An Indexed Bibliography of Genetic Algorithms Theory and Comparisons

compiled by

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Dedicated to **Michael D. Vose**

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available via anonymous ftp: site `ftp.uwasa.fi` directory `cs/report94-1` file `gaTHEORYbib.pdf`

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Chapter 1

Preface

> " Living organism are consummate problem solvers. They exhibit a versatility that puts the best computer programs to shame. "
>
> *John H. Holland,* [1]

The material of this bibliography has been extracted from the genetic algorithm bibliography [2], which when this report was compiled (August 13, 2008) contained 20549 items and which has been collected from several sources of genetic algorithm literature including Usenet newsgroup `comp.ai.genetic` and the bibliographies [3, 4, 5, 6]. The following index periodicals and databases have been used systematically

- A: *International Aerospace Abstracts:* Jan. 1995 – Sep. 1998
- ACM: *ACM Guide to Computing Literature:* 1979 – 1993/4
- BA: *Biological Abstracts:* July 1996 - Aug. 1998
- CA: *Computer Abstracts:* Jan. 1993 – Feb. 1995
- CCA: *Computer & Control Abstracts:* Jan. 1992 – Dec. 1999 (except May -95)
- ChA: *Chemical Abstracts:* Jan. 1997 - Dec. 2000
- CTI: *Current Technology Index* Jan./Feb. 1993 – Jan./Feb. 1994
- DAI: *Dissertation Abstracts International:* Vol. 53 No. 1 – Vol. 56 No. 10 (Apr. 1996)
- EEA: *Electrical & Electronics Abstracts:* Jan. 1991 – Apr. 1998
- EI A: *The Engineering Index Annual:* 1987 – 1992
- EI M: *The Engineering Index Monthly:* Jan. 1993 – Apr. 1998 (except May 1997)
- Esp@cenet *patents* – Apr. 2002
- IEEE: *IEEE and IEE Journals* – Fall 2002
- N: *Scientific and Technical Aerospace Reports:* Jan. 1993 - Dec. 1995 (except Oct. 1995)
- NASA *NASA ADS www bibliography database:* – Dec. 2002
- P: *Index to Scientific & Technical Proceedings:* Jan. 1986 – Dec 1999 (except Nov. 1994)
- PA: *Physics Abstracts:* Jan. 1997 – June 1999
- PubMed: *National Library of Medicine* Jan. 2000 – Oct. 2000
- SPIE Web *The International Society for Optical Engineering* – June 2002

1.1 Your contributions erroneous or missing?

The bibliography database is updated on a regular basis and certainly contains many errors and inconsistences. The editor would be glad to hear from any reader who notices any errors, missing information, articles etc. In the future a more complete version of this bibliography will be prepared for the genetic algorithms theory and comparisons research community and others who are interested in this rapidly growing area of genetic algorithms.

When submitting updates to the database, paper copies of already published contributions are preferred. Paper copies (or `ftp` ones) are needed mainly for indexing. We are also doing reviews of different aspects and applications of GAs where we need as complete as possible collection of GA papers. Please, do not forget to include complete bibliographical information: copy also proceedings volume title pages, journal table of contents pages, etc. Observe that there exists several versions of each subbibliography, therefore **the reference numbers are not unique and should not be used alone in communication**, use the `key` appearing as the last item of the reference entry instead.

Complete bibliographical information is really helpful for those who want to find your contribution in their libraries. If your paper was worth writing and publishing it is certainly worth to be referenced right in a bibliographical database read daily by GA researchers, both newcomers and established ones.

For further instructions and information see `ftp.uwasa.fi/cs/GAbib/README`.

1.1.1 How to cite this report?

You can use the BiBTEX file `GASUB.bib`, which is available in our ftp site `ftp.uwasa.fi` in directory `cs/report94-1` and contains records for GA subbibliographies for citing with LATEX/BibTEX.

1.2 How to get this report via `Internet`?

Versions of this bibliography are available via anonymous `ftp` or `www` from the following site:

media	*country*	*site*	*directory*	*file*
`ftp`	Finland	`ftp.uwasa.fi`	`/cs/report94-1`	`gaTHEORYbib.pdf`

The directory also contains some other indexed GA bibliographies shown in table A.1. In case you do not find a proper one please let us know: it may be easy to tailor a new one.

1.3 Acknowledgement

The editor wants to acknowledge all who have kindly supplied references, papers and other information on genetic algorithms theory and comparisons literature. At least the following GA researchers have already kindly supplied their complete autobibliographies and/or proofread references to their papers: Dan Adler, Patrick Argos, Jarmo T. Alander, James E. Baker, Wolfgang Banzhaf, Helio J. C. Barbosa, Hans-Georg Beyer, Christian Bierwirth, Peter Bober Joachim Born, Ralf Bruns, I. L. Bukatova, Thomas Bäck, Chhandra Chakraborti, Nirupam Chakraborti, David E. Clark, Carlos A. Coello Coello, Yuval Davidor, Dipankar Dasgupta, Marco Dorigo, J. Wayland Eheart, Bogdan Filipič, Terence C. Fogarty, David B. Fogel, Toshio Fukuda, Hugo de Garis, Robert C. Glen, David E. Goldberg, Martina Gorges-Schleuter, Hitoshi Hemmi, Vasant Honavar, Jeffrey Horn, Aristides T. Hatjimihail, Heikki Hyötyniemi Mark J. Jakiela, Richard S. Judson, Bryant A. Julstrom, Charles L. Karr, Akihiko Konagaya, Aaron Konstam, John R. Koza, Kristinn Kristinsson, Malay K. Kundu, D. P. Kwok, Jouni Lampinen, Jorma Laurikkala, Gregory Levitin, Carlos B. Lucasius, Timo Mantere, Michael de la Maza, John R. McDonnell, J. J. Merelo, Laurence D. Merkle, Zbigniew Michalewics, Melanie Mitchell, David J. Nettleton, Volker Nissen, Ari Nissinen, Tatsuya Niwa, Tomasz Ostrowski, Kihong Park, Jakub Podgórski, Timo Poranen, Nicholas J. Radcliffe, Colin R. Reeves, Gordon Roberts, David Rogers, David Romero, Sam Sandqvist, Ivan Santibáñez-Koref, Marc Schoenauer, Markus Schwehm, Hans-Paul Schwefel, Michael T. Semertzidis, Davil L. Shealy, Moshe Sipper, William M. Spears, Donald S. Szarkowicz, El-Ghazali Talbi, Masahiro

Tanaka, Leigh Tesfatsion, Peter M. Todd, Marco Tomassini, Andrew L. Tuson, Kanji Ueda, Jari Vaario, Gilles Venturini, Hans-Michael Voigt, Roger L. Wainwright, D. Eric Walters, James F. Whidborne, Stefan Wiegand, Steward W. Wilson, Xin Yao, Xiaodong Yin, and Ljudmila A. Zinchenko.

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Chapter 2

Introduction

> "Many scientist, possibly most scientist, just do science without thinking too much about it. They run experiments, make observations, show how certain data conflict with more general views, set out theories, and so on. Periodically, however, some of us—scientists included—step back and look at what is going on in science."
>
> *David L., Hull,* [7]

The table 2.1 gives the queries that have been used to extract this bibliography. The query system as well as the indexing tools used to compile this report from the BiBTEX-database [8] have been implemented by the author mainly as sets of simple `awk` and `gawk` programs [9, 10].

string	*field*	*class*
`analysing`	`ANNOTE`	Analysing GA
`code`	`ANNOTE`	Coding
`coding`	`ANNOTE`	Coding
`convergence`	`ANNOTE`	Convergence
`crossover`	`ANNOTE`	Analysing GA
`deception`	`ANNOTE`	Deception
`diversity`	`ANNOTE`	Diversity
`fitness`	`ANNOTE`	Fitness function
`landscape`	`TITLE`	Fitness landscape
`Landscape`	`TITLE`	Fitness landscape
`mutation`	`ANNOTE`	Analysing GA
`recombination`	`ANNOTE`	Recombination
`selection`	`ANNOTE`	Selection
`subpopulation`	`ANNOTE`	Subpopulations
`theory`	`ANNOTE`	Theory
`Markov`	`ANNOTE`	Markov chain analysis
`comparison`	`ANNOTE`	Comparisons
`meta GA`	`ANNOTE`	Meta GA
`Vose`	`AUTHOR`	Vose's articles
`FOGA`	`CROSSREF`	Foundations of GA

Table 2.1: Queries used to extract this subbibliography from the source database.

Hint

Chapter 3

Statistical summaries

This chapter gives some general statistical summaries of genetic algorithms theory and comparisons literature. More detailed indexes can be found in the next chapter.

References to each class (c.f table 2.1) are listed below:

- **Analysing GA** 1017 references ([11]-[1027])
- **Coding** 240 references ([1028]-[1267])
- **Comparisons** 485 references ([1268]-[1752])
- **Convergence** 23 references ([1753]-[1775])
- **Deception** 24 references ([1776]-[1799])
- **Diversity** 60 references ([1800]-[1859])
- **Fitness function** 115 references ([1860]-[1974])
- **Fitness landscape** 23 references ([1975]-[1997])
- **Foundations of GA** 44 references ([1998]-[2041])
- **Markov chain analysis** 75 references ([2042]-[2116])
- **Meta GA** 6 references ([2117]-[2122])
- **Recombination** 30 references ([2123]-[2152])
- **Selection** 192 references ([2153]-[2344])
- **Subpopulations** 10 references ([2345]-[2354])
- **Theory** 100 references ([2355]-[2454])
- **Vose's articles** 24 references ([2455]-[2478])

Observe that each reference is included (by the computer) only to one of the above classes (see the queries for classification in table 2.1; the textual order in the query gives priority for classes).

3.1 Publication type

This bibliography contains published contributions including reports and patents. All unpublished manuscripts have been omitted unless accepted for publication. In addition theses, PhD, MSc etc., are also included whether or not published somewhere.

Table 3.1 gives the distribution of publication type of the whole bibliography. Observe that the number of journal articles may also include articles published or to be published in unknown forums.

type	*number of items*
book	16
section of a book	2
part of a collection	57
journal article	895
proceedings article	1284
report	131
PhD thesis	62
MSc thesis	20
others	6
total	2473

Table 3.1: Distribution of publication type.

3.2 Annual distribution

Table 3.2 gives the number of genetic algorithms theory and comparisons papers published annually. The annual distribution is also shown in fig. 3.1. The average annual growth of GA papers has been approximately 40 % during late 70's - early 90's.

3.3 Classification

year	*items*	*year*	*items*
1962	1	1963	0
1964	0	1965	0
1966	0	1967	0
1968	0	1969	0
1970	1	1971	0
1972	3	1973	0
1974	1	1975	1
1976	1	1977	0
1978	2	1979	0
1980	2	1981	0
1982	0	1983	0
1984	1	1985	4
1986	2	1987	11
1988	6	1989	20
1990	34	1991	91
1992	109	1993	127
1994	219	1995	265
1996	298	1997	280
1998	245	1999	220
2000	125	2001	124
2002	112	2003	70
2004	24	2005	22
2006	27	2007	19
2008	6		
total			2473

Table 3.2: Annual distribution of contributions.

Every bibliography item has been given at least one describing keyword or classification by the editor of this bibliography. Keywords occurring most are shown in table 3.3.

Total	2334
analysing GA	769
comparison	491
coding	196
crossover	192
engineering	118
selection	112
genetic programming	108
mutation	95
fitness	81
neural networks	71
optimization	58
TSP	58
parallel GA	57
hybrid	57
population size	54
diversity	54
evolution strategies	53
scheduling	51
analysing GP	50
image processing	47
feature selection	43
recombination	42
machine learning	41
chemistry	40
theory	38
fitness landscape	36
spectroscopy	35
game theory	35
evolution	35
medicine	31
analysing ES	31
protein folding	30
deception	29
convergence	29
control	28
implementation	27
quantum computing	25
proteins	25
pattern recognition	25
fitness function	25
classification	25
regression	23
GARP	22
ecology	19
signal processing	18
review	18
mutations	18
fuzzy systems	17
biology	17
telecommunications	16
wavelength selection	15
graphs	15
generations	15
biodiversity	15
CAD	15
manufacturing	14
coevolution	14
physics	13
economics	13
optics	12
operators	12
VLSI	12
VLSI design	12
simulated annealing	11
electromagnetics	11

3.4 Authors

Table 3.4 gives the most productive authors.

total number of authors	3588
Goldberg, David E.	52
Beyer, Hans-Georg	30
Mühlenbein, Heinz	29
Vose, Michael D.	27
Fogel, David B.	23
Deb, Kalyanmoy	21
Bäck, Thomas	20
Alander, Jarmo T.	19
Whitley, Darrell	16
Fogarty, Terence C.	15
Jong, Kenneth A. De	14
Radcliffe, Nicholas J.	13
Whitley, Darrell L.	13
Banzhaf, Wolfgang	12
Spears, William M.	12
Voigt, Hans-Michael	12
Eiben, Ágoston E.	11
Herrera, Francisco	11
Kargupta, Hillol	11
Mathias, Keith E.	11
Ross, Peter	11
Heckendorn, Robert B.	10
Kok, Joost N.	10
Lozano, Manuel	10
Rana, Soraya	10
Schaffer, J. David	10
Schwefel, Hans-Paul	10
10 authors	9
8 authors	8
14 authors	7
19 authors	6
43 authors	5
68 authors	4
153 authors	3
421 authors	2
2825 authors	1

Table 3.4: The most productive genetic algorithms theory and comparisons authors.

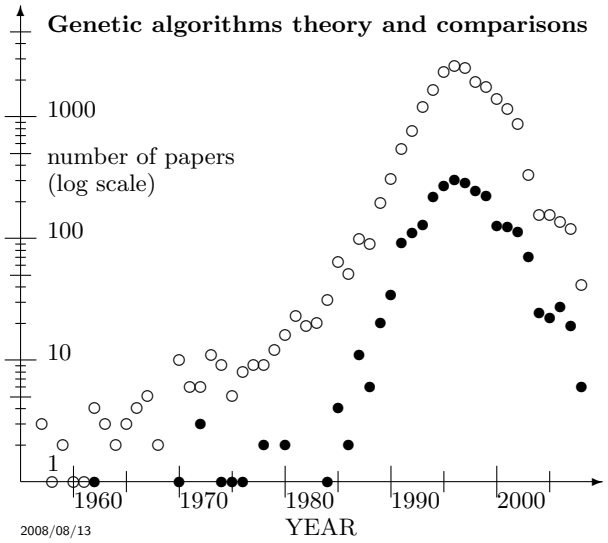

Figure 3.1: The number of papers applying **genetic algorithms theory and comparisons** (•, $N = 2483$) and total GA papers (∘, $N = 20549$). Observe that the last few years are most incomplete in the database.

3.5 Geographical distribution

Table 3.5 gives the geographical distribution of authors, when the country of the author was known. Over 80% of the references of the GA source database are classified by country.

2008/08/13	*special*		*comparison*		*all*	
country	n	%	δ[%]	Δ[%]	N	%
Total	2365	100.00			19371	100.00
United States	773	32.68	+4.88	+18	5386	27.80
United Kingdom	251	10.61	+0.35	+3	1987	10.26
Germany	216	9.13	+2.15	+31	1353	6.98
Japan	197	8.33	−4.08	−33	2404	12.41
China	93	3.93	−0.89	−18	933	4.82
Finland	75	3.17	−0.55	−15	720	3.72
Italy	64	2.71	−0.18	−6	559	2.89
Australia	55	2.33	−0.14	−6	479	2.47
France	54	2.28	−0.25	−10	491	2.53
India	49	2.07	+0.54	+35	296	1.53
Spain	47	1.99	+0.30	+18	328	1.69
The Netherlands	42	1.78	+0.76	+75	197	1.02
South Korea	41	1.73	−0.57	−25	446	2.30
Canada	39	1.65	+0.12	+8	296	1.53
Taiwan	34	1.44	−0.69	−32	412	2.13
Austria	30	1.27	+0.66	+108	118	0.61
Belgium	29	1.23	+0.39	+46	163	0.84
The Czech Republic	29	1.23	+0.50	+68	141	0.73
Switzerland	27	1.14	+0.26	+30	170	0.88
Brazil	20	0.85	−0.01	−1	167	0.86
Others	197	8.29	−0.28	−3	1660	8.57

Table 3.5: The geographical distribution of the authors working on genetic algorithms theory and comparisons (n) compared (δ and Δ) to all authors in the field of GAs (N). In the *comparison* column: $\delta\% = \%special - \%all$ and $\Delta = (1 - \frac{nN_{Total}}{Nn_{Total}}) \times 100\%$. Δ is the relative (%) deviation from the expected number of special papers. Observe that joint papers may have authors from several countries and that not all authors have been attributed to a country.

3.6 Conclusions and future

The editor believes that this bibliography contains references to most genetic algorithms theory and comparisons contributions upto and including the year 1998 and the editor hopes that this bibliography could give some help to those who are working or planning to work in this rapidly growing area of genetic algorithms.

Chapter 4

Indexes

4.1 Books

The following list contains all items classified as books.

total 15 books

4.2 Journal articles

The following list contains the references to every journal article included in this bibliography. The list is arranged in alphabetical order by the name of the journal.

Applied Optics, [1722, 938]

Applied Physics A, Materials Science & Processing, [51]

Applied Soft Computing, [1070, 122]

Applied Spectroscopy, [2157]

Arpakannus, [1083]

Artif. Life Robot. (Japan), [1214, 1228]

Artificial Intelligence, [84, 2259, 388, 1527, 425, 2469, 2476]

Artificial Intelligence for Engineering Design, Analysis and Manufacturing, [1866]

Artificial Intelligence in Medicine, [1550, 1610]

Artificial Intelligence Review, [2199, 2380, 551, 1233]

Artificial Life, [1827, 2283]

ASCE Journal of Water Resource Planning and Management, [1393]

Atmospheric Environment Part A General Topics, [1250]

Australian Journal of Intelligent Information Processing Systems, [132]

Autom. Electr. Power Syst. (China), [397]

Autom. Tech. Prax. (Germany), [477]

Autom. tech. Prax. (Germany), [1596]

Auton. Robots (Netherlands), [1930]

Behavioral Ecology, [2213]

Beijing University of Aeronautics and Astronautics, Journal, [1663]

Biochemistry, [1175]

Biodiversity Science, [1352]

Bioinformatics, [2058, 1322, 2211]

Biological Conservation, [1822]

Biological Cybernetics, [1681, 2107, 1016, 769, 927, 1971, 1972]

BioSystems, [2374, 250, 1133, 428, 433, 522, 610, 911]

Biosystems Engineering, [2217, 2223]

Biotechnology and Bioengineering, [1334, 2221]

Boln. Asoc. esp. Ent., [1819]

BT Technology Journal, [61]

Bull. Eur. Assoc. Theor. Comput. Sci. EATCS, [526]

Bull. Fac. Eng. Univ. Tokushima (Japan), [1659]

Bulletin of the European Association for Theoretical Computer Science, [2419]

C. R. Acad. Sci. Paris Sér. I Math, [35]

Cancer Letters, [1568]

CERN, [699]

Chemical Reviews, [1587]

Chemometrics and Intelligent Laboratory Systems, [1061, 1320, 2222, 1416, 1604, 2297, 1241]

Chin. J. Comput. (China), [515]

Chin. J. Electron. (China), [372, 903]

Communications of the ACM, [635]

Complex Systems, [1071, 1098, 2064, 834, 245, 854, 306, 353, 393, 443, 766, 767, 770, 1959, 1255, 1793, 2113, 2448, 1964, 1727, 798, 809, 1983, 2470, 2472]

Complex Systems (USA), [1136]

Complexity (USA), [2406, 542]

Complexity, (USA), [356]

Comptes Rendus de l'Académie des Sciences I, Mathétique, [215]

Comput. Artif. Intell. (Slovakia), [679]

Comput. Chem. Eng., [1624]

Comput. Econ., [2391]

Comput. Ind. Eng. (UK), [444]

Comput. Intell. (USA), [1661]

Comput.-Aided Civ. Infrastruct. Eng. (USA), [634]

Computer, [54, 1521]

Computer Applications in the Biosciences (CABIOS), [989, 1554]

Computer Physics Communications, [1270, 1595, 1660]

Computer Today, [1305, 2187]

Computer-Aided Design, [1091]

Computer-Aided Innovation of New Materials, [792]

Computers and Chemistry, [1601]

Computers Chem., [1975]

Computers Chem. (Oxford), [441]

Computers in Chemical Engineering, [1633, 1646, 1654]

Computers & Chemistry, [1215]

Computers & Industrial Engineering, [823, 825, 1130, 878]

Computers & Mathematics with Applications, [2381, 1667, 2106, 1713]

Computers & Operations Research, [1278, 1283, 2059, 1359, 1380, 1389, 831, 258, 850, 284, 2073, 1498, 871, 1533, 1922, 1583, 492, 588, 1848, 1744]

Computers & Structures, [1517]

Computing Anticipatory Systems, [571]

Conservation Biology, [1816]

Control Theory Appl. (China), [403, 404, 1001, 613]

CSC News, [1675]

Curr. Opin. Chem. Biol., [1845]

Current Opinion in Biotechnology, [2123]

Current Science, [1820]

Cybernetics and Systems, [135, 243, 287, 726, 2441, 1961]

Daziran Tansuo, [543]

DDT, [1847]

Decis Support Syst. (Netherlands), [1639]

Decis. Sci. (USA), [1611]

Discrete Applied Mathematics, [1246]

Diversity and Distribution, [1351]

Ecography, [1343, 1348, 1354]

Ecological indicators, [1812]

Ecological Modelling, [1987, 1818, 1821]

Ecological Monographs, [1347]

Electric Power Systems Research, [1364, 1439]

Electrical Engineering in Japan, [198]

Electron Commun Jpn Part III Fundam Electron Sci., [1169]

Electron. Eng. Aust. (Australia), [1613]

Electronics Letters, [1072, 948, 1398, 1410, 1118, 1600, 651]

IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews, [1298]

IEEE Transactions on Systems, Man, and Cybernetics: B, Cybernetics, [1597]

IEEE Transactions?, [636]

IEEJ Transactions on Electronics, Information and Systems, [2200]

IEICE Transactions on Fundamentals of Electronics Communications and Computer Sciences, [232, 1401]

IEICE Transactions on Fundamentals of Electronics, Communications and Computer Science", , [1240]

IMA Journal of Mathematics Applied in Business and Industry, [1413]

IMA Journal of Mathematics Applied in Medicine and Biology, [1552]

Image and Vision Computing, [2196, 1708]

In Silico Biology, [1346]

Ind. Eng. Chem. Res., [1671]

Industrial and Engineering Chemistry Research, [1495]

Inf. Process. Lett. (Netherlands), [295]

Inf. Sci. (USA), [480, 1202, 598]

INFOR, [206]

Inform. Process. Lett., [283]

Inform. Sci., [28]

Informatica, [1435]

Information and Software Technology, [73, 1291]

Information Processing Letters, [1767]

Information Processing & Management, [905]

Information Sciences, [1284, 63, 1867, 99, 104, 1300, 117, 2061, 956, 2074, 519]

INFORMS J. Comput. (USA), [410]

Int. J. Biomed. Comput. (Ireland), [1365]

Int. J. Comput. Math., [546]

Int. J. Intell. Syst. (USA), [2434]

Int. J. Intell. Syst. Account. Financ. Manage. (UK), [1623]

Int. J. Knowl.-Based Intell. Eng. Syst. (Australia), [645]

Int. J. Microwave Millimeter Wave Comput. Aided Eng., [1571]

Int. J. Surf. Min. Reclam. Environ., [2261]

Int. J. Syst. Sci. (UK), [738]

Int.J. Syst. Sci. (UK), [901]

Integration, the VLSI Journal, [1406]

Intell. Data Anal. (Netherlands), [1674]

Intelligent Automation and Soft Computing, [1337]

Intelligent Data Analysis, [2171]

Interciencia, [2257]

Interfaces, [1653]

Internat. J. Algebra Comput., [631]

International Journal of Advanced Manufacturing Technology, [1293, 1297]

International Journal of Computers, Systems and Signals, [1806]

International Journal of Electronics, [1361, 1405, 1739]

International Journal of Fuzzy Systems, [1274]

International Journal of Human-Computer Studies, [1394]

International Journal of Intelligent Systems, [1166, 2152]

International Journal of Modern Physics B, [39]

International Journal of Modern Physics C, [69]

International Journal of Pattern Recognition and Artificial Intelligence, [2201, 339, 1589]

International Journal of Production Research, [2193, 1317]

International Journal of Quantum Chemistry, [1714]

International Journal of Remote Sensing, [1817]

International Journal of Systems Science, [1392, 2263]

International Journal on Design Automation for Embedded Systems, [1029]

International Transactions in Operational Research, [85, 1311]

J. A. (Belgium), [2412]

J. Chem. Phys., [1664]

J. Comput. Inf. Technol. CIT (Croatia), [2141, 649, 720]

J. Comput. Inf. Technol. CIT (Croatia)Acoust. (Singapore), [1940]

J. Eng. Des. (UK), [1363]

J. Heuristics (Netherland), [1473]

J. Heuristics (Netherlands), [638, 731]

J. Inf. Sci. Eng. (Taiwan), [907]

J. Inst. Electron. Eng. Korea C (South Korea), [1010]

J. KISS(A), Comput. Syst. Theory (South Korea), [1844]

J. KISS(B) Softw. Appl. (South Korea), [900]

J. KISS(B), Softw. Appl. (South Korea), [335]

J. Korea Inst. Telemat. Electron. (South Korea), [1761]

J. Opt. Technol. (USA), [1222]

J. Optim. Theory Appl., [586]

J. Phys. A. Math. Gen. (UK), [386]

J. Shanghai Jiaotong Univ. (China), [2292]

J. Shanghai Univ. (China), [682]

J. Softw. (China), [1764, 670]

J. Stat. Plan. Inference (Netherlands), [427]

J. Tsinghua Univ., Sci. Technol. (China), [1216]

Journal of Aircraft, [1313]

Journal of Arid Environments, [1823, 1824]

Journal of Artificial Intelligence Research, [1452]

Journal of Biogeography, [1345]

Journal of Chemical Information and Computer Sciences, [1269, 2186, 1839, 1841, 1843, 1630, 585, 597]

Journal of Chemical Physics, [1211]

Journal of Chemometrics, [2163, 2197, 2207, 2212, 2214, 2324]

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4.5 Patents

The following list contains the names of the patents of genetic algorithms theory and comparisons. The list is arranged in alphabetical order by the name of the patent.

Code compaction by evolutionary algorithm, [1076]

Constructing classification weights matrices for pattern recognition systems using rediced element feature subsets, [2230]

Employing synthetic genes in genetic algorithms, information encoding and non-replicative encryption, [1081]

Fitness function circuit, [1868]

Method and apparatus for preforming mutations in a genetic algorithm-based underwater tracking system, [999]

total 5 patents

4.6 Authors

The following list contains all genetic algorithms theory and comparisons authors and references to their known contributions.

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4.7 Subject index

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4.8 Annual index

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- The Slovak Republic: [1174, 1582, 582, 70, 105]
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Notations

†(ref) = the bibliography item does not belong to my collection of genetic papers.
(ref) = citation source code. ACM = ACM Guide to Computing Literature, EEA = Electrical & Electronics Abstracts, BA = Biological Abstracts, CCA = Computers & Control Abstracts, CTI = Current Technology Index, EI = The Engineering Index (A = Annual, M = Monthly), DAI = Dissertation Abstracts International, P = Index to Scientific & Technical Proceedings, PA = Physics Abstracts, PubMed = National Library of Medicine, BackBib = Thomas Bäck's unpublished bibliography, Fogel/Bib = David Fogel's EA bibliography, etc
* = only abstract seen.
? = data of this field is missing (BiBTeX-format).

The last field in each reference item in `Teletype` font is the BiBTEXkey of the corresponding reference.

Appendix A

Bibliography entry formats

This documentation was prepared with LaTeX and reproduced from camera-ready copy supplied by the editor. The ones who are familiar with BibTeX may have noticed that the references are printed using `abbrv` bibliography style and have no difficulties in interpreting the entries. For those not so familiar with BibTeX are given the following formats of the most common entry types. The optional fields are enclosed by "[ ]" in the format description. Unknown fields are shown by "?". † after the entry means that neither the article nor the abstract of the article was available for reviewing and so the reference entry and/or its indexing may be more or less incomplete.
Book: Author(s), *Title*, Publisher, Publisher's address, year.

Example

John H. Holland. *Adaptation in Natural and Artificial Systems*. The University of Michigan Press, Ann Arbor, 1975.

Journal article: Author(s), Title, *Journal*, volume(number): first page – last page, [month,] year.

Example

David E. Goldberg. Computer-aided gas pipeline operation using genetic algorithms and rule learning. Part I: Genetic algorithms in pipeline optimization. *Engineering with Computers*, 3(?):35–45, 1987. † .

Note: the number of the journal unknown, the article has not been seen.
Proceedings article: Author(s), Title, editor(s) of the proceedings, *Title of Proceedings*, [volume,] pages, location of the conference, date of the conference, publisher of the proceedings, publisher's address.

Example

John R. Koza. Hierarchical genetic algorithms operating on populations of computer programs. In N. S. Sridharan, editor, *Eleventh International Joint Conference on Artificial Intelligence (IJCAI-89)*, pages 768–774, Detroit, MI, 20.-25. August 1989. Morgan Kaufmann, Palo Alto, CA. † .

Technical report: Author(s), Title, type and number, institute, year.

Example

Thomas Bäck, Frank Hoffmeister, and Hans-Paul Schwefel. Applications of evolutionary algorithms. Technical Report SYS-2/92, University of Dortmund, Department of Computer Science, 1992.

Vaasa Genetic Algorithm Bibliography

Search & Optimise

Main features:

- **Over 20,000 references to published papers**
- **by over 20,000 researchers.**
- **Available as over 70 special bibliographies online:** `ftp://ftp.uwasa.fi/cs/report94-1/ga*bib.pdf` **files.**
- **Covers all sciences and engineering fields, from basic theory to applications.**
- **Several indexes and statistical summaries.**
- **See what problems evolution can solve for you!**

Global optimisation and search heuristics called genetic algorithm mimics evolution in nature using recombination and selection from a set of solution trials called population. One of the most prominent attractive features of genetic algorithms from the practical point of view of software techniques is their simplicity, which makes them easy to implement and tailor to solve practical search and optimisation problems.

In spite of the seemingly simple processing, the genetic algorithms are good at solving some problems that are known to be hard. The simplicity, generality, flexibility, parallelism, and the good problem solving capability have made genetic algorithm very popular among various disciplines desperately searching methods to solve difficult optimisation problems.

Observe that our server has also a selection of our papers on genetic algorithms and other compuational topics. See our bibliographies or file `ftp.uwasa.fi/cs/README` for further details.

file	# refs	*updated*	*contents*
ga90bib.ps.Z			GA in 1990
⋮	⋮	⋮	⋮
ga02bib.ps.Z	557		GA in 2002
gaACOUSTICSbib.pdf	181	2008/03/19	GA in acoustics (**new: March 2008**)
gaAIbib.pdf	2402	2007/11/01	GA in artificial intelligence
gaAERObib.pdf	784	2004/06/01	GA in aerospace
gaAGRObib.pdf	102	2006/02/06	GA in agriculture (**new**)
gaALIFEbib.pdf	171	2003/07/09	GA in artificial life
gaARTbib.pdf	142	2003/07/09	GA in art and music
gaAUSbib.pdf	659	2008/05/22	GA in Australia and New Zealand
gaBASICSbib.pdf	1040	2008/08/13	Basics of GA
gaBIObib.pdf	1358	2008/08/11	GA in biosciences including medicine
gaCADbib.pdf	1153	2003/07/09	GA in Computer Aided Design
gaCHEMbib.pdf	886	2004/09/20	GA in chemical sciences ; previously in gaCHEMPHYSbib.ps.Z
gaCHEMPHYSbib.ps.Z	2277		GA in chemistry and physics; divided into gaCHEMbib.ps.Z and gaPHY
gaCIVILbib.pdf	1007	2008/03/20	GA in civil, structural, and mechanical engineering
gaCODEbib.pdf	377	2008/03/20	GA coding
gaCOEVObib.ps.Z	220	2006/03/27	co- and differential evolution GA(**new**)
gaCONTROLbib.ps.Z	1766	2008/03/12	GA in control and process engineering
gaCSbib.ps.Z	1453	2008/03/20	GA in comp. sci. (incl. databases, /mining, software testing and GP)
gaEARLYbib.ps.Z	723	2008/03/12	GA in yearly yeas (upto 1989) **new**
gaEAST-EURObib.ps.Z	679	2003/07/09	GA in the Eastern Europe
gaECObib.pdf	1503	2008/03/20	GA in economics and finance
gaECOLbib.pdf	111	2008/08/11	GA in ecology and biodiversity (**new:** 1.8.2008)
gaELMAbib.pdf	481	2008/03/20	GA in electromagnetics
gaESbib.pdf	464	2008/08/13	Evolution strategies
gaFAR-EASTbib.ps.Z	2066	2003/07/09	GA in the Far East (excl. Japan)
gaFEMbib.pdf	71	2008/08/08	GA & FEM (**new May 2008**)
gaFRAbib.ps.Z	462	2003/07/09	GA in France
gaFTPbib.ps.Z	1353	2003/07/09	GA papers available via web (ftp and www)
gaFUZZYbib.ps.Z	1453	2008/03/11	GA and fuzzy logic
gaGEObib.ps.Z	312	2005/06/30	GA in geosciences
gaGERbib.ps.Z	1586	2004/09/22	GA in Germany, Austria, and Switzerland
gaGPbib.ps.Z	971	2008/08/13	genetic programming
gaIMPLEbib.ps.Z	1291	2003/07/09	implementations of GA
gaINDIAbib.ps.Z	276	2003/05/23	GA in India
gaINVERSEbib.ps.Z	244	2008/08/11	GA in inverse problems (**new: Aug 2007**)
gaISbib.ps.Z	81	2007/11/01	immune systems
gaJAPANbib.ps.Z	2404	2008/05/22	GA in Japan
gaLCSbib.ps.Z	211	2008/08/13	Learning Classifier Systems
gaLASERbib.ps.Z	55	2008/04/03	GA and lasers (**new: April 2008**)
gaLATINbib.ps.Z	649	2003/07/09	GA in Latin America, Portugal & Spain
gaLOGISTICSbib.ps.Z	630	2003/07/09	GA in logistics (incl. TSP)
gaMANUbib.ps.Z			GA in manufacturing
gaMATHbib.ps.Z	770	2003/07/09	GA in mathematics
gaMEDICINEbib.ps.Z	540	2008/07/17	GA in medicine (**new: Nov 2007**)
gaMEDITERbib.ps.Z	1810	2003/07/09	GA in the Mediterranean
gaMICRObib.ps.Z	83	2008/03/31	GA in microscopy & microsystems (**new: March 2008**) gaMILbib.ps
111	2005/01/25	GA in military applications	
gaMLbib.ps.Z	897	2007/11/02	GA in machine learning **new**
gaMSEbib.ps.Z	490	2008/06/11	GA in materials **new**
gaNANObib.ps.Z	109	2008/04/07	GA in nanotechnology **new**
gaNIRbib.ps.Z	163	2007/08/23	GA in NIRS (spectroscopy) **new**
gaNNbib.ps.Z	1800	2008/03/12	GA in neural networks
gaNORDICbib.ps.Z	925	2008/08/13	GA in Nordic countries
gaOPTICSbib.ps.Z	1643	2008/07/28	GA in optics and image processing
gaOPTIMIbib.ps.Z	923	2003/07/09	GA and optimization (only a few refs)
gaORbib.ps.Z	1575	2003/07/09	GA in operations research

...table continues on the next page...

file	# refs	*updated*	*contents*
gaPARAbib.ps.Z	766	2003/12/16	Parallel and distributed GA
gaPARETObib.ps.Z	406	2003/07/09	Pareto optimization
gaPATENTbib.ps.Z	458	2003/07/09	GA patents
gaPATTERNbib.ps.Z	1528	2007/11/06	GA in pattern recognition incl. LCS (**new**)
gaPHYSbib.ps.Z	2313	2008/04/07	GA in physical sciences ; previously in gaCHEMPHYSbib.ps.Z
gaPIEZObib.ps.Z	51	2008/03/26	GA & piezo (**new: March 2008)**
gaPOWERbib.ps.Z	939	2008/08/13	GA in power engineering
gaPROTEINbib.ps.Z	491	2008/03/12	GA in protein research
gaQCbib.ps.Z	539	2008/03/11	quantum computing
gaREMOTEbib.pdf	275	2008/08/11	GA in remote sensing (**new:** 1.8.2008)
gaROBOTbib.pdf	745	2007/11/01	GA in robotics
gaSAbib.pdf	307	2003/07/09	GA and simulated annealing
gaSCHEDULINGbib.pdf	785	2006/09/06	GA in scheduling
gaSELECTIONbib.ps.Z	273	2007/09/20	Selection in GAs (**new**)
gaSIGNALbib.ps.Z	2230	2008/03/11	GA in signal and image processing
gaSIMULAbib.ps.Z	939	2003/07/09	GA in simulation
gaTELEbib.ps.Z	784	2004/02/26	GA in telecom
gaTHEORYbib.ps.Z	2483	2008/08/13	Theory and analysis of GA
gaTHESESbib.ps.Z	556	2008/03/12	PhD etc theses
gaUKbib.ps.Z	1998	2008/05/22	GA in United Kingdom
gaVLSIbib.ps.Z	806	2008/04/07	GA in electronics, VLSI design and testing

Table A.1: Indexed genetic algorithm special bibliographies available online in directory `ftp://ftp.uwasa.fi/cs/report94-1`. New updates also as `.pdf` files.