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| Azerbaijan State University Of Economics | |
| MBA program of UNEC Business School | |
| **FINAL EXAM** | |
| Semester: Fall semester, 2023/2024 | |
| Teacher: prof. Shahnaz Shahbazova | |
| Subject name: Deep Learning-0254b | |
| Group: E27-23 | |
| Teacher's description of the answers given by the student to the exam questions | points given to each question |
| On Question 1: |  |
| On Question 2: |  |
| On Question 3: |  |
| Final score: |  |
| Teacher's signature: |  |

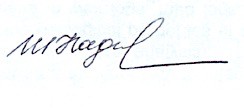
Exam ticket № 1

1. You need to create a model for classifying different types of plants based on photos. Describe the process of data preparation, model architecture selection, and training.
2. Design a model architecture for real-time face recognition. How would you approach data preprocessing and improve the model’s accuracy?
3. You need to develop a model for detecting cars in surveillance camera footage. Which architecture will you choose, and how will you handle video data?
4. For a medical task, you need to segment MRI images to detect tumors. Which network architecture will you choose, and how will you train the model?
5. Develop a GAN architecture to generate photorealistic images of cars. How will you train the model and control the quality of the generation?

**Qeyd:** • 5 questions will be answered;

• Answers should be written in a concise and neat (understandable) handwriting;

• Total score 50 points...



**Lecturer prof.Shahnaz N.Shahbazova**

Program Manager i.f.d. M. Ghazanfarli

The head of the department

"Business Management" i.e.n., assoc. prof. S. Mammadova

**Protocol № 3, 03.10.2024**

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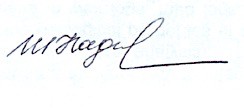
Exam ticket № 2

1. Build an RNN or Transformer-based model for analyzing user review sentiment. Outline the steps for data preparation and model optimization.
2. How would you build a model for automatic speech recognition to convert call recordings into text?
3. Using time series data, create a model that predicts when equipment will fail. Describe your approach and choice of architecture.
4. Build a neural network for automatic text translation from English to Russian. What steps will you take for data preparation and model training?
5. Which deep learning architecture would you use to detect anomalies in credit card transaction data?

**Qeyd:** • 5 questions will be answered;

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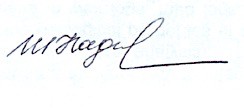
Exam ticket № 3

1. You need to build a model for predicting sales based on time series data. What network architecture will you use?
2. Develop a recommendation system for an online store based on user preferences. Which model will you choose, and how will you preprocess the data?
3. Using an autoencoder, design a model to compress images. Describe the process of creating and training the model.
4. How would you approach the task of classifying news articles as true or fake using deep learning techniques?
5. Develop a model capable of generating news articles on a given topic. Which architecture will you choose, and how will you train the model?

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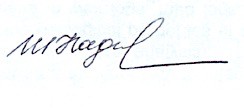
Exam ticket № 4

1. You need to create a model for recognizing handwritten characters from images. Describe the process of building and training the model.
2. How can deep learning be used to restore damaged or partially erased images?
3. Build a model to predict movie ratings based on user reviews. What methods will you use?
4. Design a model for enhancing image resolution (super-resolution). How will you approach architecture selection and training?
5. Build a chatbot architecture that can hold conversations with users. What steps will you take in the development and training of the model?

**Qeyd:** • 5 questions will be answered;

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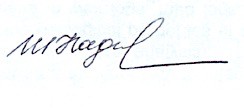
Exam ticket № 5

1. You need to build a model to predict stock prices based on historical data. What network architecture will you choose, and how will you handle time dependencies?
2. How would you approach training a model to recognize road signs and objects on the road?
3. Build a model that can predict weather conditions based on data from meteorological stations. What type of neural network will you use?
4. How would you create a model to classify emotions based on facial expressions? What network architecture will you choose?
5. Using server logs, design a model to predict server failures. Describe the data preparation process and the choice of model architecture.

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