



Assignment 2

Final Presentation

Niklas Bergh
Raghunath



Approaches

P21:

- RVO, fine-tuning discretization parameters
- Freedom of motion vs speed trade off

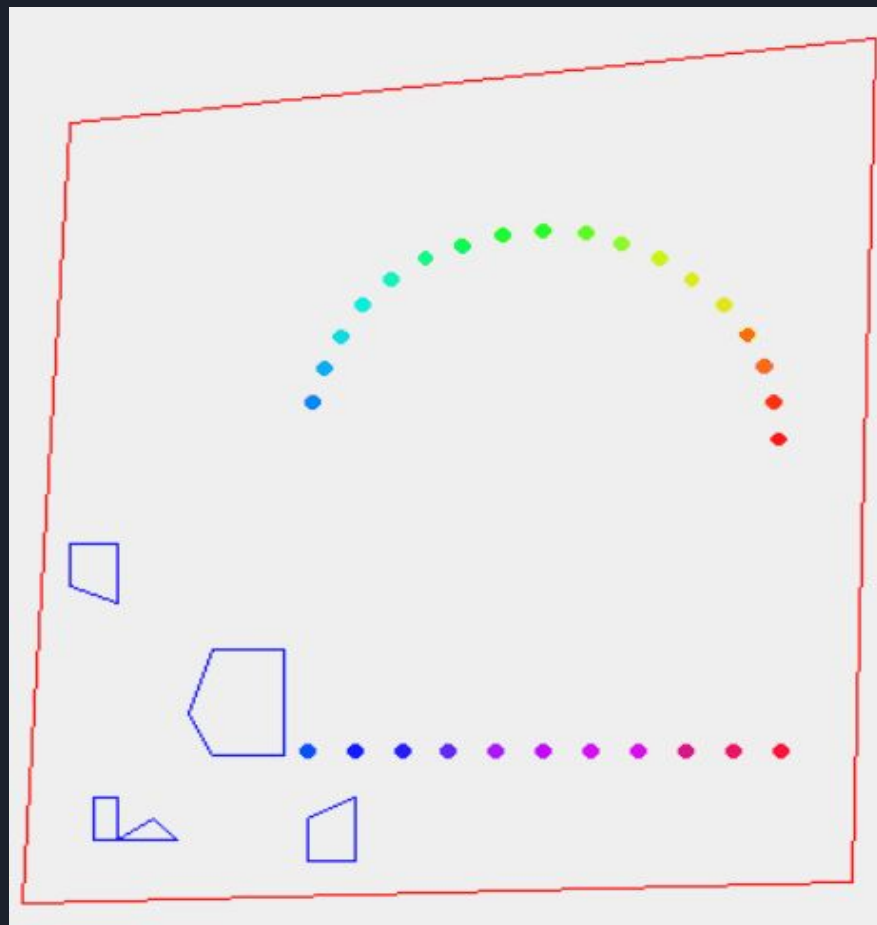
P22 and P23:

- Heuristic approach. Trades points based on how long the route is

P25 and P26:

- **Dynamic point**
- **Acceleration is a function of error of first order, error of second order**
- **Agents accelerate towards their desired positions decided by leader (update leader for P26)**

P21X



P25X

```
12 with open("P25_A.json") as json_file:
13     desc = json.load(json_file)
14
15     bounding_poly_positions = desc["bounding_poly_positions"]
16     formation_positions = desc["formation_positions"]
17     start_positions = desc["start_positions"]
18     dt = desc["vehicle_dt"]
19     v_max = desc["vehicle_v_max"]
20     a_max = desc["vehicle_a_max"]
21
22 with open("P25_26_traj.json") as json_file:
23     desc = json.load(json_file)
24
25     traj_vec = list(zip(desc["x"], desc["y"], desc["t"]))
26
27     graphics_scale = 5
28     graphics_add = 20
29
30     win = GraphWin("map", 400, 700)
31     win.yUp()
32
33     parameters = Parameters(bounding_poly_positions, formation_positions, start_positions, dt, v_max, a_max)
34
35     parameters.draw_obstacles(win)
36
37     men = Men(parameters, traj_vec)
38
39     main_function()
```

ntation.pdf

_file main_file (2) main_file (2)

g:\Documents\Bitbucket\motion_models\venv\Scripts\pytho

P26X

```
15 bounding_poly_positi
16 formation_positions
17 start_positions = de
18 dt = desc['vehicle_d
19 v_max = desc['vehicl
20 a_max = desc['vehicl
21
22 with open("P25_26_tr
23     desc = json.load
24
25 traj_vec = list(zip(
26
27 graphics_scale = 5
28 graphics_add = 20
29
30 win = GraphWin("map"
31 win.yUp()
32
33 parameters = Paramet
34
35 parameters.draw_obst
36
37 map = Map(parameters
main_function()
```

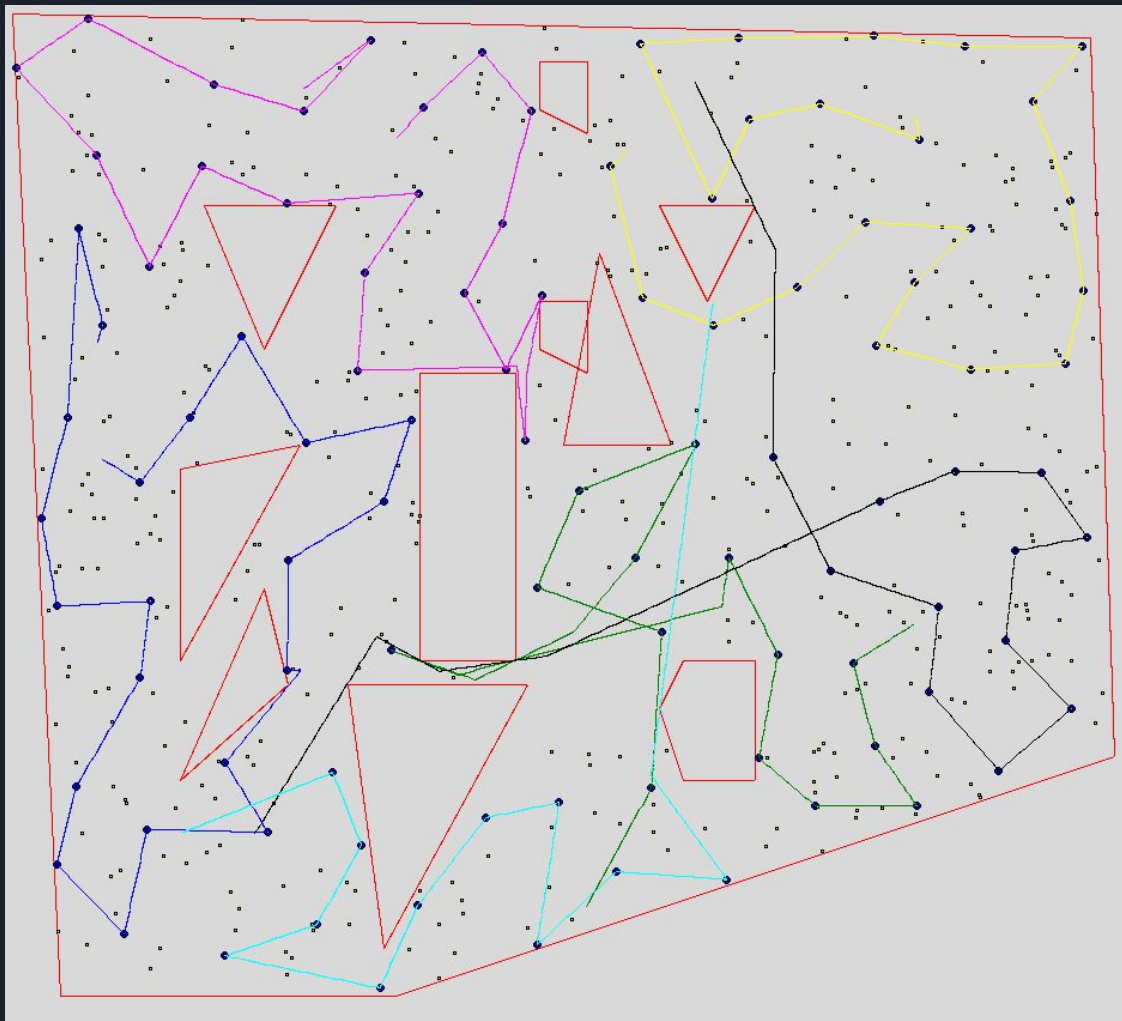
\\Users\\kvrage\\Documents\\Bitbucket\\motion_models\\venv\\Scr

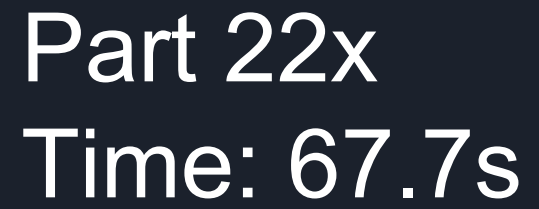
Part 22

Time: 23.4s

Part 23

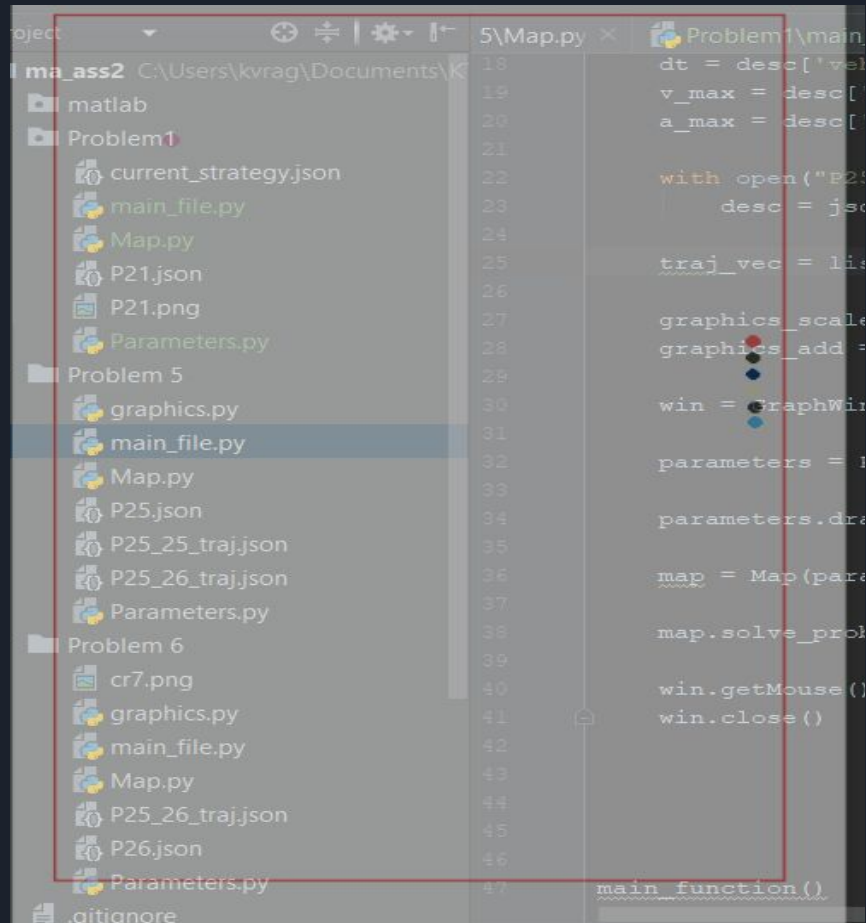
Time: 43.8s

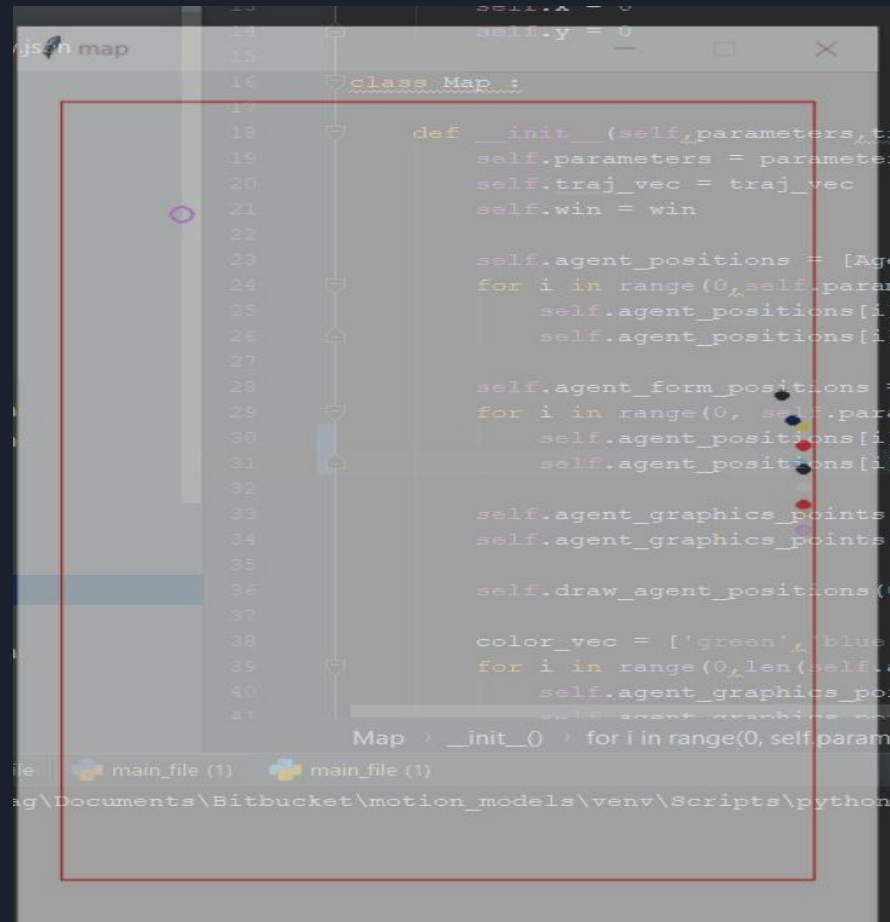




Time: 67.7s

Backup





P21

