COMPUTATIONAL INTELLIGENCE: CSE2530
CI-CS-EWI@TUDELFT.NL

A Robot To Do Your Groceries

February 9, 2021

Robovie-II, developed by ATR, navigates through a supermarket

INTRODUCTION

Over the course of the following weeks, you will be designing, testing and implementing the basics of the "brain" of an "intelligent" robot. The robot's purpose is to do your groceries. Doing groceries seems like a trivial task for a human being. However, there are many aspects to this task that require intelligent reasoning.

First of all, a grocery list has to be made; what will a certain household need and how much. The selected products then have to be classified into their respective categories: fruits, vegetables, candy, etc. This will allow us to determine in which section of the supermarket a specific product can be found. When the locations of the products inside the supermarket are known, the robot should be able to navigate from one point to the next and afterwards find an optimal route to collect all the products as quickly as possible. At the end of this course, you will have prototyped some of these tasks using various techniques.

1 Contact Points

The TU Delft Stack Overflow instance is available for all content related questions and discussions. For personal questions you can contact us using the course mail `ci-cs-ewi@tudelft.nl`. Finally during the lab sessions the TAs will be available to answer your questions regarding the lab assignments and lectures.

2 Groups

For the practicum, you will be working in groups of four. Each assignment will be made with the same group members. Groups can be made by self enrolling in the group slots on Brightspace before **Friday February 12, 2021**. We have created a dedicated Brightspace forum to find other members for your practicum team.

3 Assignments

There will be three assignments:

Assignment No.	Topic	Weight
1	Multilayer Perceptron	33%
2	Evolutionary Computing	34%
3	Reinforcement Learning	33%

Assignments will be released on Brightspace ("Assignments" Section) on the dates indicated in the table above.

Each assignment should be handed in before the deadline via Brightspace. Any of the group members may submit the file, and it should be submitted exactly once as a whole group. Each assignment contains specific instructions of what, when, how and to whom it should be handed in. Late submissions may result in points deduction.

All three assignments consist of a written report and the piece of code to be sent together as a **zip** file. The report will be based on questions posed in the problem description. Each question will be worth one point. Your final mark for an assignment is a weighted sum of the report and the actual performance of your code.

The final mark of the course will be 50% practicum and 50% exam. The practicum grade consists of 33%, 34% and 33% for Assignment 1,2, and 3 respectively (see table above).

4 LAB SESSIONS

Questions can be asked during lab sessions or be asked on the TU Delft Stack Overflow instance. The lab sessions are on Wednesdays 13:45-17:45 and on Fridays 13:45-15:45. The lab sessions are online and you can make use of the Queue system to enqueue for asking questions.