

Belarusian State University of
Informatics and Radioelectronics

Program of the Eleventh
International Conference

PRIP'2011

Pattern Recognition and Information Processing

18-20 May 2011



Minsk, Belarus

Committees PRIP'2011

Honorary Chair:

Mikhail Batura (Belarus)

Co-Chairs:

Sergey Ablameyko (Belarus)

Rauf Sadykhov (Belarus)

Vice-Chairs:

Victor Krasnoproshin (Belarus)

Alexander Kuznetsov (Belarus)

Alexander Tuzikov (Belarus)

International Program Committee

Akbar Shahsavand (Iran)

Alexandr Petrovsky (Belarus)

Anatoly Sachenko (Ukraine)

Andrzej Dziech (Poland)

Angelo Marcelli (Italy)

Darryl Davis (United Kingdom)

Dmitry Gorodnichy (Canada)

Donald Wunsch (USA)

Elena Zaitseva (Slovakia)

Gabriele Moser (Italy)

Gabriella Sanniti di Baja (Italy)

Gunilla Borgefors (Sweden)

Hubert Roth (Germany)

Igor Gurevich (Russia)

Janusz Zalewsky (USA)

Jean-Jacques Mariage (France)

Jon Atli Benediktsson (Iceland)

Kurosh Madani (France)

Maria Petrou (Greece)

Qiangfu Zhao (Japan)

Rasim Alguliev (Azerbaijan)

Robert Hiromoto (USA)

Shun-ich Amari (Japan)

Slobodan Ribaric (Croatia)

Stanislav Sedukhin (Japan)

Svetlana Janushkevich (Canada)

Tapio Saramaki (Finland)

Vincenzo Piuri (Italy)

Vladimir Golovko (Belarus)

Vladimir Red'ko (Russia)

Vlad Shmerko (Canada)

Yuriy Kharin (Belarus)

Local Organizing Committee (Belarus)

Alexander Doudkin (Chair)

Leonid Podenok

Aleksey Otvagin

Alexander Inyutin

Vladimir Obraztsov

Valentin Ganchenko

Sergey Bayrack

Natalia Pavlyonok

Valentina Konakh

Conference Address:

Prof. Rauf Sadykhov

(Conference Co-Chair)

Belarusian State University of
Informatics and Radioelectronics

Brovka str. 6, Minsk, 220027, Belarus

tel: +375 17 293-23-79

fax: +375 17 293-23-80

e-mail: rsadykhov@bsuir.by

Dr. Alexander Doudkin

(Local Organizing Committee Chair)

United Institute of Informatics Prob-
lems of

National Academy of Sciences of Belarus
Surganova str. 6, Minsk, 220012, Be-
larus

phone: +375 17 284 2148

e-mail: prip@lsi.bas-net.by

Reviewers of the papers

Sergey Ablameyko	BSU (Belarus)
Rasim Alguliev	ANAS Institute of Information Technology (Azerbaijan)
Shun-ich Amari	RIKEN Brain Science Institute (Japan)
Jon Atli Benediktsson	University of Iceland
Gunilla Borgfors	Uppsala University (Sweden)
Darryl Davis	University of Hull (UK)
Andrzej Dziech	AGH University of Science and Technology (Poland)
Vladimir Golovko	Brest State Technical University (Belarus)
Dmitry Gorodnichy	Canada Border Services Agency (Canada)
Igor Gurevich	Dorodnicyn Computing Centre of the RAS (Russia)
Svetlana Janushkevich	University of Calgary (Canada)
Robert Hiromoto	Department of Computer Science University of Idaho (USA)
Kurosh Madani	University of Paris 12 (France)
Angelo Marcelli	University of Salerno (Italy)
Jean-Jacques Mariage	Paris 8 University (France)
Gabriele Moser	University of Genova (Italy)
Alexandr Petrovsky	BSUIR (Belarus)
Maria Petrou	Aristotle University of Thessaloniki (Greece)
Vincenzo Piuri	Universita' degli Studi di Milano (Italy)
Vladimir Red'ko	Institute of Optical Neural Technologies of RAS (Russia)
Slobodan Ribaric	University of Zagreb (Croatia)
Hubert Roth	Institute of Automatic Control Engineering (RST) (Germany)
Rauf Sadykhov	BSUIR (Belarus)
Tapio Saramaki	Tampere University of Technology (Finland)
Gabriella Sanniti di Baja	Institute of Cybernetics (Greece)
Stanislav Sedukhin	The University of Aizu (Japan)
Akbar Shahsavand	Ferdowsi University (Iran)
Vlad Shmerko	University of Calgary (Canada)
Donald Wunsch	Missouri University of Science and Technology (USA)
Elena Zaitseva	University of Zilina (Slovakia)
Janusz Zalewsky	Florida Gulf Coast University (USA)
Qiangfu Zhao	University of Aizu (Japan)
Alexander Doudkin	UIIP of NASB (Belarus)
Victor Krasnoproshin	BSU (Belarus)
Vladimir Obraztsov	BSU (Belarus)
Aleksey Otvagin	BSUIR (Belarus)
Mikhail Tatur	BSUIR (Belarus)
Boris Lobanov	UIIP of NASB (Belarus)
Eduard Snejko	UIIP of NASB (Belarus)
Boris Zalesky	UIIP of NASB (Belarus)
Dmitry Viatchenin	UIIP of NASB (Belarus)
Valery Starovoitov	UIIP of NASB (Belarus)
Yuri Savitsky	Brest State Technical University (Belarus)
Uladzimir Rubanau	Brest State Technical University (Belarus)
Dmitriy Kostiyuk	Brest State Technical University (Belarus)
Alexandr Nedzved	UIIP of NASB (Belarus)

Contributors PRIP'2011

Conference is organized by:

- Belarusian State University of Informatics and Radioelectronics

in cooperation with:

- United Institute of Informatics Problems of the National Academy of Sciences of Belarus
- Belarusian State University, Faculty of Applied Mathematics and Computer Sciences
- Belarusian Association for Image Analysis and Recognition
- Enterprise IT-Park
- Bluemedia Ltd.
- Effective Software Ltd.
- Enterprise ISsoft Solutions
- Enterprise TelesoftService
- Synesis Ltd.

in collaboration with:

- Belarusian Republican Foundation for Fundamental Research
- International Associations for Pattern Recognition

Section list and Presentation Codes

- P** Plenary Papers
- A** Pattern Recognition and Image Processing
- B** Data Analysis
- C** Signal Processing
- D** Systems and Parallel Architectures for Signal and Image Processing
- E** Knowledge-Based Expert and Decision Support Systems
- F** Application of Pattern Recognition and Informaton Processing
- G** 3D Image Processing and Modeling

Time schedule

Tuesday, May 17, 2011

16:00 – 18:00	Registration (232)
18:00 – 19:00	Welcoming Reception (232)

Wednesday, May 18, 2011

08:00 – 10:00	Registration (232)	
10:00 – 10:20	Welcome	
10:20 – 11:20	Plenary Session P1 (229)	
11:20 – 11:40	Coffee Break	
11:40 – 12:40	A1 (232)	C1 (229)
12:40 – 14:00	Lunch	
14:00 – 15:00	Plenary Session P2 (232)	
15:00 – 15:20	Coffee Break	
15:20 – 16:20	A2 (232)	C2 (229)
16:20 – 16:40	Coffee Break	
16:40 – 18:00	A3 (232)	D1 (229)
18:30 – 22:00	Conference Banquet	

Thursday, May 19, 2011

08:00 – 10:20	Registration (232)	
10:20 – 11:20	A4 (232)	D2 (229)
11:20 – 11:40	Coffee Break	
11:40 – 12:40	A5 (232)	E1 (229)
12:40 – 14:00	Lunch	
14:00 – 15:00	Plenary Session P3 (229)	
15:00 – 15:20	Coffee Break	
15:20 – 16:20	G	E2
16:20 – 16:40	Coffee Break	
16:40 – 18:00	B1 (232)	E3 (229)
19:00 – 22:00	“La Traviata”, Opera by Guiseppe Verdi	

Friday, May 20, 2011

09:00 – 10:00	Plenary Session P4 (229)	
10:00 – 10:20	Coffee Break	
10:20 – 11:20	B2 (232)	F1 (229)
11:20 – 11:40	Coffee Break	
11:40 – 12:40	B3 (232)	F2 (229)
12:40 – 14:00	Lunch	
14:00 – 15:00		F3 (229)
15:00 – 15:20	Coffee Break	
15:20 – 16:20		F4 (229)
16:20 – 16:50	Closing ceremony, award presentation	

Scientific program

Wednesday, May 18, 2011

08:00 – 10:00 **Registration**

10:00 – 10:20 **Welcome**

Mikhail Batura, Rector of BSUIR

Sergey Ablameyko, Rector of BSU, Vice-President of IAPR

Rauf Sadykhov, Head of Computer Science Dept. of BSUIR

10:20 – 11:20 **Plenary Session**

*Robert E. Hiromoto*¹

GPU and Multi-cores: Computational Thinking – Art and Science

11:20 – 11:40 **Coffee Break**

11:40 – 12:40

A1 Pattern Recognition and Image Processing

Chair: Kurosh Madani, France

Zalesky B. A., Lukashevich P. V.

Scale Invariant Algorithm to Match Regions on Aero or Satellite Images

Bekhtin Y. S., Bryantsev A. A.

Matching Pursuit of Coherent Structures During Wavelet-Based Fusion of Noisy Multispectral Images

Dvoenko S. D., Panferov A. V.

The Problem of Negative Eigenvalues Removing from Matrixes of Pairwise Comparisons

Hancharou D., Nedzved A., Starovoitov V. V.

Histological Image Stitching Algorithm Based on Normalized Statistical Moment

Alzaabi A., Alquié G., Tassadaq H., Seba A.

Harris Extraction and SIFT Matching for Correlation of Two Tablets

¹Department of Computer Science University of Idaho, Moscow, Idaho 83844-1010, USA, <http://www.cs.uidaho.edu/Faculty/Hiromoto.html>, hiromoto@cs.uidaho.edu

C1 Signal Processing

Chair: Alexandr Petrovsky, Belarus

Piunovsky E.

Using Wavelet Lifting Scheme for Audio Data Compression

Aida-Zade K., Sharifova A.

A comparison Between Allophone, Syllable, and Diphone Based TTS Systems for Azerbaijan Language

Fedyayev O. I., Bondarenko I. Yu.

Segment-Holistic Speech Recognition System Based on Model of Brain Hemispheric Interaction in Speech Perception

Semenchik V., Pahomov V.

Harmonic Signal Amplitude and Phase Measurement for Microwave Imaging System

Burkatovskaya Y., Vorobejchikov S.

Sequential Procedure of Parameter Change Detection in AR/ARCH Process

Bushra J., Fauvet E., Laligant O.

Piecewise Image De-Noising Utilizing Discontinuous Edges

12:40 – 14:00 **Lunch**

14:00 – 15:00 **Plenary Session**

Slobodan Ribaric²

Multimodal Biometric Authentication Based on Hand Features

15:00 – 15:20 **Coffee Break**

15:20 – 16:20

A2 Pattern Recognition and Image Processing

Chair: Slobodan Ribaric, Croatia

Grushetsky Y. E., Tuzikov A. V.

Motions Space Clustering for Template-Based Protein Docking

Damaratski A., Juodelis A.

A Novel Technique of Partial Supervision for a Heuristic Algorithm of Possibilistic Clustering

²CSAR research group, AI Laboratory, Paris 8 University, 2, rue de la Liberté, St Denis, France, Cdx 93526, jjmariage@free.fr

Kozlovskii V. A., *Maksimova A. J.*

Algorithm of Pattern Recognition with Intra-Class Clustering
Dvoenko S. D.

On Clustering of a Set of Members by Distances and Similarities
Pradun D. V.

Block-Parallel Clustering of Multispectral Images Using Max
Flow Network Algorithm
Verma A., *Liu Ch.*

Fusion of Color SIFT Features for Image Classification with Ap-
plications to Biometrics

C2 Signal Processing

Chair: Vladimir Golovko, Belarus

Stankevich A., *Petrovsky Al.*, *Petrovsky A.*

An FPGA-Based CABAC Module for Real-Time H.264/AVC Decoder
Novikov A. E., *Petrovsky A.*

Embedded DSP Module for Active Noise Control in Ventilation
Systems

Petrovsky N. A., *Parfieniuk M.*

Distributed Arithmetic-Based Quaternion M-Band Wavelets Ker-
nel for Multi-Resolution Analysis of Multimedia Data

Kluchenyia V.

FPGA Architecture of DCT Processor Based on Lifting Steps for
Real-Time Embedded Applications

Siddiqi M. H., *Truc P. T. H.*, *Lee S.*, *Lee Y.-K.*

Level Set Based Automatic Human Body Segmentation

16:20 – 16:40 **Coffee Break**

16:40 – 18:00

A3 Pattern Recognition and Image Processing

Chair: Andrzej Dziech, Poland

Nedzved A., *Nedzved O.*, *Ablameyko S.*, *Uchida S.*

Object Extraction at Nano-Surface Images

Gorshkova K., *Shumsky I.*, *Tsialiatnikau R.*

Photo Localization on Identification Documents in Conditions of
Incomplete and Noisy Information

Khrustalev P.

Method of a Finding of a Skyline on the Image

Kharinov M.

Adaptive Dichotomous Image Segmentation

Moreno R., Graña M., Ramik D. M., Madani K.

Image Segmentation by Spherical Coordinates

D1 Systems and Parallel Architectures for Signal and Image Processing

Chair: Elena Zaitseva, Slovakia

Golovko V., Apanel E., Mastykin A., Vaitsekhovich H., Evtigneev V.

Neural Network Model for Transient Ischemic Attacks Diagnostics

Minkevičius S., Kulvietis G.

A Mathematical Model of the Message Switching System

Kulik B., Zuenko A., Fridman A.

Modified Reasoning by Means of N-Tuple Algebra

Archvadze N., Pkhovelishvili M., Shetsiruli L.

The Complexity of Program Synthesis from Examples

Khanh N. Q.

Security Requirements for SOA on the Base of Security Standards of Web-Service

Mustafayev E. E., Hasanov J. Z., Sharifova A.

The Device of Recognition and Scoring of Printed Texts

18:30 – 22:00 **Conference Banquet**

Thursday, May 19, 2011

10:20 – 11:20

A4 Pattern Recognition and Image Processing

Chair: Janusz Zalewsky, USA

Żywicki M., Matiolański A., Orzechowski T. M., Dziech A.

Knife Detection as a Subset of Object Detection Approach Based on Haar Cascades

Sergeeva K., Vorobejchikov S.

An Efficient Algorithm for Detecting a Change Point of Autoregressive Parameters of AR(P)/ARCH(Q) Process

Ganchenko V., Petrovsky A., Pawlowski T.

Special Areas Detection on Agricultural Fields Images Using Color Characteristics and Image Local Variability Evaluations

Wassermann J., Dziech A.

New Approach in Video Watermarking Based on DPCM and Transform Coding

Khatami A., Mirghasemi S.

A Hybrid Intelligent Algorithm-Based Color Space Conversion for Skin Detection

D2 Systems and Parallel Architectures for Signal and Image Processing

Chair: Jacob Wassermann, Austria

Timchenko L., Kokriatskaia N., Melnikov V., Ivasyuk I., Makarenko R.

Training the Parallel-Hierarchical Network for Recognition Static and Dynamic Images

Salnikov I. I.

The Analysis of Distant Objects' Spatio-Temporal Parameters in Information Technical Systems

Burmako E., Sadykhov R.

Conflux: Embedding Massively Parallel Semantics in a High-Level Programming Language

Sadykhov R., Uvarov A., Pertsev D.

Parallel Face Detection Algorithm for GPU Architecture

Megrelishvili R., Besiashvili G., Shengelia S.

One-Way Cryptography Function Using $N \times N$ Matrices

11:20 – 11:40 **Coffee Break**

11:40 – 12:40

A5 Pattern Recognition and Image Processing

Chair: Valery Starovoitov, Belarus

Guzik P., Matiolański A., Orzechowski T. M., Dziech A.

Evaluation of Parameters for Haar-Like Features Based Face Detection Algorithm

Tulyakov S., Sadykhov R.

Face Recognition on Machine Readable Travel Documents: Algorithms and Results

Trekin A., Matveev I. A.

Projection Method for Pupil Detection

Gubchik I. N., Ivanov N. N.

Tracking of an Object in Colony of Sparse Cells

Farag A., Atta R., Mahdi H.

Face Recognition Based on the Statistical Features of BDIP and Wavelet Transform

Naqvi S. A., Khattak T., Rehan W., Elahi A.

A Novel Model for Face Recognition

E1 Knowledge-Based Expert and Decision Support Systems

Chair: Robert Hiromoto, USA

Artemieva I. L., Zuenko A., Fridman A.

Integration of Ontologies, Knowledge and Data Archives into Ontology-Based Modeling Systems

Gurevich I.

Atoms, Molecules and Fundamental Restrictions on Characteristics of Information Systems

Mamedova M. H., Djabrailova Z. G., Aliyev H. B.

The method of Decision-Making Support for Employment of IT-Specialty Personnel Considering the Requirements of Employers

Lbov G. S., Polyakova G. L.

Forecasting Method Based on Logical Regularities

12:40 – 14:00 **Lunch**

14:00 – 15:00 **Plenary Session**

Hubert Roth³

Robust 3D Map Building Using 3D sensors

³Department of Electrical Engineering and Computer Science, Institute of Automatic Control Engineering (RST), Siegen, Germany, hubert.roth@uni-siegen.de, <http://www2.uni-siegen.de/rst/rst/index.e.php?page=roth/rothHome.e.html>

15:00 – 15:20 **Coffee Break**

15:20 – 16:20

G 3D Image Processing and Modeling

Chair: Hubert Roth, Germany

Struts S. V., Matveev I. A.

Reconstruction of 3D Structure of Human Face Using a Pair of Images and 3D Model of Human Face

Podkosova Y., Vasiuhova S. A., Varlamov O.

Use of Technologies of the Virtual Reality in Three-Dimensional Visualization of Results and Mivar's Application of Training Systems

Amarger V., Ramík D. M., Moreno R., Rossi L., Madani K., Graña M.

Wildland Fires' Outlines Extraction: a Spherical Coordinates Framed RGB Color Space Dichromatic Reflection Model Based Image Segmentation

Losik G.

A Recognition Model Using Objects Variability Information

Kapura V., Sachenko A., Roth H., Adamiv O.

Method of Stereoimage Fusion for 3D Reconstruction

E2 Knowledge-Based Expert and Decision Support Systems

Chair: Tomasz Orzechowski, Poland

Litvinskaya O. S., Salnikov I. I.

Mathematical Decision Making Model for Selecting Implementation Means of Information Technical System

Rusc T., Fornalski P., Dziech A., Slusarczyk P.

Computer System for Management and Full-text Search of Court Records

Varlamov O.

Mivar's Technologies to Development of Intelligent Systems and Project Development Active Multi-Subject Online Mivar's Encyclopedia

Myshev A. V.

The Metrological Theory of Information Dynamics for Intelligent Technologies' Processes of Processing and Analyzing Information

16:20 – 16:40 **Coffee Break**

16:40 – 18:00

B1 Data Analysis

Chair: Dmitry Viattchenin, Belarus

Podolskiy V. E.

Simple Fuzzy Based Optimization Approach to the Problem of
Dividing Outliers into Classes of Valuable and Noise Points

Dotsenko A. S., Kondratenko Y. P.

Computer Hand Gesture Recognition Using Fuzzy Logic

Viattchenin D. A.

An Approach to Constructing a Possibility Distribution for the
Number of Fuzzy Clusters

*Lisitsa Y. U., Yatskou M. M., Apanasovich V. V., Rui H.,
Apanasovich T. V.*

Fully-automated segmentation of tumor nuclei in cancer tissue images

Aliyeva N. T., Ismayilov E. A.

Research of a Class of Smooth Membership Functions

Myshev A. V., Chunyaev N. V., Shelyakov M. A.

Cognitive Computer Technologies of Graphic Images Analysis

Arroyo-Cañada F.-J., Gil-Lafuente J.

Effectiveness of Interactive Advertising Formats Versus Non In-
teractive in the Television Environment: a Simulation Based in
Fuzzy Logic Analysis

E3 Knowledge-Based Expert and Decision Support Systems

Chair: Alexey Myshev, Russia

Rustamov S.

Structure and Contents of the Intellectual Systems, Which Ensure
Human-Computer Dialogue

Kaliukhovich D.

Effect of Perceptual Expectancy on Neural Adaptation: Compu-
tational Approach

Shut O. V.

Logical and Precedent-related Approaches to Representation of
Information in Pattern Recognition Problems: Comparative
Analysis and Applications

Kostyukovich N. Yu., Shakah G., Valvachev A. N.

Modeling of Nature-Territorial Complexes Based on Organiza-
tional Structures

Krasnoproshin V., Obraztsov V., Vissia H.

Knowledge Formalization in Decision Support Systems

Friday, May 20, 2011

09:00 – 10:00 **Plenary Session**

*Janusz Zalewsky*⁴

Latest Developments in Artificial Intelligence Techniques for Prognostics

10:00 – 10:20 **Coffee Break**

10:20 – 11:20

B2 Data Analysis

Chair: Vitaly Kober, Russia

Stankevich S. A., Starovoitov V. V., Shklyar S. V.

Joint Subpixel Analysis of Different Spatial Resolution Multispectral and Hyperspectral Imagery

Tarkov M. S., Tikhonov N. V.

Evaluating the Thermogram Heterogeneity Based on Its Quadtree Representation

Kovalev V., Dmitruk A., Safonau I.

A Method for Morphological Image Mining

Marushko Y.

Forecasting Multivariate Time Series Using Ensembles of Neural Network

Aguilar-González P. M., Kober V., Karnaukhov V.

Pattern Recognition with Noisy Target

Liu R., Gillies D. F.

Feature Selection Using Order Statistics

F1 Application of Pattern Recognition and Informaton Processing

Chair: Igor Salnikov, Russia

*Avakaw S. M., Doudkin A., Inyutin A., Rusetsky V. A.,
Otwagin A. V.*

Paralleling Aerial Image Simulation Based Multi-Agent Approach for Photolithography

Bogush R., Brovko N.

An Efficient Smoke Detection Algorithm for Video Surveillance Systems Based on Optical Flow

⁴Florida Gulf Coast University, USA, <http://itech.fgcu.edu/faculty/zalewski/>, zalewski@fgcu.edu

Ramík D. M., Sabourin Ch., Madani K.

Hybrid Artificial Vision System Combining Salient Object Extraction and Machine-Learning Skills

Kumari L. L., Dharmaratne A.

A Survey on Age Progression Techniques for Elderly People

Djabrailova Z. G., Nobari S. M.

Defining Methods of Importance Factor of the Criteria in the Solution of Personnel Management Problems and Detection of Contradictions

11:20 – 11:40 **Coffee Break**

11:40 – 12:40

B3 Data Analysis

Chair: Valeriy Prytkov, Belarus

Butkin G., Zhuk D., Tuzikov A. V.

Nonparametric Transforms for Describing Local Image Features

Zharkikh A. A., Bychkova S. M.

Modeling of the Recognition Algorithm of Direction of Random Shift of Point on a Plane on a Random Rotations Background

Chernov S., Kharin A.

Error Probabilities Evaluation in Sequential Testing of Simple Hypotheses for Dependent Observations

Vadapalli H. B., Nyongesa H., Omlin C. W. P.

Classifying Facial Action Units: Use of Time Variant Data and Recurrent Neural Networks

Sizov R., Kovalev T., Mironenko V., Prytkov V.

Algorithms of Searching and Marking Out Biological Objects

F2 Application of Pattern Recognition and Informaton Processing

Chair: Saulius Minkevičius, Lithuania

Sergeev R. S., Tuzikov A. V., Eremin V. F.

Statistical Approach to HIV-1 Mutation Analysis and Its Application

Anfilets S. V., Kasyanik V. V., Shuts V. N.

Application of Algorithms for Searching Motion in the Frame for the Detection of Vehicles

Zaitseva E., Rusin M., Levashenko V.

Reliability Analysis of Complex System

Pisarenko V., Pisarenko J.

Some Algorithms of UAV's Coordinates Definition by Onboard Processor According to Videocameras

Antidze J., Gulua N.

Generalized Tools for Computer Realization of Natural Language Models

12:40 – 14:00 **Lunch**

14:00 – 15:00

F3 Application of Pattern Recognition and Informaton Processing

Chair: Aleksey Otwagin, Belarus

Kabysh A., Golovko V., Mikhniayeu A., Rubanau U., Lipnikas A.

Behavior Patterns of Adaptive Multi-Joined Robot Learned by Multi-Agent Influence Reinforcement Learning

Vaitsekhovich L., Golovko V., Madani K.

Modeling of Multi-Agent Intrusion Detection System Based on Interaction Graph of Agents

Diomin V., Kostiuk D., Nikoniuk A.

Dynamic Windows Scaling in Unix-Like Systems Interface

Baranauskas V., Bartkevičius S., Šarkauskas K., Kabysh A.

Using Vector Marks for Robot Navigation

Kuzmich A. I., Shakah G., Valvachev A. N.

Remote Monitoring System for Mobile Objects

15:00 – 15:20 **Coffee Break**

15:20 – 16:20

F4 Application of Pattern Recognition and Informaton Processing

Chair: Uladzimir Rubanau, Belarus

Krasnoproshin V., Mazouka D.

Graphics Pipeline Automation Based on Visualization Algebra

Liu H., Krasnoproshin V.

Electronic Commerce Websites Evaluation Based on Fuzzy Analytic Hierarchy Process

Avakaw S., Doudkin A., Voronov A., Orlova T.

Software Applications of Input Data Preparation for Single-Beam
Layout Generator of IC Topology

Inyutin A.

Algorithm of the PCB Topology Inspection and Defects Classifi-
cation

Podenok L. P.

On Modular Exponentiation in Residue Number System

16:20 – 16:50 **Closing ceremony, award presentation**

Conference Place and Addresses

Belarusian State University of Informatics and Radioelectronics
6 P. Brovki st, Minsk, 220027 Belarus
tel: +375 17 293 2379
fax: +375 17 293 2380
e-mail: prip@lsi.bas-net.by

Information about Hotels

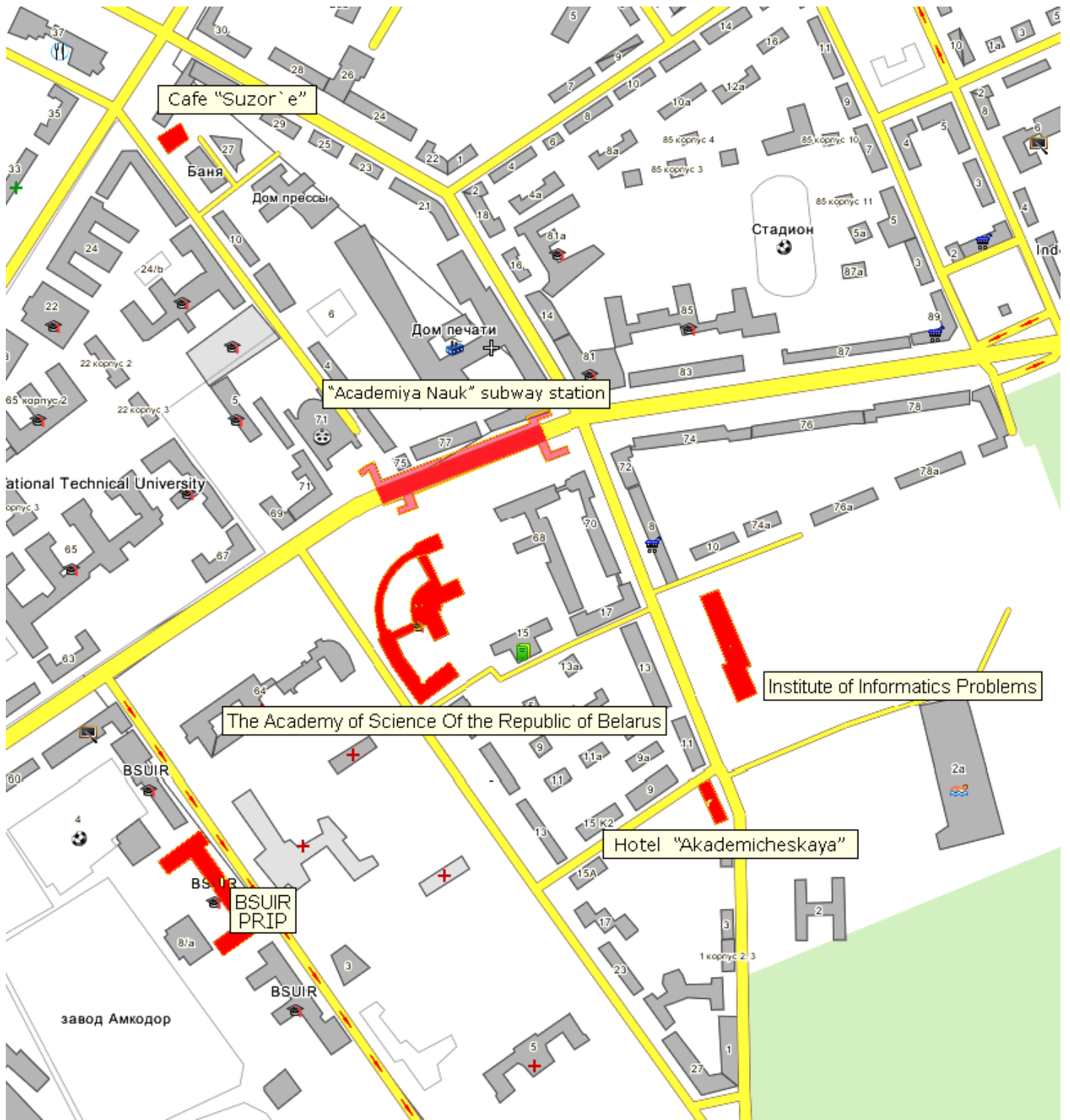
An accomodation is available in 7 hotels: Victoria, Europe, Planeta, Yubileiny, Turist, Orbita, and Academicheskaya (from four stars Victoria to economic Academicheskaya).

Public Transport in Minsk

Public Transport in Minsk are microsuses, buses, trams, trolleybuses, and underground. Tickets on buses, trams, trolleybuses, and underground should be bought in advance at underground stations or in ticket kiosk. Tickets on microsuses are bought at place.

Instruction for Oral Presentation

Speakers are requested to meet their session chair 10 minutes before the session starts. Oral Presentation is limited to 15 minutes and includes a few minutes for discussion. The lecturing halls are equipped with overehad and multimedia projectors. The language of oral presentation is English.



Disposition of the Conference