**Smart advertisement system using machine learning algorithms**

**Research purposes**

**Review project**

A smart advertisement system is a system for the provision of advertising using neural networks and machine learning algorithms, which, using computer vision, segmentation and classification algorithms, will provide the most relevant and effective advertising for a potential buyer. So, the purpose of our research is to develop software in order to improve the quality and efficiency of advertisements provided. The main topic of scientific thesis is the creation of a marketing profitable intelligent system for the provision of advertising using elements of neural networks of machine learning and computer vision.

**Problem investigation**

At the moment, in our time, the current offers for displaying advertising outside the Internet does not use any intelligent algorithms that can improve the quality of displayed advertising and its effectiveness on the target audience. The use of machine learning in this area is at an early stage of development and the use of computer vision to deliver effective and profitable advertising is generally unique. Modern solutions allow only using a limited amount of personal information for processing and analysis, while our system allows you to use many external factors to generate it.

**Proposed solution**

The main purpose of the study is to develop software in the field of machine learning and neural networks from which will be used to provide high-quality and profitable advertising. Resulting in a software product that provides high-quality content and meets modern standards for software development and creation of neural networks. For the implementation of this project, the Python language will be used with the libraries dancer Flowers pytorch, as well as other libraries used for machine learning, as well as for data processing, video streaming will be used and a neural network that allows you to determine and record the age and gender of the target audience. This development is currently unique and will bring many marketing benefits to the field of modern advertising.

**Research types**

Our research focuses on future opportunities in advertising systems that allow for more targeted ad selection for shoppers, which will increase the sales of certain products. To do this, we conduct a thorough analysis of causal relationships, how advertising will be used, people of what age range enter the store at what time. Therefore, we use predictive research.

**Research Approaches**

Our system is aimed at the ability to carefully select advertisements for buyers in order to interest them and increase sales. To do this, we will use the data of the gender of the buyer, his age range, and it will also be calculated at what time people of what gender and age range enter the place where the advertiser will be displayed. All our main indicators are presented in numbers. Accordingly, our research is quantitative in nature, where we use a systematic and simple method of selection.

So, in our work we use a deductive method of solving problems. We divide people based on age, gender, time of visit. In turn, this data is analyzed by our system and the final result is displayed in view of the most suitable advertising at a given time.