdullayeva. Contact-boundary problem for Boussinesq-Love equation and its applications. (Institute of Control Systems, Azerbaijan)
4. Aydin Aliyev. Numerical solution and high-order error estimate for the nonlocal Dirichlet problem. (Baku State University, Western Caspian University, Azerbaijan)

**30 August (Wednesday)**

**9.30 - 11.30**

**Plenary Session**

**Hall 1**

[JOIN ZOOM](#)

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Prof. Refail Kasimbeyli

1. Adil Bagirov. Nonsmooth optimization models and methods in machine learning.(Centre for Smart Analytics, Institute of Innovation, Science and Sustainability, Federation University Australia, Australia)
2. Arkadii Chikrii, Greta Chikrii. Motion control in condition of conflict and uncertainty. (V.M. Glushkov Institute of Cybernetics of the NAS of Ukraine, Ukraine)
3. Mais Farkhadov. Artificial intelligence in the control of technical objects. (Institute of Control Sciences of RAS, Russia)

**11.30 - 12.00**

**Coffee break**

**12.00 -  
13.15**

**Section “Intelligent Systems”**

**Hall 1**

[JOIN ZOOM](#)

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Dr. Adalat Pashayev

1. Chingiz Hajiyev. Nonlinear Two-Stage Kalman Filter for In-Orbit Calibration of Magnetometers. (Istanbul Technical University, Türkiye)

2. Mürüvvet Kalkan, Gazi Erkan Bostancı, Mehmet Serdar Güzel. Cloud Classification of Clear/Cloudy with Deep Learning. (Ankara University, Türkiye)
3. Sifa Ozsari, Mehmet Serdar Guzel, Kivanc Kamburoglu. Open-mouth temporomandibular joint disorder diagnosis with deep learning. (Ankara University, Türkiye)
4. Andrey Rychkov, Majid Abbasov. Ant colony based approach for finding cost-optimal path. (St. Petersburg State University, SPbSU, 7/9 Universitetskaya nab., St. Petersburg, 199034 Russia, Russia)
5. Vladislav Rudakov, Timur Merembayev, Yedilkhan Amirgaliyev, Perizat Omarova. Time Series analysis of biogas monitoring with Deep Learning approaches. (Institute Information and Computational Technologies CS MES RK, Kazakhstan)

**13.15 - 14.30**

**Lunch break**

**14.30 -  
15.50**

## **Section “Fuzzy and Stochastic Modeling”**

**Hall 1**

[JOIN ZOOM](#)

**Meeting ID: 320 785 3453**

**Passcode: 350746**

*Moderator* – Prof. Gorkhmaz Imanov

1. Serhii Kurkula, Nataliia Maksyshko. A fuzzy decision-making model for investors in the electric vehicle market. (Zaporizhzhia National University, Ukraine)
2. Aleksandr Bulavchuk, Daria Semenova. Using random fuzzy variables for RCPSP. (Siberian Federal University, Russia)
3. Hayrunnisa Ergin, Efendi Nasiboglu. Evaluation of university monitoring criteria with Fuzzy AHP method. (Dokuz Eylül University, Türkiye)
4. Ulviye Hacizade. Development of Adaptive Control System Using Fuzzy – Genetic Approach. (Halic University, Türkiye)

5. Elmar Aliev, Jamirza Aghajanov, Inara Rzayeva. Market risk assessment by expert knowledge compilation using fuzzy analysis methods. (Institute of Control Systems, Azerbaijan)
6. Malahat Murtuzayeva, Samir Pur Riza. A multi-criteria problem of choosing an alternative to SPI in a fuzzy environment by applying the CODAS method. (Azerbaijan)
7. Punar Guliyeva, Rashad Ismibayli. Analysis of the methods for constructing membership functions using expert data. (Institute of Control Systems, Azerbaijan)

**15.50 - 16.10**

**Coffee break**

**12.00 -  
13.15**

## **Section “Applied Problems”**

**Hall 2**

**[JOIN ZOOM](#)**

**Meeting ID: 464 484 4552**

**Passcode: 963604**

*Moderator – Dr. Elkhan Sabziev*

1. Sergei Vaskovskii, Ivan Brokarev. Analysis of methods and systems for natural gas composition and energy characteristics determination. (V. A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences, Russia)
2. Iclal Gor, Korhan Gunel, Gulsum Isman. Incorporating the regional dominance strategy into a multi-swarm PSO. (Aydin Adnan Menderes University, Türkiye)
3. Resmiye Nasiboglu, Efendi Nasibov. Determination of the Location Valuation Index based on Public Transportation in Big Cities. (Dokuz Eylül University, Türkiye)
4. Elnur Nuri. Interactive solution of reservoir management and optimization. (Ege University, Türkiye)
5. Mehmet Fatih Ertürk, Chingiz Hajiyev. Development of Satellite Attitude Controller with TRIAD and Particle Swarm Optimization Using Only Magnetic Actuators. (Turkish Aerospace Industries, Türkiye)

- Alexander Shchekin, Victoria Verzhbitskaya, Alexander Handzel. Applying deterministic factor analysis to study gas well operation. (North-Caucasus Federal University, Russia)

**13.15 - 14.30**

**Lunch break**

**14.30 -  
15.50**

## **Section “Applied Problems”**

**Hall 2**

[JOIN ZOOM](#)

**Meeting ID: 464 484 4552**

**Passcode: 963604**

*Moderator* – Dr. Samir Guliyev

- Ashraf Balametov, Elman Xalilov, Tarana Isayeva. Simulation of the power line mode using equations with distributed nonlinear conductivity. (Azerbaijan Scientific Research and Design-Survey Institute of Energy, Azerbaijan)
- Zh.A. Abdiramanov, A.S. Berdyshev, R. Alov. Investigation of the exponential stability of a numerical solution of a mixed problem for the shallow water equation. (Abai Kazakh National Pedagogical University, Kazakhstan)
- Mahir Rasulov, Garib Jalalov. Numerical Method for Studying the Process of Mass Heat Transfer in Deformable Layers in a Class of Discontinuous Functions. (Institute of Oil and Gas, Azerbaijan)
- Allakhverdi Hasanov, Sevinj Guliyeva, Turkan Hasanova. Filtration losses from channels and stream beds of the irrigation system. (Institute of Control Systems, Azerbaijan)
- Yagub Aliyev. Existence of Invariants in Periods of Generalized Collatz Sequences. (ADA University, Azerbaijan)

**15.50 - 16.10**

**Coffee break**

**16.10 -  
17.30**

## **Section “Applied Problems”**

**Hall 2**

[JOIN ZOOM](#)

**Meeting ID: 464 484 4552**

**Passcode: 963604**



*Moderator* – Prof. Allahverdi Hasanov

1. Asadulla Mammadov, Bunyad Kazymov. Determination of the developing indicators of gas layers whose rocks are creeping deformation during operation by inclined wells. (Oil and Gas Institute, Azerbaijan)
2. Nabi Kurbanov, Vusala Babadjanova, Ulviya Aliyeva. About one design scheme for solving the problem of vibration of reinforced viscoelastic pipe. (Sumgait State University, Azerbaijan)
3. Gunay Rahimli, Yadulla Hasanli. General equilibrium models of Azerbaijan economy: conceptual view and multiplier effects. (UNEC, Azerbaijan)
4. Yadulla Hasanli, Sugra Humbatova, Elnure Shafizade, Afag Huseyn, Yagut Musayeva. The model of optimal trajectory of GDP: in the case of Azerbaijan. (Azerbaijan State University of Economics (UNEC), Azerbaijan)
5. Abdumauvlen Berdyshev, Dossan Baigereyev, Zharasbek Baishemirov. Efficient Numerical Method for Fractional Order Stochastic Stokes-Darcy Equations. (Institute of Information and Computational Technologies, Kazakhstan)

**12.00 - Section “Information Technologies”**  
**13.15**

**Hall 3**

[JOIN ZOOM](#)

**Meeting ID: 391 446 7924**

**Passcode: 7K9JT8**

*Moderator* – Prof. Asif Rzayev

1. Rasim Alguliyev, Babak Nabiyev, Konul Dashdamirova. CTI challenges and perspectives as a comprehensive approach to cyber resilience. (Institute of Information Technology, Azerbaijan)
2. Kamil Aida-Zade, Aynur Aliyeva. Computer system concept of self-study, testing and knowledge assessment. (Institute of Control Systems, Azerbaijan)

3. Vagif Gasimov, Nargiz Mammadzada, Cabir Mammadov. New Key Exchange Protocol Based on Matrix Algebras. (Azerbaijan Technical University, Azerbaijan)
4. Mehman Hasanov, Ali Tagiyev, Nadir Atayev. Exploration of signal to noise ratio with optical compression systems utilizing spectrum in free space optics. (Azerbaijan Technical University, Azerbaijan)
5. Rashid Alakbarov, Mammad Hashimov. Development of security mechanisms in cloud-based SCADA systems. (Institute of Information Technology, Azerbaijan)

**13.15 - 14.30**

**Lunch break**

**14.30 -  
15.50**

## **Section “Information Technologies”**

**Hall 3**

**[JOIN ZOOM](#)**

**Meeting ID: 391 446 7924**

**Passcode: 7K9JT8**

*Moderator* – Prof. Yedilkhan Amirgaliyev

1. Olga Blinova, Oleg Kuprikov, Daniil Komanich, Ekaterina Gorina. Architectures for processing large data arrays in distributed systems based on open source frameworks. (V. A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences, Russia)
2. Tamara Bardadym, Vasyl Gorbachuk, Oleksandr Lefterov, Sergiy Osypenko. Modern Ways to Organize Computations in Cloud Environment. (V.M.Glushkov Institute of Cybernetics of the NAS of Ukraine, Ukraine)
3. Mais Farkhadov, Oleg Kuprikov, Daniil Komanich. Underwater wireless communications researching, analysis and comparison. (Institute of Control Sciences of RAS, Russia)
4. Illia Kovalov, Kozina Galina. Comparative analysis of hashing standards. (Zaporizhzhia Polytechnic National University, Ukraine)
5. Chingiz Khalilov, Elshan Mustafaeu, Ilgar Mahmudov, Rustam Azimov. Computer system of analysis of the mass exam results.

(State Examination Center of the Republic of Azerbaijan,  
Azerbaijan)

**15.50 - 16.10**

**Coffee break**

**16.10 -  
17.30**

## **Section “Information Technologies”**

**Hall 3**

**[JOIN ZOOM](#)**

**Meeting ID: 391 446 7924**

**Passcode: 7K9JT8**

*Moderator* – Prof. Bayram Ibrahimov

1. Irada Alakbarova. Assessment of society based on the analysis of the behavior of citizens on the platform of electronic demography. (Institute of Information Technologies, Azerbaijan)
2. Emil Guliyev, Nihad Asgarov, Nurhan Aliyev, Jamaladdin Hasanov. Autoencoder-based Feature Extraction for the Classification Tasks with Insufficient Dataset Size. (ADA University, Azerbaijan)
3. Tahmasib Fataliyev, Hafiz Bayramov, Rena Mikayilova. Analysis and new approaches to solving the problems of integration of e-science and e-education based on the challenges of Industry 4.0. (Institute of Information Technology, Azerbaijan)
4. Reshad Ismibayli, Sona Rzayeva. University scheduling system on the Bologna form of education. (University of Architecture and Construction, Azerbaijan)

**17.30 - 18.00**

**Closing Ceremony (Hall 1)**

All questions you can address to  
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