

Evolutionary Optimization: The μ gp Toolkit

[DOWNLOAD HERE](#)

1;Preface;6 2;Contents;9 3;Chapter 1 Evolutionary computation;12 3.1;1.1 Natural and artificial evolution;12 3.2;1.2 The classical paradigms;15 3.3;1.3 Genetic programming;18 4;Chapter 2 Why yet another one evolutionary optimizer?;19 4.1;2.1 Background;19 4.2;2.2 Where to draw the lines;20 4.3;2.3 Individuals;21 4.4;2.4 Problem specification;23 4.5;2.5 Coding Techniques;24 5;Chapter 3The GP architecture;26 5.1;3.1 Conceptual design;27 5.2;3.2 The evolutionary core;27 5.2.1;3.2.1 Evolutionary Operators;28 5.2.2;3.2.2 Population;29 5.3;3.3 The Evolutionary Cycle;30 5.3.1;3.3.1 Genetic operator selection;30 5.3.2;3.3.2 Parents selection;31 5.3.3;3.3.3 Offspring Generation;32 5.3.4;3.3.4 Individual Evaluation and Slaughtering;33 5.3.5;3.3.5 Termination and Aging;33 6;Chapter 4 Advanced features;35 6.1;4.1 Self adaptation for exploration or exploitation;35 6.1.1;4.1.1 Self-adaptation inertia;36 6.1.2;4.1.2 Operator strength;36 6.1.3;4.1.3 Tournament size;37 6.2;4.2 Escaping local optimums;37 6.2.1;4.2.1 Operator activation probability;38 6.2.2;4.2.2 Tuning the elitism;38 6.3;4.3 Preserving diversity;39 6.3.1;4.3.1 Clone detection, scaling and extermination;40 6.3.2;4.3.2 Entropy and delta-entropy computation;40 6.3.3;4.3.3 Fitness holes;41 6.3.4;4.3.4 Population topology and multiple populations;42 6.4;4.4 Coping with the real problems;43 6.4.1;4.4.1 Parallel fitness evaluation;44 6.4.2;4.4.2 Multiple fitness;45 7;Chapter 5 Performing an evolutionary run;46 7.1;5.1 Robot Pathfinder;48 7.2;5.2 GPSettings;50 7.3;5.3 Population Settings;52 7.4;5.4 Library of Constraints;56 7.5;5.5 Launching the experiment;60 7.6;5.6 GP Extractor;62 8;Chapter 6 Command line syntax;64 8.1;6.1 Starting a run;64 8.2;6.2 Controlling messages to the user;65 8.3;6.3 Getting help and information;66 8.4;6.4 Controlling logging;66 8.5;6.5 Controlling recovery;67 8.6;6.6 Controlling evolution;68 8.7;6.7 Controlling evaluation;69 9;Chapter 7 Syntax of the settings file;71 9.1;7.1 Controlling evolution;72 9.2;7.2 Controlling logging;74 9.3;7.3 Controlling recovery;75 10;Chapter 8 Syntax of the population parameters file;77 10.1;8.1 Strategy parameters;77 10.1.1;8.1.1 Base parameters;78 10.1.2;8.1.2 Parameters for self adaptation;81 10.1.3;8.1.3 Other parameters;84 11;Chapter 9 Syntax of the external constraints file;86 11.1;9.1 Purposes of the constraints;86 11.2;9.2 Organization of constraints and hierarchy;87 11.3;9.3 Specifying the structure of the individual;92 11.4;9.4 Specifying the contents of the individual;95

12;Chapter 10 Writing a compliant evaluator;101 12.1;10.1 Information from GP to the fitness evaluator;101 12.2;10.2 Expected fitness format;102 12.2.1;10.2.1 Good Examples;103 12.2.2;10.2.2 Bad Examples;104 13;Chapter 11 Implementation details;106 13.1;11.1 Design principles;106 13.2;11.2 Architectural choices;107 13.2.1;11.2.1 The Graph library;108 13.2.2;11.2.2 The Evolutionary Core library;110 13.2.3;11.2.3 Front end;117 13.3;11.3 Code organization and class model;117 14;Chapter 12 Examples and applications;128 14.1;12.1 Classical one-max;128 14.1.1;12.1.1 Fitness evaluator;129 14.1.2;12.1.2 Constraints;131 14.1.3;12.1.3 Population settings;133 14.1.4;12.1.4 GP settings;135 14.1.5;12.1.5 Running;136 14.2;12.2 Values of parameters and their influence on the evolution: Arithmetic expressions;137 14.2.1;12.2.1 De Jong 3;137 14.2.2;12.2.2 De Jong 4 Modified;142 14.2.3;12.2.3 Carrom;143 14.3;12.3 Complex individuals structures and evaluation: Bit-counting in Assembly;149 14.3.1;12.3.1 Assembly individuals representation;149 14.3.2;12.3.2 Evaluator;152 14.3.3;12.3.3 Running;154 15;Appendix A Argument and option synopsis;155 16;Appendix B External constraints synopsis;171 17;References;179 EAN/ISBN : 9780387094267 Publisher(s): Springer, Berlin, Springer Science & Business Media Discussed keywords: Evolutionre Algorithmen Format: ePub/PDF Author(s): Sanchez, Ernesto - Schillaci, Massimiliano - Squillero, Giovanni

[DOWNLOAD HERE](#)

Similar manuals: