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1  #!/usr/bin/python3.4
2  # -*-coding:Utf-8 -*
3
4  from argparse import ArgumentParser
5  from math import inf
6  from time import time
7
8  from lib.eventdispatcher import EventDispatcher
9  from mario.bridge.frame_reader import FrameReader
10 from mario.bridge.config import Config
11 from .EvolutionGenerator.Generator import Generator
12 from .factories.IAFactory import IAFactory
13 from .graduators.IAGraduator import IAGraduator
14 from .graduators.GameOptimizer import GameOptimizer
15 from .Writer.Writer import Writer
16 from .Logger.FileLogger import FileLogger
17 from .Logger.ConsoleLogger import ConsoleLogger
18 from .Writer.PathManager import PathManager
19 from .Writer.Reader import Reader
20
21
22 def instantiateGenerator(show):
23     event_dispatcher = EventDispatcher()
24     FrameReader(event_dispatcher)
25     GameOptimizer(event_dispatcher)
26     return Generator(IAFactory, IAGraduator(event_dispatcher, show), [Writer(), FileLogger(), ConsoleLogger()],
27                     lambda state: True in [score.percent >= 1. for score, individual in state.grading]
28     )
29
30 def checkProcessusExists(processus_id):
31     if not Reader.processusExists(processus_id):
32         raise ValueError("Processus with id={} doesn't exist.".format(processus_id))
33
34 def new(args):
35     """New processus """
36     population = instantiateGenerator(args.show).process(
37         PathManager.newProcessusId(), args.generations, args.pop_length, args.proportion, args.chance
38     )
39
40 def resume(args):
41     """Resume a processus """
42     checkProcessusExists(args.processus_id)
43     population = instantiateGenerator(args.show).resume(Reader.getProcessusState(args.processus_id))
44
45 def play(args):
46     """Play the best individual of a processus' last generation """
47     checkProcessusExists(args.processus_id)
48     # Get IA
49     if args.ia_id is None:
50         ia, generation_id = Reader.getBestIa(args.processus_id, args.generation_id)
51         print('The best AI is {}'.format(ia.id), flush=True)
52     else:
53         ia, generation_id = Reader.getIa(args.processus_id, args.ia_id)
54     # Play IA
55     event_dispatcher = EventDispatcher()
56     FrameReader(event_dispatcher)
57     graduator = IAGraduator(event_dispatcher, show=True)
58     if args.as_grading:
59         print(
60             "Attention : Malgré que le visionnage présenté soit le plus proche possible des conditions d'évaluation, des aléas
subsistent. "
61             "Si vous cherchez à visionner une performance difficile à reproduire, n'hésitez pas à réessayer plusieurs fois. "
62             , flush=True)
63     GameOptimizer(event_dispatcher)
64     graduator.grade(ia, generation_id)
65     else:
66         graduator.gradeIAWithConfig(ia, Config(True, event_dispatcher))
67
68 def print_data(args):
69     checkProcessusExists(args.processus_id)
70
71     data = Reader.getData(args.processus_id)
72     txt1 = 'Génération, Scores des intelligences '
73     for generation_id, grading in data:
74         txt1 += '\n' + str(generation_id)
75         for result, ia_id in grading:
76             txt1 += ', ' + str(result['score'])
77     txt2 = 'Génération, Scores des intelligences '
78     for generation_id, grading in data:
79         txt2 += '\n' + str(generation_id)
80         for result, ia_id in grading:
81             txt2 += ', ' + str(result['max_x'])
82
83     path1 = PathManager.getPath(args.processus_id, read_only=True).parent / 'data' / (str(time()) + '.score.csv')
84     path2 = PathManager.getPath(args.processus_id, read_only=True).parent / 'data' / (str(time()) + '.distance.csv')
85     PathManager.mkdir(path1.parent)
86     path1.write_text(txt1)
87     path2.write_text(txt2)
88
89 # Build parser
90 parser = ArgumentParser()
91 subparsers = parser.add_subparsers()
92
93 new_parser = subparsers.add_parser('new')
94 new_parser.add_argument('pop_length', type=int)
95 new_parser.add_argument('--generations', default=inf, type=int)
96 new_parser.add_argument('--proportion', default=0.5, type=float)
97 new_parser.add_argument('--chance', default=0, type=float)

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99 new_parser.add_argument('--show', dest='show', action='store_true')
100 new_parser.set_defaults(command=new, show=False)
101
102 resume_parser = subparsers.add_parser('resume')
103 resume_parser.add_argument('processus_id', type=int)
104 resume_parser.add_argument('--show', dest='show', action='store_true')
105 resume_parser.set_defaults(command=resume, show=False)
106
107 play_parser = subparsers.add_parser('play')
108 play_parser.add_argument('processus_id', type=int)
109 play_parser.add_argument('--generation_id', type=int)
110 play_parser.add_argument('--ia_id', type=int)
111 play_parser.add_argument('--as_grading', dest='as_grading', action='store_true')
112 play_parser.set_defaults(command=play, as_grading=False)
113
114 print_parser = subparsers.add_parser('print')
115 print_parser.add_argument('processus_id', type=int)
116 print_parser.set_defaults(command=print_data)
117
118 # Parse arguments
119 args = parser.parse_args()
120 if hasattr(args, 'command'):
121     args.command(args)
122 else:
123     print('No command given, use --help ')

```