

Project Report №1

Team: GroShi

Members:

Arsen	Mutalapov	a.mutalapov@innopolis.university
Gleb	Kirillov	g.kirillov@innopolis.university
Ruslan	Kudinov	r.kudinov@innopolis.university

Github: https://github.com/system205/PMLDL_project

Introduction

Project topic: Grocery object detection.

Project description: Train and compare several existing models on a dataset of supermarket items that will help users to automate some of their shopping routine such as verification of what they bought.

Current status

At the beginnig we were mostly familiarizing ourselves with the area of computer vision as we have no clue about anything but simple CNNs. So, we chosed the topic that we feel more less comfortable with and tried to find existing models that might suit our needs. So far, we stopped on the family of models called YOLO.

Then, we split the planned work into tasks and organized them in form of GitHub issues. The distribution of work will follow.

We **started** the work with collecting of a dataset of shopping items from our local shops, such as Pyaterochka and Magnit. Our current target labels are the following: *Bread, Milk, Eggs, Tomatoes, Carrot, Cucumber Apples, Bananas, Meat and Sausages, Cheese*. Then, we composed a simple python notebook where we test YOLOv5 models to manually check the initial performance/output on our sample images. We figured out that these models help us to recognize bananas, apples, and bottles (without specific category). It's not

enough for us at all. So, we have to train them with our images and desired labels.

Next weeks, we plan to collect a larger dataset of images from the local supermarket and the Internet. Prepare and preprocess the images for training purposes and train YOLO models on our task. Also, we will check other existing solutions on image detection.

Work distribution

Ruslan - dataset collection and preprocessing.

Gleb - image preprocessing and visualization.

Arsen - exploring models, fine-tuning and testing.

Appendix - recognized by YOLOv5 large:

