



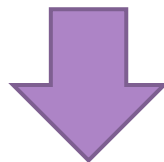
# **Educational technologies for digital transformation**

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# Digital technologies are everywhere



госуслуги онлайн  
на любом устройстве



Life changes  
Education changes



# Russia is already in digital era

**госуслуги онлайн**  
на любом устройстве



1<sup>st</sup> place in Europe  
6<sup>th</sup> place in the World

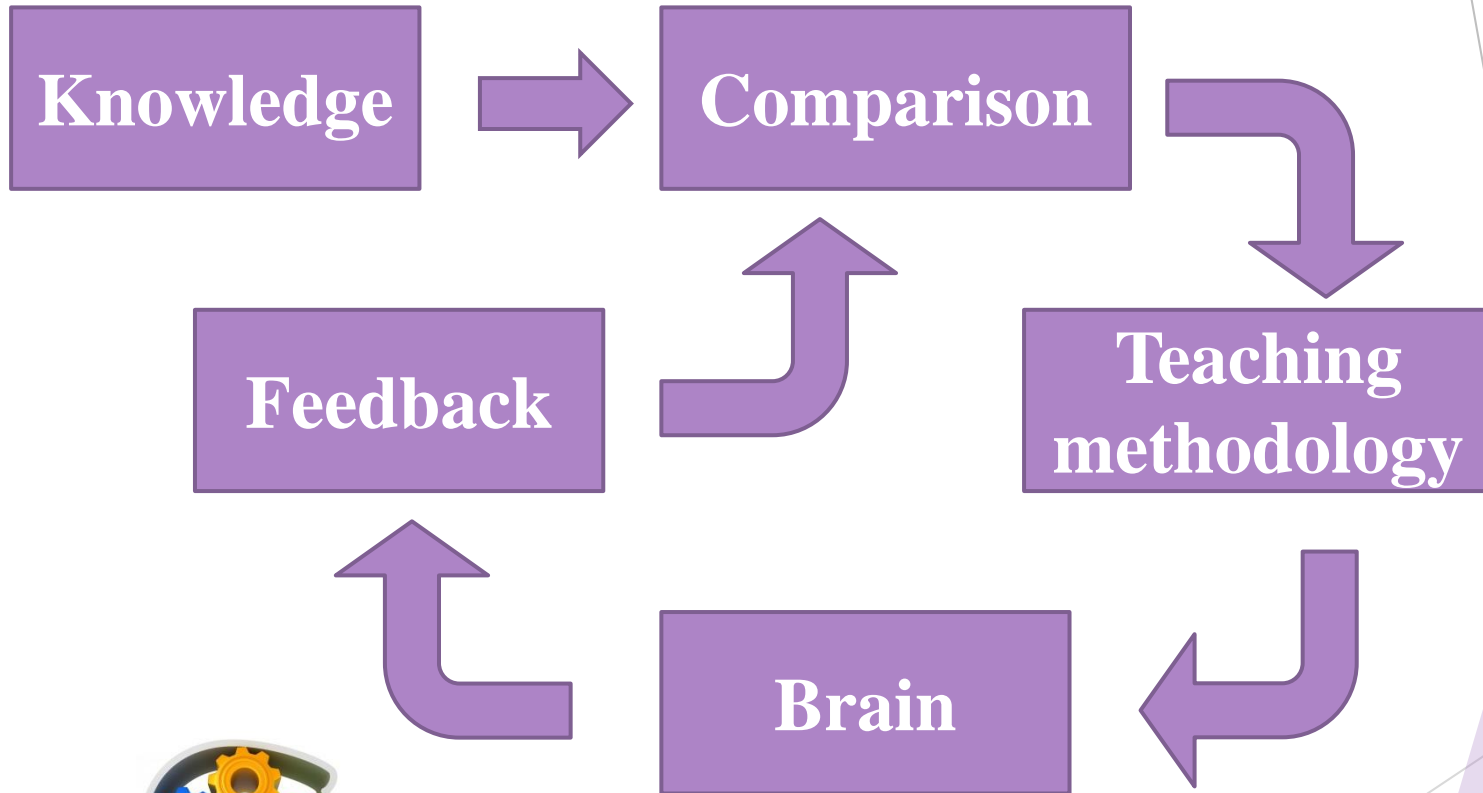


# National Program “Digital Economy of Russia”

- Information infrastructure
- Information security
- Digital technology
- Digital Government
- **Personnel for the Digital Economy**



# The most common description of the educational process





# Educational technologies

## MTUCI experience

- University social network
- New educational programs (joint implementation with leading companies)
- New courses on Artificial Intelligence
- Courses from leading companies
- Practice in leading companies
- Video Courses
- New math



# Intelligent information processing systems (bachelor)

- Linear algebra
- Theory of probability and applied statistics
- Information ecology
- Protection of information from malicious software
- AI systems
- Computer vision systems
- Data mining methods
- Deep learning in neural networks
- and other...



# Industrial Internet of Things (bachelor)

- Linear algebra
- Theory of probability and applied statistics
- Supercomputer technologies
- IoT networking
- Technologies of industrial IoT
- Simulation of IIoT control systems
- Information security of IoT
- Machine Learning
- Smart City technologies
- and other...





# Computer Security (bachelor)

- Much math
- Cryptography
- Steganography
- Technical protection of information
- Program protection of information
- Methods for assessing the security of computer systems
- and other...



# Big Data Management (master)

- Intelligent Databases
- Information protection in global systems
- Deep Learning and Neural Networks technologies
- High dimensional data analysis
- Software for AI systems
- Computer vision
- Fuzzy Logic
- and other...



# Data mining in technical systems (master)

- Data mining methods in control systems
- Machine Learning. Learning technical systems
- Neural network management
- Fuzzy control systems
- Big Data analysis methods and tools
- and other...



# AI Courses: Fuzzy Logic

- The question to students: “How can you estimate the quality of educational process?”
- Compare incomparable (e.g. Moonlight Sonata and Russian Anthem or Solitaire and Counter-Strike)
- Simple problem which has no math solution (e.g. tea brewing)
- Each student's individual FL project
- Much information on students



# AI Courses: Neural Networks

- Simplest brain structure
- Neuron training on example of physical training
- Discussion: Artificial Intelligence vs Natural Intelligence
- Each student's individual NN project: e.g., motivation for learning
- Much information on students



# Students projects

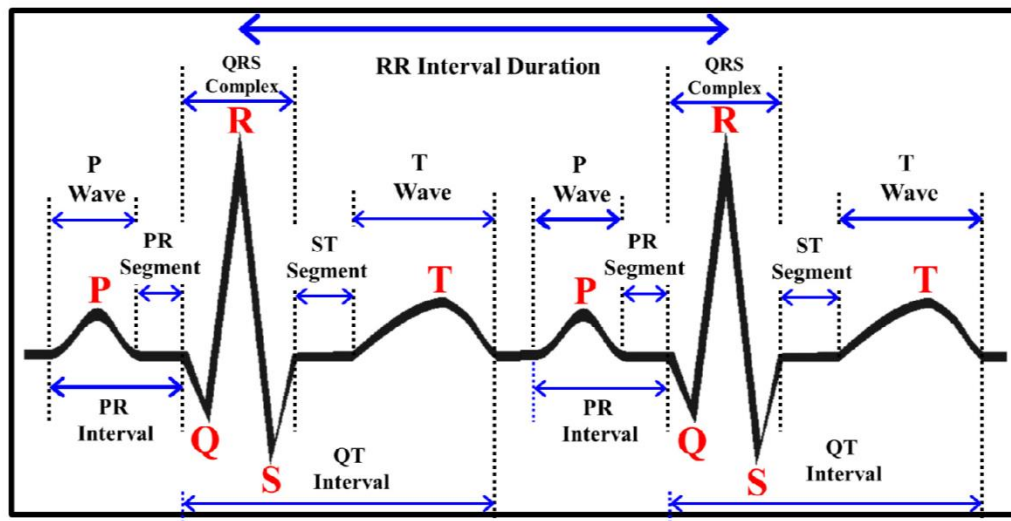






# Data mining of electrocardiographic studies

- Reading ECG parameters
- Filling in gaps in read data
- Interpretation of ECG and diagnosis
  - Comparison of different AI methods (decision tree, different types of neural networks)



# Investigation of house pricing using neural networks

- Real data from Syktyvkar city
- Study of the different parameters influence on the final price
- Determination of essential data
- Real estate project



# Intelligent methods of information recognition and processing in order to automate the work of organizing and technical committees of mass events

- Real Math competitions for school children
- Encoding of attendees and their paperworks
- Study different methods for image recognition (scanned paperworks)

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**Регистрационный бланк**  
Олимпиада «Осенний Олимп»  
Москва, 2017 г.

Код участника: 498585

КОД КОМПЛЕКТА: 610511387    Номер аудитории: 318    Время начала: 13:14

Доп. бланков: 0    Дата проведения: 11.11    Время окончания: 18:19

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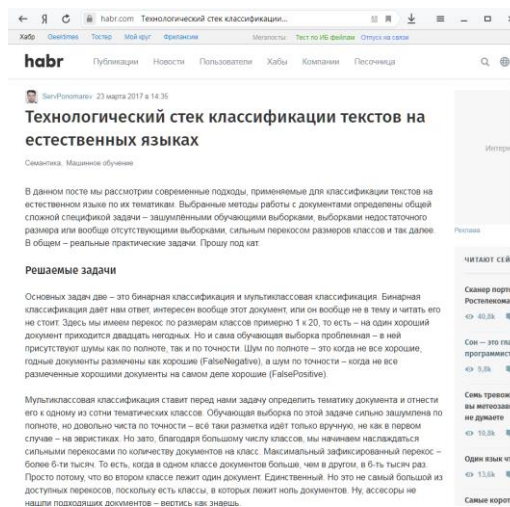
# Comparison of characteristics of different classifiers in cognitive tasks by EEG signal

- Real EEG data
- Recognition the tasks which testee solves using different intelligent methods
- Simplest mind reading



# Intelligent regulation of Internet traffic

- Detection of inappropriate content on web pages
- Content filtering for children or for companies and government agencies
- Comparison of different methods for content classification
- Real-time project for content filtering





# Thank you for attention!

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