KALYANMOY DEB, PhD, FASc, FNAE
Deva Raj Chair Professor
Department of Mechanical Engineering
Indian Institute of Technology (IIT) Kanpur
Kanpur, PIN 208016, India
E-mail: deb@iitk.ac.in
http://www.iitk.ac.in/kangal/deb.htm

Summary of Achievements

- PhD from University of Alabama, Tuscaloosa, USA in 1991
- Master of Science from University of Alabama, Tuscaloosa, USA in 1989
- Bachelor of Technology (Hons.) from Indian Inst. of Technology Kharagpur, India in 1985
- Worked as as assistant engineer at Engineers India Limited, Delhi (1985-1987)
- Worked as visiting research assistant professor at University of Illinois at Urbana-Champaign during 1991-1992 (1.5 years)
- Currently on leave from IIT Kanpur, India, where I was working since 1993 (Asst. Prof. (1993-97), Asso Prof. (1997-99), (Full) Professor (1999-Present))
- Fellow of Indian Academy of Science (IASc) and Indian National Academy of Engineering (INAE), two main science and engineering academies in India
- Written **two** sole-authored text books, **94** journal and **146** conference publications (Total **240** published papers)
- ISI Web of Science Citation Count: **8,949** (as of 31 December 2008), Harzing's Publish or Perish Citation Count: **17,178** (31 December 2008)
- Hirsh Index: **48** according to Harzing's Publish or Perish (31 December 2008)
- Prestigious **Shanti Swarup Bhatnagar Prize** in Engineering Science in 2005 from CSIR, India (Highest and most coveted prize given to at most two scientists below 45 years of age in India every year)
- Research and teaching interests are inter-disciplinary and primarily in the **applied computing** area:
  - Received the prestigious Finland Distinguished Visiting Professor (FiDiPro) position supported by the Academy of Finland and Foundation of Helsinki School of Economics
  - Elected executive committee member of International Society on Multi-Criterion Decision Making (MCDM)
  - **Thomson Citation Laureate Award** for the highest ISI Web of Science citation counts in the computer science category from India during 1996–2005, given in July 2006
  - Fellow of International Society on Genetic and Evolutionary Computation (ISGEC)
  - Visiting faculty in Computer Science Department at University of Dortmund, Germany for 14 months (1998-99) on Alexander von Humboldt (AvH) Fellowship
  - Visiting Professor at Computer Engineering and Networks Laboratory at ETH Zurich for six months (2001)

- Visiting Professor at the Institute of Applied Informatics and Formal Description Methods at University of Karlsruhe, Germany for six months (2003) on the prestigious Friedrich Wilhelm Bessel Research Award from AvH, Germany
- Visiting Professor in Electrical and Electronics Engineering at NTU Singapore for two months (2006)
- Associate editor of IEEE Transaction on Evolutionary Computation (IEEE TEC) and Applied Soft Computing Journal (Elsevier)
- Advisory board member of Evolutionary Computation Journal, MIT Press
- Area Editor of Journal of Multiple Criterion Decision Analysis, Wiley
- Editorial board member of 12 international journals on computing and optimization
- 26 keynote/Plenary lectures in major international conferences (Congress on Evol. Computation, Computational Intelligence and Security, Bio-Inspired Computing etc.)
- 31 invited tutorials on computational optimization in international conferences
- Declared a 'Sociometric Super-star' in the Evolutionary Computation field through a research study by J. J. Merlo for the highest contribution in joint authorship on research papers with a network of researchers across the globe (article appears in http://www.iitk.ac.in/kangal/deb.shtml)
- My multi-criterion evolutionary algorithm (NSGA-II) is the most popularly-used algorithm and has received more than 300 Web of Science citations till to date and was also judged as the 'fast-breaking paper' by ISI Web of Science in February 2004 (see http://esitopics.com/fbp/2004/february04-KalyanmoyDeb.html)
- A recently published survey article ('Visualizing the Computational Intelligence Field' by van Eck et al.) in Computational Intelligence Magazine (vol 1, issue 4, 2006) features my NSGA-II algorithm as an evolutionary computing algorithm having the largest increase in frequency of usage from 2002 till 2006 in the entire Computational Intelligence field (see http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=10207)
- Co-organizer (with Prof. Xin Yao) of the Asia-ITC funded MSc. Programme in Natural Computation at the computer science department at University of Birmingham (2001-02)
- Completed a three-year long Indo-Portuguese collaborative project with Dr. Carlos Fonseca from Centre for Intelligent Systems, Univ. of Algarve, Portugal
- Completed a two-year long Indo-Swiss collaborative project with Computer Engineering and Networks Laboratory (Prof. Lothar Thiele and Dr. E. Zitzler) at ETH Zurich, Switzerland
- Computer Science PhD students from different countries (Univ. of Sydney, Australia, Univ. of Karlsruhe, Germany and Univ. of Dortmund, Germany, NTU Singapore, Lappeenranta University of Technology, Finland and others) regularly visit my research laboratory for their thesis work, each staying three to 12 months
- Examined PhD theses (final defense and review of theses) of many CS students from abroad (Univ. of Reading, Univ. of West of England, Bristol, Univ. of Aalborg, Denmark, ETH Zurich, Univ. of Sydney, Hong Kong Polytechnic and others).
- Founder and Organizer of two major international conferences: (i) Dagstuhl Seminar on Multi-Criterion Optimization and Decision-making in Schloss Dagstuhl Germany (2004, 2006) and (ii) bi-annual Evol. Multi-Criterion Optimization (EMO) conference (2001, 2003, 2005, 2007).
- Editor-in-Chief of Genetic and Evolutionary Computation Conference (GECCO-2004) conference proceedings (Springer, two LNCS volumes)

  - Track chair on Genetic Algorithms and EMO during many GECCO conferences and special session chairs on various topics during Congress on Evolutionary Computation (CEC) conferences
  - Chair of the Panel discussion on EMO during World Congress on Computational Intelligence (WCCI-2006).
  - Teaching full semester courses on evolutionary computation, computational optimization, multi-criterion optimization and decision-making, programming and numerical analysis, mathematical methods in engineering, artificial intelligence and other design related courses

- Pioneer and leader in research and development of the Evolutionary Multi-Criterion Optimization (EMO) field (also the founding member of the steering committee on EMO)

- Extensively engaged in governmental and bi-lateral governmental (Indian, Indo-Portugal, Indo-Swiss) and industry-funded research primarily from industries abroad (from General Motors Bangalore and USA, General Electric USA, STMicroelectronics Italy, Honda R&D Japan etc.). Currently all my projects are sponsored by industries, supporting my research laboratory KanGAL and more than 15 students (6 PhD students, 6 master's degree students, and remaining Bachelor's degree students). Eight students are supported by industrial research funding.

- 17 years of teaching experience and 21 years of research experience

KALYANMOY DEB, PhD, FASc, FNAE
Deva Raj Chair Professor of Mechanical Engineering
Director, Kanpur Genetic Algorithms Laboratory (KanGAL)
Indian Institute of Technology (IIT) Kanpur
Kanpur, PIN 208016, India
Phone: +91 512 259 7205 (Office), 512 259 8310 (Home)
Fax: +91 512 259 7205, 7408, 0007
E-mail: deb@iitk.ac.in
http://www.iitk.ac.in/kangal/deb.htm

Research Interests: Applied Optimization, Evolutionary computation, Modeling and Simulation, Multi-Criterion Decision Analysis, Optimal Design, Design and Control of Intelligent Systems, Machine learning

Teaching Interests: Applied Optimization, Computational Optimization, Evolutionary Computation, Natural Computation, Computational Intelligence Methodologies, Multi-Criterion Optimization, Programming and Numerical Methods, Mathematics for computer science, software engineering, search algorithms, Design Methodologies, Systems analysis, Intelligent data analysis

Education:

Doctor of Philosophy in Engg. Mechanics, University of Alabama, Tuscaloosa, USA
May 1991
'Boolean and floating-point function optimization using messy genetic algorithms'

Master of Science in Engg. Mechanics, University of Alabama, Tuscaloosa, USA
May 1989
'Multi-modal function optimization using genetic algorithms'

Bachelor of Technology in Mechanical Engineering
Indian Institute of Technology Kharagpur, India
May 1985

Work Experience:

Professor, Department of Mechanical Engineering, IIT Kanpur
December 1999 till Present
Teaching, research, and service

Associate Professor, Department of Mechanical Engineering, IIT Kanpur
June 1997 till November 1999
Teaching, research, and service

Assistant Professor, Department of Mechanical Engineering, IIT Kanpur
January 1993 till May 1997
Teaching, research, and service

Visiting research assistant professor, Department of General Engineering
University of Illinois at Urbana-Champaign, USA
April 1991 till November 1992
Research, partial teaching

Assistant Engineer, Engineers India Limited, New Delhi

June 1985 till July 1987
Design and research development of pressure vessels

Major Awards/Honors:

MCDM Edgeworth-Pareto Award
by International Society on Multiple Criteria Decision Making (MCDM)
2008

Thomson Citation Laureate Award in Computer Science, July 2006

Shanti Swarup Bhatnagar Prize in Engineering Sciences,
Council for Scientific and Industrial Research (CSIR), Government of India, 2005

Deva Raj Chair Professor at Indian Institute of Technology Kanpur, India, since 2007

Finland Distinguished Professor (FiDiPro) at Helsinki School of Economics, Academy of Finland, 2007-2009

Fellow, Indian Academy of Sciences (IASc), 2006

Fellow, Indian National Academy of Engineering (INAE), 2004

Fellow, International Society for Genetic and Evolutionary Algorithms (ISGEC), since 2003

Friedrich Wilhelm Bessel Research Award,
Alexander von Humboldt Foundation, Germany
December 2002

Humboldt Fellow, Alexander von Humboldt Foundation, Germany
June 1998–July 1999

IEEE CIS Teaching Award, IEEE Computational Intelligence Society, 2009

Fast Breaking Paper Award in Engineering
ISI Web of Science's Essential Science Indicators (ESI), Feb 2004

Senior Member, IEEE, since 2002

Area Editor, Journal of Multi-Criteria Decision Analysis, Wiley, 2009

Associate Editor, IEEE Transaction on Evolutionary Computation. IEEE Press,
Since 1999

Associate Editor, Applied Soft Computing, Elsevier
Since 2009

Advisory Board Member, Evolutionary Computation Journal, MIT Press,
Since 2002

Editorial Advisory Board Member, Recent Patents on Computer Science,
Bentham Science Publishers, Since 2007

Editorial Board Member, Journal of Industrial and Management Optimization (JIMO),
American Institute of Mathematical Sciences, Since 2008

Editorial Board Member, International Journal of Systems, Signals, Control and Engineering Applications,

Medwell Journals, Since 2008

Editorial Board Member, International Journal of Soft Computing and Bioinformatics, Scientific International Publisher, Since 2008

Editorial Advisory Board Member, International Journal for Simulation, Multidisciplinary Design Optimization,
EDP Sciences, Since 2007

Editorial Board Member, Engineering Optimization Journal, Tailor and Francis, Since 2003

Editorial Board Member, Genetic Programming and Evolvable Machines,
Springer, Since 2003

Editorial Board Member, Applied Soft Computing Journal
Elsevier, Since 2000

Editorial Board Member, Journal of Evolutionary Optimization,
Polish Academy of Sciences, Since 1998

Editorial Board Member, Human Systems Management, IOS Press, Since 2006

Editorial Board Member, Journal of Memetic Computing,
Springer, Since 2007

SIGEVO Executive Committee Member, ACM Special Interest Group on Evolutionary Computation, 2007–2013

Executive Council Member, International Society on Genetic and Evolutionary Algorithms (ISGEC) (one of 15 members worldwide and alone from India)
Since 1999

INAE Young Engineer Award, Indian National Academy of Engineering, 1996

AICTE Career Award for Young Teachers, All India Council for Technical Education, 1996-97

DST Young Scientist Project Award, Department of Science and Technology, India, June 1994

Graduate Research Council Fellowship, University of Alabama, Tuscaloosa, USA
August 1989 - May 1991 (2 consecutive years)

Jefferson Goblet Student Award (April 1990)
31st Structures, Structural Dynamics, and Materials Conference
AIAA/ASME/ASCE/ASC/AHS, Long Beach, California

Outstanding Graduate Research Assistant
Department of Engineering Mechanics, University of Alabama, Tuscaloosa, USA
1989-1990, 1990-1991

Outstanding Master's Thesis Award (1989-1990)
College of Engineering and Department of Engineering Mechanics
University of Alabama, Tuscaloosa, USA

First prize in All India Students Design Competition (August, 1995)

Institution of Engineers, India
'Design a machine to drill polygonal (square, hexagonal) holes'

Best Student in Mechanical Engineering (Amlan Sen Memorial Award) (1985)
Best Student in Industrial Management Program (1985)
Indian Institute of Technology Kharagpur

Research Achievements:

- Written **two** text books on optimization:
  1. **Deb, K.** (2001). *Multi-objective optimization using evolutionary algorithms.* Chichester, London: Wiley, (**Third Print**, 517 pages). Also available as a Wiley Singapore Edition in India. (**1,644** ISI Citations)
  2. **Deb, K.** (1995). *Optimization for engineering design: Algorithms and examples.* New Delhi: Prentice-Hall, (**Seventh Print**, 382 pages). (**281** ISI Citations)
- Recent edited books published:
  1. Branke, J., **Deb, K.**, Mietinnen, K. and Slowinski, R. (eds.) (2008). *Multiobjective optimization: Interactive andevolutionary approaches*, (Lecture Notes on Computer Science (LNCS 5252)), Berlin: Springer.
  2. Knowles, J, Corne, D. and **Deb, K.** (eds.) (2008). *Multiobjective Problem Solving from Nature: From Concepts to Applications*, (Natural Computing Series) Berlin: Springer.
- Book under progress:
  1. **Deb, K.** (in press, exp. early 2009). *Innovization: Extracting innovative solution principles through multiobjective optimization.* Hidelberg, Germany: Springer.
- Published **94** international journal papers and **146** international conference papers (total **240** articles) till to date. Also written one Encyclopedia article on genetic algorithms.
- **ISI Web of Science Citation Count** of all publications (as on 31 December 2008): **8,949** (Eight thousand nine hundred and fortynine). Break-up is shown below:

	On 20 Feb'07	*On 31 Dec'08*
Books	799	1,925
Book Chapters	46	81
Journals	2,235	5,118
Conferences	650	1,397
Technical Reports	245	428
Total	**3,975**	**8,949**

A 125% increase in 22 months.

- Folllowing statistics are found from Harzing's Publish or Perish website `http://www.harzing.com` (on 31 December 2008):

```
Authors Name: Deb K

Papers: 471 Cites/paper: 36.47 h-index: 48 AWCR: 649.70
Citations: 17178 Cites/author:  3441.43 g-index: 127 AW-index:   25.49
Years: 20 Papers/author: 204.69 hc-index:  37 AWCRpA: 296.81
Cites/year: 687.12 Authors/paper: 2.22 hI-index: 26.18
hI,norm: 29

Hirsch a=7.46, m=1.92
Contemporary ac=1.90
Cites/paper 36.47/3.0/1 (mean/median/mode)
```

```
Authors/paper 2.22/2.0/2 (mean/median/mode)

64 paper(s) with 0 author(s)        50 paper(s) with 4 author(s)
83 paper(s) with 1 author(s)        12 paper(s) with 5 author(s)
133 paper(s) with 2 author(s)       14 paper(s) with 6 author(s)
113 paper(s) with 3 author(s)       2 paper(s) with 7 author(s)
```

- Thomson Citation Laureate Award for having the highest ISI Web of Science citation counts in Computer Science category from India during 1996–2005
- Hirsh Index is **48** on www.harzing.com.
- Invited to deliver **26** keynote/plenary lectures in major international conferences in the past few years (See page 33).
- Presented **31** invited tutorials (in the past three years) on 'Evolutionary multi-objective optimization' and **69** invited lectures on 'evolutionary algorithms', lists of which are appended at the end of this document.
- Associate Editor of International Journals:
  1. IEEE Transactions on Evolutionary Computation published by IEEE Press
  2. Applied Soft Computing Journal by Elsevier
- Editorial Board Member of **12** International Journals
- Director of Kanpur Genetic Algorithms Laboratory (KanGAL):
  - About 10-15 students (graduate, undergraduate students, and project staff) work under my supervision at any time
  - About 60 academic and industrial participants attend a three-day short course on Genetic Algorithms arranged every year
  - About 3 foreign PhD students visit KanGAL each averaging about 3 months every year
  - Nine freely downloadable softwares developed by KanGAL
- Currently pursued major industrial projects: General Motors (GM) USA and India Science Lab. Bangalore, General Electric (GE) USA and Bangalore, Honda R&D Japan, STMicroelectronics Italy. Other collaborations: Tata Steel Jamshedpur, Tata Engg. and Locomotive Company Pune, Hindustan Aeronautics Limited Bangalore etc.
- Recipient of commendation certificates for excellence in teaching in various courses at IIT Kanpur from the Director of the institute.

Further details can be found in my web site `http://www.iitk.ac.in/kangal/deb.htm`.

Kalyanmoy Deb

APPENDIX

KALYANMOY DEB
Deva Raj Chair Professor
Department of Mechanical Engineering
Indian Institute of Technology Kanpur, India
http://www.iitk.ac.in/kangal/deb.htm

Publication Record

The ISI Web of Science Citation Counts as on 31 December 2008 are marked in brackets. References with 10 or more citations are shown in bold.

Books

1. **Deb, K.** (2001). *Multi-objective optimization using evolutionary algorithms.* Chichester, London: Wiley, (**Third Print**, 517 pages). Also available as a Wiley Singapore Edition in India. (**1,644** ISI Citations)
2. **Deb, K.** (1995). *Optimization for engineering design: Algorithms and examples.* New Delhi: Prentice-Hall, (**Seventh Print**, 382 pages). (**281** ISI Citations)

Edited Books

1. Branke, J., **Deb, K.**, Mietinnen, K. and Slowinski, R. (Eds.) (2008). Multiobjective optimization: Interactive and evolutionary approaches. Hiedelberg, Germany: Springer.
2. Knowles, J., Corne, D. and **Deb, K.** (Eds.) (2008). *Multiobjective Problem Solving from Nature: From Concepts to Applications.* Berlin, Germany: Springer.
3. Obayashi, S., **Deb, K.**, Poloni, C., Hiroyasu, T., Murata, T. (Eds.) (2007). *Proceedings of the Evolutionary Multi-Criterion Optimization: 4th International Conference (EMO-2007)*, (LNCS 4403), Berlin, Germany: Springer.
4. **Deb, K.**, Poli, R., Banzhaf, W., Beyer, H.-G., Burke, E. K., Darwen, P. J., Dasgupta, D., Floreano, D., Foster, J. A., Harman, M., Holland, O., Lanzi, P. L., Spector, L., Tettamanzi, A., Thierens, D., and Tyrrell, A. M. (Eds.) (2004). Proceedings of the Sixth International Conference on Genetic and Evolutionary Computation (GECCO-2004). (Lecture Notes in Computer Science (LNCS 3102 and 3103)), Heidelberg, Germany: Springer.
5. Cant-Paz, E., Foster, J. A., **Deb, K.** and Lawrence, D., Roy, R., O'Reilly, U.-M., Beyer, H.-G., Standish, R., Kendall, G., Wilson, S., Harman, M., Wegener, J., Dasgupta, D., Potter, M. A., Schultz, A. C. (Eds.) (2003). Proceedings of the Fifth International Conference on Genetic and Evolutionary Computation (GECCO-2003). Berlin, Germany: Springer-Verlag.
6. Fonseca, C., Fleming, P., Zitzler E., **Deb, K.**, and Thiele, L. (Eds.) (2003). Proceedings of the Second Evolutionary Multi-Criterion Optimization (EMO-03) Conference (Lecture Notes in Computer Science (LNCS) 2632), Heidelberg: Springer.
7. Zitzler, E., **Deb, K.**, Thiele, L., Coello, C. and Corne, D. (Eds.) (2001). *Evolutionary multi-criterion optimization (Lecture Notes in Computer Science 1993).* Heidelberg: Springer.

8. Schoenauer, M., **Deb, K.**, Rudolph, G., Yao, X., Lutton, E., Merelo, J. J., Schwefel, H.-P. (Eds.) (2000). *Parallel Problem Solving from nature VI (Lecture Notes in Computer Science 1917).* Heidelberg: Springer.

9. Koza, J., Banzhaf, W., Chellapilla, K., **Deb, K.** Dorigo, M. Fogel, D., Garzon, M. Goldberg, D., Iba, H. (Eds) (1998). *Proceedings of the 1998 genetic programming conference and symposium on genetic algorithms.* San Mateo, CA: Morgan Kaufmann.

10. **Deb, K.** (Ed.), (1998). *Genetic algorithms*, A special issue of the *Computer Science and Informatics, 26*(4).

11. Koza, J, **Deb, K.**, Dorigo, M., Fogel, D., Garzon, M., Iba, H., and Riolo, R. (Eds.) (1997). *Proceedings of the 1997 genetic programming conference.* San Mateo, CA: Morgan Kaufmann.

Papers in Journals (PUBLISHED)

1. Mittal, S. and **Deb, K.** (2009). Optimal strategies of the iterated prisoner's dilemma problem for multiple conflicting objectives. *IEEE Transactions on Evolutionary Computation, 13*(3), 554–565.

2. Pettersson, F., Saxén, H. and **Deb, K.** (2009). Genetic algorthm based multicriteria optimization of ironmaking in the blast furnace. *Journal of Materials and Manufacturing Processes, 24*, 1–7.

3. **Deb, K.** (2008). Scope of stationary multi-objective evolutionary optimization: A case study on a hydro-thermal power dispatch problem. *Journal of Global Optimization, 41*(4), 479–515.

4. Dyer, J. S., Fishburn, P. C., Steuer, R. E., Wallenius, J., Zionts, S. and **Deb, K.** (2008). Multiple criteria decision making, multiattribute utility theory: Recent accomplishments and what lies ahead. *Management Science, 54*(7), 1336–1349.

5. Bandyopadhyay, S., Saha, S., Maulik, U. and **Deb, K.** (2008). *A simulated annealing-based multiobjective optimization algorithm: AMOSA, 12*(3), 269–283.

6. Branke, J., Scheckenbach, B. Stein, M., **Deb, K.** and Schmeck, H. (2008). Portfolio optimization with an envelope based evolutionary multi-objective optimization. *European Journal on Operations Research (EJOR), 199*(3), 684–693.

7. Bui, L. T., **Deb, K.**, Abbass, H. A. and Essam, D. (2008). Interleaving guidance in evolutionary multiobjective optimization. *Journal of Computer Science and Technology, 23*(1), 44–63.

8. **Deb, K.** and Tiwari, S. (2008). Omni-optimizer: A generic evolutionary algorithm for global optimization. *European Journal of Operational Research (EJOR), 185*(3), 1062–1087.

9. Datta, D., Fonseca, C. M. and **Deb, K.** (2008). A multi-objective evolutionary algorithm to exploit the similarities of resource allocation problems. *Journal of Scheduling, 11*(6), 405–419.

10. **Deb, K.** (2007). Current Trends in Evolutionary Multi-objective Optimization. *International Journal for Simulation and Multidisciplinary Optimisation, 1*(1), 1–8.

11. Datta, D. and **Deb, K.**, Fonseca, C. M., Lobo, F. G., Condado, P. A. and Seixas, J. (2007). Multi-objective evolutionary algorithm for land-use management problem, *International Journal of Computational Intelligence Research (IJCIR), 3*(4).

12. Shukla, P. and **Deb, K.** (2007). On Finding Multiple Pareto-Optimal Solutions Using Classical and Evolutionary Generating Methods. *European Journal of Operational Research (EJOR), 181*(3), 1630–1652.

13. Sengupta, T. K., **Deb, K.**, Talla, S. B. (2007). Control of flow using genetic algorithm for a circular cylinder executing rotary oscillation. *Computers & Fluids, 36*(3), 578–600.

14. Jain, N. K., Jain, V. K. and **Deb, K.** (2007). Optimization of process parameters of mechanical type advanced machining processes using genetic algorithms *International Journal of Machine Tools and Manufacture, 47*(6), 900–919. (3)

15. **Deb, K.** and Gupta, H. (2006). Introducing robustness in multi-objective optimization. *Evolutionary Computation Journal, 14*(4), 463–494. (2)

16. **Deb, K.**, Sundar, J., Reddy, Uday, B., and Chaudhuri, S. (2006). Reference point based multi-objective optimization using evolutionary algorithms. *International Journal of Computational Intelligence Research (IJCIR), 2*(6), 273–286. (5)

17. **Deb, K.**, Mohan, M., and Mishra, S. (2005). Evaluating the ϵ-domination based multi-objective evolutionary algorithm for a quick computation of Pareto-optimal solutions. *Evolutionary Computation Journal, 13*(4), 501–525. (**14**)

18. **Deb, K.** (2005). A population-based algorithm-generator for real-parameter optimization. *Soft Computing Journal, 9*, 236–253. (9)

19. **Deb, K.** and Tiwari, S. (2005). Multi-objective optimization of a leg mechanism using genetic algorithms. *Engineering Optimization, 37*(4), 325–350.

20. Agrawal, S., Dhande, S. G., **Deb, K.**, de Beer, D. J., and Truscott, M. (2005). Synthesis of mechanical error in rapid prototyping processes using stochastic approach. *New Generation Sciences, 3*(1). 1–19.

21. **Deb, K.**, Jain, P., Gupta, N., and Maji, H. (2004). Multi-Objective placement of electronic components using evolutionary algorithms. *IEEE Transactions on Components and Packaging Technologies, 27*(3), 480–492. (3)

22. **Deb, K.** (2004). An ideal evolutionary multi-objective optimization procedure. *IPSJ Transactions on Mathematical Modeling and Its Applications, 45*(SIG 2), 1–11.

23. **Deb, K.**, Mitra, K., Dewri, R. and Majumdar, S. (2004). Towards a better understanding of the epoxy polymerization process using multi-objective evolutionary computation. *Chemical Engineering Science, 59*(20), 4261–4277. (**16**)

24. Farina, M., **Deb, K.**, Amato. P. (2004). Dynamic multiobjective optimization problems: Test cases, approximations, and applications. *IEEE Transactions on Evolutionary Computation, 8*(5), 425–442. (**34**)

25. **Deb, K.** (2003). Unveiling innovative design principles by means of multiple conflicting objectives. *Engineering Optimization, 35*(5), 445-470. (**12**)

26. **Deb, K.** and Reddy, A. R. (2003). Reliable classification of two-class cancer data using evolutionary algorithms. *BioSystems, 72*(1-2), 111-129. (**22**)

27. **Deb, K.** and Jain, S. (2003). Multi-speed gearbox design using multi-objective evolutionary algorithms. *ASME Transactions on Mechanical Design, 125*(3). 609–619. (**17**)

28. **Deb, K.**, Reddy, A. R. and Singh, G. (2003). Optimal scheduling of casting sequence using genetic algorithms. *Journal of Materials and Manufacturing Processes, 18*(3). 409–432. (9)

29. **Deb, K.**, Anand, A., and Joshi, D. (2002). A computationally efficient evolutionary algorithm for real-parameter optimization. *Evolutionary Computation Journal, 10*(4), 371–395. (**72**)

30. **Deb, K.**, Pratap. A, Agarwal, S., and Meyarivan, T. (2002). A fast and elitist multiobjective genetic algorithm: NSGA-II. *IEEE Transaction on Evolutionary Computation, 6*(2), 181–197. (**1134**)

31. Pratihar, D. K., **Deb, K.**, Ghosh, A. (2002). Optimal path and gait generations simultaneously of a six-legged robot using a GA-fuzzy approach. *Robotics and Autonomous Systems, 41*, 1–21. (6)

32. Mukherjee, A., Biswas, R., **Deb, K.**, and Mathur, A. P. (2002). Multi-objective evolutionary algorithms for the risk-return trade-off in bank loan management. *International Transactions in Operations Research, 9*, 583–597.

33. Laumanns, M., Thiele, L., **Deb, K.** and Zitzler, E. (2002). Combining convergence and diversity in evolutionary multiobjective optimization. *Evolutionary Computation Journal, 10*(3), 263–282. (**96**)

34. **Deb, K.** (2001). Nonlinear goal programming using multi-objective genetic algorithms. *Journal of the Operational Research Society, 52*(3), 291–302. (**17**)

35. **Deb, K.** and Gulati, S. (2001). Design of truss-structures for minimum weight using genetic algorithms. *Journal of Finite Elements in Analysis and Design, 37*(5), 447–465. (**51**)

36. **Deb, K.** and Beyer, H.-G. (2001). Self-adaptive genetic algorithms with simulated binary crossover. *Evolutionary Computation Journal, 9*(2), 197–221. (**45**)

37. Beyer, H.-G. and **Deb, K.** (2001). On self-adaptive features in real-parameter evolutionary algorithms. *IEEE Transactions on Evolutionary Computation, 5*(3). 250–270. (**44**)

38. Chakroborty, P., **Deb, K.**, and Sharma, R. K. (2001). Optimal fleet size distribution and scheduling of transit systems using genetic algorithms. *Transportation Planning and Technology, 24*(3), 209–226. (3)

39. **Deb, K.** (2000). An efficient constraint handling method for genetic algorithms. *Computer Methods in Applied Mechanics and Engineering, 186*, 311–338. (**289**)

40. **Deb, K.** and Horn. J. (2000). Introduction to the special issue: Multicriterion optimization. *Evolutionary Computation Journal, 8*(2), iii-iv. (**14**)

41. Goldberg, D. E. and **Deb, K.** (Eds.) (2000). *Special issue: Genetic and evolutionary computation - Preface. Computer Methods in Applied Mechanics and Engineering, 186*(2-4). 121–124. (**14**)

42. Pratihar D. K., Deb K., Ghosh A. (2000). Optimal turning gait of a six-legged robot using GA-Fuzzy approach, *Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AIEDM) Journal, (14)*, 207–219. (3)

43. Chakraborti, N., **Deb, K.**, and Jha, A. (2000). A genetic algorithm based heat transfer analysis of a bloom re-heating furnace. *Steel Research, 71*, 396–402. (**12**)

44. Michalewicz, Z., **Deb, K.**, Schmidt, M., and Stidsen, T. (2000). Test-case generator for nonlinear continuous parameter optimization techniques. *IEEE Trans. on Evolutionary Computation, 4*(3), 197–215. (**24**)

45. Zitzler, E., **Deb, K.**, and Thiele, L. (2000). Comparison of multiobjective evolutionary algorithms: Empirical results. *Evolutionary Computation Journal, 8*(2), 173–195. (**445**)

46. Sivakumar, K., Iyengar, N. G. R., and **Deb, K.** (2000). Optimum design of laminated composite plates with cut-outs using genetic algorithm (GA), variable metric method (DFP) and complex search methods. *Engineering Optimization, 32*, 635–657. (1)

47. **Deb, K.** (1999). An introduction to genetic algorithms. *Sādhanā, 24*(4), 293–315. (**27**)

48. **Deb, K.** (1999). Multi-objective genetic algorithms: Problem difficulties and construction of test problems. *Evolutionary Computation Journal, 7*(3), 205–230. (**191**)

49. **Deb, K.** and Agrawal, S. (1999). Understanding interactions among genetic algorithm parameters. *Foundations of Genetic Algorithms V*, 265–286. (**41**)

50. Pratihar, D., **Deb, K.**, and Ghosh, A. (1999). Fuzzy-genetic algorithms and time-optimal obstacle-free path generation for mobile robots. *Engineering Optimization, 32*, 117–142. (5)

51. Pratihar D., **Deb, K.**, and Ghosh A. (1999). Design of a genetic-fuzzy system for planning crab gaits of a six-legged robot, *Journal of Computing and Information Technology, 7*(1), 93–101. (2)

52. Pratihar, D., **Deb, K.**, and Ghosh, A. (1999). A genetic-fuzzy approach for mobile robot navigation among moving obstacles. *International Journal of Approximate Reasoning, 20*(2), 145–172. (**30**)

53. Sivakumar, K., Iyengar, N. G. R., and **Deb, K.** (1999). Free vibration of laminated composite plates with cutout. *Journal of Sound and Vibration, 221*(3), 443-470. (10)

54. Sivakumar, K., Iyengar, N. G. R., and **Deb, K.** (1999). Optimum design of laminated composite plates with cutouts undergoing large amplitude oscillation, *Advanced Composite Materials, 8*(4), 295–316. (3)

55. Sivakumar, K., Iyengar, N. G. R., and **Deb, K.** (1999). Optimum design of laminated composite plates undergoing large amplitude oscillations, *Applied Composite Materials, 6*(2), 87–98. (2)

56. **Deb, K.** (1998). A quick computation of factor of safety for biaxial stress states. *Transactions of ASME: Journal of Mechanical Design, 120*, 721-726. (**22**)

57. **Deb, K.** and Chakroborty, P. (1998). Time scheduling of transit systems with transfer considerations using genetic algorithms. *Evolutionary Computation Journal, 6*(1), 1–24. (9)

58. **Deb, K.** and Goyal, M. (1998). A flexible optimization procedure for mechanical component design based on genetic adaptive search. *Transactions of the ASME: Journal of Mechanical Design, 120*(2), 162–164. (**22**)

59. Mitra, K., **Deb, K.**, and Gupta, S. K. (1998). Multiobjective dynamic optimization of an industrial Nylon 6 semibatch reactor using genetic algorithms. *Journal of Applied Polymer Science, 69*(1), 69–87. (**56**)

60. Sen, S., Narshimhan, S. and **Deb, K.** (1998). Sensor network design of linear processes using genetic algorithms. *Computers & Chemical Engineering, 22*(3), 385–390. (**33**)

61. Chakroborty, P., **Deb, K.**, and Srinivas, B. (1998). Network-wide optimal scheduling of transit systems using genetic algorithms. *Computer Aided Civil and Infrastructure Engineering, 13*, 363–376. (4)

62. Deo, B., **Deb, K.**, Jha, S., Sudhakar, V., and Sridhar, N. V. (1998). Optimal operating conditions for the primary end of an integrated steel plant: Genetic adaptive search and classical techniques. *ISIJ International, 38*(1), 98–105. (9)

63. Sivakumar, K., Iyengar, N. G. R., and **Deb, K.** (1998). Optimum design of laminated composite plates with cutouts using a genetic algorithm, *Journal of Composite Structures, 42*(3), 265–279. (**19**)

64. Upreti, S. and Deb, K. (1997). Optimal design of an ammonia synthesis reactor using genetic algorithms. *Computers & Chemical Engineering, 21*(1), 87–92. (**14**)

65. Sivakumar, K., Iyenger, N. G. R., and **Deb, K.** (1997). Optimum design of laminated composite rectangular plates with cutouts using genetic algorithms. *Indian Journal of Engineering and Materials Science, 4*, 189–195.

66. Chakraborty, U., **Deb, K.**, and Chakraborty, M. (1997). Analysis of selection algorithms: A Markov chain approach. *Evolutionary Computation Journal, 4*(2), 132–167. (**19**)

67. **Deb, K.**, and Goyal. M. (1996). A combined genetic adaptive search (GeneAS) for engineering design. *Computer Science and Informatics, 26*(4), 30–45. (**55**)

68. Bagchi, T. and **Deb, K.** (1996). Calibration of GA Parameters: The design of experiments approach. *Computer Science and Informatics, 26*(4), 46–56. (8)

69. Mahesh, K., Kishore, N. N., and **Deb, K.** (1996). Optimal design of composite turbine blade using genetic algorithms. *Adv. Composite Materials, 5*(2), 87–98. (6)

70. **Deb, K.** and Kumar, A. (1995). Real-coded genetic algorithms with simulated binary crossover: Studies on multimodal and multiobjective problems. *Complex Systems, 9*(6), 431–454. (**38**)

71. **Deb, K.** and Agrawal, R. B. (1995). Simulated binary crossover for continuous search space. *Complex Systems, 9*, 115–148. (**232**)

72. Chakroborty, P., **Deb, K.**, and Subrahmanyam, P. S. (1995). Optimal scheduling of urban transit scheduling systems using genetic algorithms. *ASCE Journal of Transportation Engineering, 121*(6), 544–553. (**24**)

73. Srinivas, N. and **Deb, K.** (1995). Multiobjective function optimization using nondominated sorting genetic algorithms, *Evolutionary Computation Journal, 2*(3), 221–248. (**844**)

74. Rastogi, R., **Deb, K.**, Deo, B., and Boom, R. (1994). Genetic Adaptive Search (GAS) Model of Hot Metal Desulphurization, *Steel Research, 65*(11), 472–478. (**10**)

75. Deo, B., Datta, A., Kukreja, B., Rastogi, R., and **Deb, K.** (1994). Optimization of back propagation algorithm and GAS-assisted ANN models for hot metal desulphurization. *Steel Research, 65* (12), 528–533. (7)

76. **Deb, K.** and Goldberg, D. E. (1994). Sufficient conditions for deception in arbitrary binary functions. *Annals of Mathematics and Artificial Intelligence, 10*, 385–408. (**20**)

77. Horn, J., Goldberg, D. E., and **Deb, K.** (1994). Implicit niching in a learning classifier system: Nature's way. *Evolutionary Computation Journal, 2*(1), 37–66. (1)

78. **Deb, K.**, Horn, J., and Goldberg, D. E. (1993). Multimodal deceptive functions. *Complex Systems, 7*, 131–153. (5)

79. Goldberg, D. E., **Deb, K.**, and Theirens, D. (1993). Toward a better understanding of mixing in genetic algorithms. *Journal of SICE, 32*(1), 10–16. (**35**)

80. **Deb, K.** and Goldberg, D. E. (1992). Analyzing deception in trap functions. *Foundations of Genetic Algorithms II*, 93–108. (**76**)

81. Goldberg, D. E., **Deb, K.**, and Clark, J. H. (1992). Accounting for the noise in the sizing of populations. *Foundations of Genetic Algorithms II*, 127–140. (8)

82. Goldberg, D. E., **Deb, K.**, and Clark, J. H. (1992). Genetic algorithms, noise, and the sizing of populations. *Complex Systems, 6*, 333–362. (**162**)

83. Wilson, H., **Deb, K.** and Singh, D. (1992). Numerical accuracy in the integration of cable dynamics equations. *International Journal of Nonlinear Mechanics, 27*(5), 795–804. (2)

84. **Deb, K.** (1991). Optimal design of a welded beam structure via genetic algorithms, *AIAA Journal, 29*(11), 2013–2015. (**40**)

85. Goldberg, D. E. and **Deb, K.** (1991). A comparison of selection schemes used in genetic algorithms, *Foundations of Genetic Algorithms, I*, 69-93. (**314**)

86. Goldberg, D. E., **Deb, K.** and Korb, B. (1990). Messy genetic algorithms revisited: Studies in mixed size and scale. *Complex Systems, 4*, 415–444. (**46**)

87. Goldberg, D. E., Korb, B., and **Deb, K.** (1989). Messy genetic algorithms: Motivation, analysis, and first results, *Complex Systems, 3*, 493–530. (**239**)

88. Wilson, H. and **Deb, K.** (1990). Evaluation of high order single step integrators for structural response calculations, *Journal of Sound and Vibration, 141*(1), 55–70. (1)

89. Wilson, H. and **Deb, K.** (1989). Inertial properties of tapered cylinders and partial volumes of revolution, *Computer Aided Design, 21*(7), 456–462. (1)

Papers in Journals (ACCEPTED)

1. **Deb, K.**, Miettinen, K. and Chaudhuri, S. (in press). Towards an Estimation of Nadir Objective Vector Using a Hybrid of Evolutionary and Local Search Approaches. *IEEE Transacations on Evolutionary Computation*. IEEE Press.

2. **Deb, K.** and Sinha, A. (in press). An Efficient and Accurate Solution Methodology for Bilevel Multi-Objective Programming Problems Using a Hybrid Evolutionary-Local-Search Algorithm. *Evolutionary Compuation Journal*. MIT Press.

3. **Deb, K.**, Gupta, S., Daum, D., Branke, J., Mall, A., and Padmanabhan, D. (in press). Reliability-Based Optimization Using Evolutionary Algorithms. *IEEE Transacations on Evolutionary Computation*. IEEE Press.

4. Kudikala, R., **Deb, K.**, and Bhattacharya, B. (in press). Multi-Objective Optimization of Piezoelectric Actuator Placement for Shape Control of Plates Using Genetic Algorithms. *ASME Journal of Mechanical Design*.

5. Chaudhuri, S. and **Deb, K.**. (in press). An Interactive Evolutionary Multi-Objective Optimization and Decision Making Procedure. *Applied Soft Computing Journal*, DOI: 10.1016/j.asoc.2009.08.019. Elsevier.

Book Chapters and Society Magazines

1. **Deb, K.** (2009). Evolution's Niche in Multi-Criterion Problem Solving. In A. Lewis, S. Mostaghim and M. Randall (eds.) *Biologically-inspired Optimisation Methods: Parallel Algorithms, Systems and Applications*. Heidelberg: Springer. (pp. 1–xx).

2. **Deb, K.** and Srinivasan, A. (2008). Innovization: Discovery of innovative design principles through multiobjective evolutionary optimization. In J. Knowles, D. Corne and K. Deb (eds.) *Multiobjective Problem Solving from Nature: From Concepts to Applications*. Berlin: Springer, (pp. 243–262).

3. Knowles, J., Corne, D. and **Deb, K.** (2008). Introduction: Problem Solving, EC, and EMO. In J. Knowles, D. Corne and K. Deb (eds.) *Multiobjective Problem Solving from Nature: From Concepts to Applications*. Berlin: Springer, (pp. 1–28).

4. Brockhoff, D., Saxena, D., **Deb, K.**, Zitzler, E. (2008). On handling a large number of objectives: A posteriori and during optimization. In J. Knowles, D. Corne and K. Deb (eds.) *Multiobjective Problem Solving from Nature: From Concepts to Applications*. Berlin: Springer, (pp. 377–403).

5. **Deb, K.** and Nain, P. K. S. (2007). An evolutionary multi-objective meta-modeling procedure using artificial neural networks. In S. Yang, Y.-S. Ong, and Y. Jin (eds.) *Evolutionary Computation in Dynamic and Uncertain Environments*. Springer, (pp. 297–322).

6. **Deb, K.** (2006). Multi-objective optimization. In E, Burke, G. Kendall, *Search Methodologies: Introductory Tutorials in Optimization and Decision Support Techniques*, Springer, (pp. 273–316).

7. **Deb, K.** and Chaudhuri, S. (2005). Automated discovery of innovative designs of mechanical components using evolutionary multi-objective algorithms. In N. Nedjah and L. Mourelle (eds.) *Evolutionary Machine Design: Methodology & Applications*, Hauppauge, NY: Nova Science Publishers, (pp. 139-164).

8. **Deb, K.**, Thiele, L., Laumanns, M. and Zitzler, E. (2005). Scalable test problems for evolutionary multi-objective optimization. In A. Abraham, L. Jain and R. Goldberg (eds.) *Evolutionary Computation Based Multi-Criteria Optimization: Theoretical Advances and Applications* under the book series 'Advanced Information and Knowledge Processing', London, UK: Springer-Verlag. (pp. 105–145). (**28**)

9. **Deb, K.** and Jain, S. (2004). Evaluating evolutionary multi-objective optimization algorithms using running performance metrics. In K. C. Tan, M. H. Lim, X. Yao, and L. Wang (eds.) *Recent Advances in Simulated Evolution and Learning*, Singapore: World Scientific Publishers. (pp. 307–326).

10. **Deb, K.** (2004). Genetic algorithms for optimization. In D. Kundu and A. Basu (eds.) *Statistical Computing: Existing Methods and Recent Developments*. New Delhi, India: Narosa Publishing House, (pp. 85–123).

11. Branke, J. and **Deb, K.** (2004). Integrating user preferences into evolutionary multi-objective optimization. In Y. Jin (ed.) *Knowledge Incorporation in Evolutionary Computation* under the book series on 'Studies in Fuzziness and Soft Computing, Vol. 167', Heidelberg: Springer-Verlag, (pp. 461–477).

12. **Deb, K.** (2003). An introduction to genetic algorithms for engineering optimization. In G. C. Onwubolu and B. V. Babu (eds.) *New Optimization Techniques in Engineering (NOTIE)*, Springer.

13. Corne, D.W., **Deb, K.**, Fleming, P.J., Knowles, J.D. (2003). The Good of the Many Outweights the Good of the One: Evolutionary Multiobjective Optimization, *IEEE Newsletter: coNNectionS*, 1(1), (pp. 9–13). (8)

14. **Deb, K.** (2003). Multi-objective evolutionary algorithms: Introducing bias among Pareto-optimal solutions. In A. Ghosh and S. Tsutsui (Eds.) *Advances in Evolutionary Computing: Theory and Applications*, Chapter 10. London: Springer-Verlag. (pp. 263–292). (9)

15. **Deb, K.** and Goel, T. (2002). Multi-objective evolutionary algorithms for engineering shape design. In R. Sarker, M. Mohammadian and X. Yao (Eds.) *Evolutionary Optimization*, Kluwer Academic Press. 147–175.

16. **Deb, K.** (2000). Multi-objective evolutionary optimization: Past, present and future. In I. C. Parmee (ed.) *Evolutionary Design and Manufacture*, London: Springer, (pp. 225–236).

17. **Deb, K.** (1999). Genetic algorithms. In John G. Webster (Ed.) *Encyclopedia of Electrical and Electronics Engineering, Vol. 8*. New York: Wiley, (pp. 308–320).

18. **Deb, K.** (1997). Mechanical component design using genetic algorithms. *Evolutionary algorithms in engineering applications* (Eds. Dipankar Dasgupta and Z. Michalewicz) New York: Springer-Verlag (pp. 495–512). (**29**)

19. **Deb, K.** (1996). Genetic algorithms for function optimization. *Genetic algorithms and Soft Computing*. (Eds. F. Herrera and J. L. Verdegay) Physica-Verlag (pp. 3–29). (7)

Technical Reports With Web of Science Citations

1. Kukkonen, S. and **Deb, K.** (2007). A Fast and Effective Method of Pruning of Non-Dominated Solutions in Many Objective Problems. *KanGAL Report No. 2007004*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (1)

2. **Deb, K.**, Tewari, R., Dixit, M. and Dutta, J. (2007). Finding Trade-off Solutions Close to KKT Points Using Evolutionary Multi-Objective Optimization. *KanGAL Report No. 2007006*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (1)

3. **Deb, K.**, Sinha, A. and Kukkonen, S. (2006). Multi-Objective Test Problems, Linkages, and Evolutionary Methodologies. *KanGAL Report No. 2006001*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (1)

4. **Deb, K.**. (2006). Evolutionary Multi-Objective Optimization Without Additional Parameters. *KanGAL Report No. 2006003*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (1)

5. **Deb, K.** and Chaudhuri, S. (2005). I-EMO: An Interactive Evolutionary Multi-Objective Optimization Tool. *KanGAL Report No. 2005003*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (3)

6. **Deb, K.** and Saxena, D. (2005). On Finding Pareto-Optimal Solutions Through Dimensionality Reduction for Certain Large-Dimensional Multi-Objective Optimization Problems. *KanGAL Report No. 2005011*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (2)

7. **Deb, K.** and Tiwari, S. (2004). Omni-Optimizer: A Procedure for Single and Multi-Objective Optimization. *KanGAL Report No. 2004013*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (1)

8. **Deb, K.** and Gupta, H. (2004). Introducing Robustness in Multi-Objective Optimization. *KanGAL Report No. 2004016*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (9)

9. **Deb, K.** and Reddy, A. R. (2003). Classification of Two-Class Cancer Data Reliably Using Evolutionary Algorithms. *KanGAL Report No. 2003001*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (2)

10. **Deb, K.**, Mohan, M. and Mishra, S. (2003). A Fast Multi-objective Evolutionary Algorithm for Finding Well-Spread Pareto-Optimal Solutions. *KanGAL Report No. 2003002*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (**44**)

11. **Deb, K.** (2003). A Population-Based Algorithm-Generator for Real-Parameter Optimization. *KanGAL Report No. 2003003*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (3)

12. **Deb, K.** and Reddy, A. R. (2003). Classification of Two and Multi-Class Cancer Data Reliably Using Multi-Objective Evolutionary Algorithms. *KanGAL Report No. 2003006*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (3)

13. **Deb, K.** and Jain, S. (2002). Multi-Speed Gearbox Design Using Multi-Objective Evolutionary Algorithms. *KanGAL Report No. 2002001*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (2)

14. **Deb, K.**, Reddy, A. R., and Singh, G (2002). Optimal Scheduling of Casting Sequence Using Genetic Algorithms. *KanGAL Report No. 2002002*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (1)

15. **Deb, K.**, Anand, A., and Joshi, D (2002). A Computationally Efficient Evolutionary Algorithm for Real-Parameter Optimization. *KanGAL Report No. 2002003*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (**14**)

16. **Deb, K.** and Jain, S. (2002). Running performance metrics for evolutionary multi-objective optimization. *KanGAL Report No. 2002004*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (**20**)

17. **Deb, K.**, Jain, P., Gupta, N. and Maji, H. (2002). Multi-Objective Placement of Electronic Components Using Evolutionary Algorithms. *KanGAL Report No. 2002006*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (1)

18. **Deb, K.** (2002). Unveiling Innovative Design Principles By Means of Multiple Conflicting Objectives. *KanGAL Report No. 2002007*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (2)

19. **Deb, K.**, Zope, P. and Jain, A. (2002). Distributed Computing of Pareto-Optimal Solutions Using Multi-Objective Evolutionary Algorithms. *KanGAL Report No. 2002008*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (4)

20. Laumanns, M., Thiele, L. **Deb, K.**, Zitzler, E. (2001). On the Convergence and Diversity-Preservation Properties of Multi-Objective Evolutionary Algorithms. *TIK Report No. 108*, Computer Engineering and Networks Laboratory(TIK), Swiss Federal Institute of Technology (ETH) Zurich.

21. **Deb, K.**, Thiele, L., Laumanns, M. and Zitzler, E. (2001). Scalable Test Problems for Evolutionary Multi-Objective Optimization. *TIK Report Nr. 112*, Computer Engineering and Networks Laboratory (TIK), Swiss Federal Institute of Technology (ETH) Zurich. (Also KanGAL Report Number 2001001). (**47**)

22. **Deb, K.** (2001). Genetic Algorithms for Optimization. *KanGAL Report Number 2001002*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (5)

23. **Deb, K.**, Joshi, D. and Anand, A. (2001). Real Coded Evolutionary Algorithms with Parent Centric Recombination. *KanGAL Report Number 2001003*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (9)

24. **Deb. K**, Pratap, A., Agarwal, S. and Meyarivan, T. (2000). A Fast and Elitist Multi-Objective Genetic Algorithm: NSGA-II. *KanGAL Report Number 200001*. Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (**111**)

25. **Deb, K.**, Pratap, A. and Moitra, S. (2000). Mechanical Component Design for multi-objective using Elitist non-dominated sorting GA. *KanGAL Report No. 200002*. Kanpur: Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (**13**)

26. **Deb, K.** and Goel, T. (2000). Multi-Objective Evolutionary Algorithms for Engineering Shape Design. *KanGAL Report No. 200003*. Kanpur: Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (2)

27. **Deb, K.** and Goel, T. (2000). Controlled Elitist Non-dominated Sorting Genetic Algorithms for Better Convergence. *KanGAL Report No. 200004*. Kanpur: Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (6)

28. **Deb, K.**, Pratap, A., and Meyarivan, T. (2000). Constrained Test Problems for Multi-Objective Evolutionary Optimization. *KanGAL Report No. 200005*. Kanpur: Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (3)

29. **Deb, K.** and Gulati, S. (1999). Design of truss-structures for minimum weight using genetic algorithms. *KanGAL Report No. 99001*. Kanpur: Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (3)

30. **Deb, K.** (1999). Multi-objective evolutionary algorithms: Introducing bias among Pareto-optimal solutions. *KanGAL Report No. 99002*. Kanpur: Kanpur Genetic Algorithms Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India. (**13**)

31. **Deb, K.** and Beyer, H.-G. (1999). Self-adaptive genetic agorithms with simulated binary crossover. *Technical Report Number CI-61/99*, LS11: University of Dortmund, Germany. (8)

32. **Deb, K**. (1999). Non-linear goal programming using multi-objective genetic algorithms. *Technical Report Number CI-60/99*, LS11: University of Dortmund, Germany. (1)

33. **Deb, K.** (1998). Multi-objective genetic algorithms: Problem difficulties and construction of test problems. *Technical Report No. CI-49/98*. Collaborative Research Centre 531, University of Dortmund, Germany. (**17**)

34. **Deb, K.** (1998). Multi-objective genetic algorithms: Problem difficulties and construction of test problems. *Technical Report Number CI-49/98*, LS11: University of Dortmund, Germany. (7)

35. **Deb, K.** and Agrawal, R. B. (1994). Simulated Binary Crossover for Real-parameter Optimization. *SMD Paper Number 2004001*. Kanpur: Department of Mechanical Engineering, Indian Institute of Technology Kanpur. (4)

36. **Deb, K.**, Horn J., and Goldberg, D. E. (1992). Multimodal deceptive functions. *IlliGAL Report No. 92003*. Illinois Genetic Algorithms Laboratory, University of Illinois at Urbana-Champaign, USA. (3)

37. **Deb, K.** (1991). Binary and floating-point function optimization using messy genetic algorithms. *IlliGAL Report No. 91004*. Illinois Genetic Algorithms Laboratory, University of Illinois at Urbana-Champaign, USA. (**17**)

38. **Deb, K.** and Goldberg, D. E. (1991). mGAinC: A messy genetic algorithm in C. *IlliGAL Report No. 91008*. Illinois Genetic Algorithms Laboratory, University of Illinois at Urbana-Champaign, USA. (2)

39. **Deb, K.** and Goldberg, D. E. (1991) Analyzing deception in trap functions. *IlliGAL Report No. 91009*. Illinois Genetic Algorithms Laboratory, University of Illinois at Urbana-Champaign, USA. (8)

40. **Deb, K.** (1989). Multi-modal function optimization using genetic algorithms. *TCGA Report No. 89002*. The Clearinghouse of Genetic Algorithms, University of Alabama, Tuscaloosa, USA. (**35**)

Papers Published in Conference Proceedings

1. **Deb, K.** and Sinha, A. (2009). Constructing test problems for bilevel evolutionary multi-objective optimization. *Proceedings of the Congress on Evolutionary Computation (CEC-2009)*. Piscatway, NJ: IEEE Press. (pp. 1153–1160).

2. Sindhya, K., **Deb, K.**, and Miettinen, K. (2009). Search based evolutionary multi-objective optimization algorithm for constrained and unconstrained problems. *Proceedings of the Congress on Evolutionary Computation (CEC-2009)*. Piscatway, NJ: IEEE Press. (pp. 2919–2626).

3. Kodali, S., **Deb, K.**, Munshi, P., and Kishore, N. N. (2009). Comparing GA with MART to tomographic reconstruction of ultrasound images With and without noisy input data. *Proceedings of the Congress on Evolutionary Computation (CEC-2009)*. Piscatway, NJ: IEEE Press. (pp. 2963–2970).

4. Saxena, D., **Deb, K.**, and Ray, T. (2009). Constrained many-objective optimization: A way forward. *Proceedings of the Congress on Evolutionary Computation (CEC-2009)*. Piscatway, NJ: IEEE Press. (pp. 545–552).

5. Cabello, J. M., Cejudo, J. M., Luque, M., Ruiz, F., Deb, K. Tewari, R. (2009). Optimization of the sizing of a solar thermal electricity plant: Mathematical programming versus genetic algorithms, *Proceedings of the Congress on Evolutionary Computation (CEC-2009)*. Piscatway, NJ: IEEE Press. (pp. 1193–1200).

6. Tiwari, S., Fadel, G., Koch, P. and **Deb, K.** (2009). Performance assessment of the hybrid archive-based micro genetic algorithm (AMGA) on the CEC09 test problems. *Proceedings of the Congress on Evolutionary Computation (CEC-2009)*. Piscatway, NJ: IEEE Press. (pp. 1935–1942).

7. **Deb, K.** and Sinha, A. (2009). Solving multi-objective bilevel optimization problems using evolutionary algorithms. *Proceedings of Fifth International Conference on Multi-Criterion Optimization (EMO-2009)*. . (pp. 110–124).

8. **Deb, K.**, Miettinen, K., and Sharma, D. (2009). A hybrid integrated multi-objective optimization procedure for estimating nadir point. *Proceedings of Fifth International Conference on Multi-Criterion Optimization (EMO-2009)*. (pp. 569–583).

9. **Deb, K.** and Sinha, A. (2009). An evolutionary approach for bilevel multi-objective problems. *Proceedings of 20th International Conference on Multiple Criteria Decision Making (MCDM-09)*, (Also Communications in Computer and Infomation Science No. 35 entitled 'Cutting-Edge Research Topics on Multiple Criteria Decision Making') Berlin: Springer, (Chengdu, China). (pp. 17–24).

10. **Deb, K.** (2008). Evolutionary multi-objective optimization and decision making. *Proceedings of the Bioinspired Optimization Methos and Their Applications*, Ljubljana, Slovenia: Jozef Stefan Institute Press. (Ljubljana, Slovenia). (pp. 3–15).

11. **Deb, K.** (2008). A robust evolutionary framework for multi-objective optimization. *Proceedings of Genetic and Evolutionary Computation conference (GECCO-2008)*, (Atlanta, USA). (pp. 633–640).

12. Sindhya, K., **Deb, K.**, and Miettinen, K. (2008). A local search based evolutionary multi-objective optimization technique for fast and accurate convergence. *Proceedings of the Parallel Problem Solving From Nature (PPSN-2008)*, (Dortmund, Germany), Berlin, Germany: Springer-Verlag, (pp. 815–824).

13. Kodali, S. P., Bandaru, S., **Deb, K.**, Munshi, P., and Kishore, N. N. (2008). Applicability of Genetic Algorithms to Reconstruction of Projected Data from Ultrasonic Tomography. *Proceedings of Genetic and Evolutionary Computation conference (GECCO-2008)*, (Atlanta, USA). (pp. 1705–1706).

14. Bhatt, A., Varshney, P., and **Deb, K.** (2008). In search of no-loss strategies for the game of Tic-Tac-Toe using a customized genetic algorithm. *Proceedings of Genetic and Evolutionary Computation conference (GECCO-2008)*, (Atlanta, USA). (pp. 889–896).

15. Tiwari, S., Koch, P., Fadel, G. and **Deb, K.** (2008). AMGA: An archive-based micro genetic algorithm for multi-objective optimization. *Proceedings of Genetic and Evolutionary Computation conference (GECCO-2008)*, (12-16 July, 2008, Atlanta, USA). (pp. 729–736).

16. Sharma, D. and **Deb, K.**, and Kishore, N. N. (2008). A domain-specific crossover and a helper objective for generating minimum weight compliant mechanisms. *Proceedings of Genetic and Evolutionary Computation conference (GECCO-2008)*, (Atlanta, USA). (pp. 1723–1724).

17. Madetoja, E., Ruotsalainen, H., Mnkknen, V.-M., Hmlinen, J., and **Deb, K.** (2008). Visualizing multi-dimensional Pareto-optimal fronts with a 3D virtual reality system. *Proceedings of the International Multiconference on Computer Science and Information Technology*, Volume 3. (Wisa, Poland). (pp.907-913).

18. **Deb, K.** and Sindhya, K. (2008). Deciphering innovative principles for optimal electric brushless D.C. permanent magnet motor design. *Proceedings of the World Congress on Computational Intelligence (WCCI-2008)*, (Hong Kong), Piscatway: IEEE Press, (pp. 2283–2290).

19. Saxena, D. and **Deb, K.** (2008). Dimensionality reduction of objectives and constraints in multi-objective optimization problems: A system design perspective. *Proceedings of the World Congress on Computational Intelligence (WCCI-2008)*, (Hong Kong), Piscatway: IEEE Press, (pp. 3203-3210).

20. Sharma, D. and **Deb, K.**, and Kishore, N. N. (2008). Towards generating diverse topologies of path tracing compliant mechanisms using a local search based multi-objective genetic algorithm procedure. *Proceedings of the World Congress on Computational Intelligence (WCCI-2008)*, (Hong Kong), Piscatway: IEEE Press, (pp. 2004–2011).

21. Sathe, M., Rudolph, G. and **Deb, K.** (2008). Design and validation of a hybrid interactive reference point method for multi-objective optimization. *Proceedings of the World Congress on Computational Intelligence (WCCI-2008)*, (Hong Kong), Piscatway: IEEE Press, (pp. 2914–2921).

22. **Deb, K.**, Tiwari, R., Dixit, M., and Dutta, J. (2007). Finding trade-off solutions close to KKT points using evolutionary multi-objective optimisation. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 2109–2116).

23. **Deb, K.** and Kumar, A. (2007). Light beam search based multi-objective optimisation using evolutionary algorithms. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 2125–2132).

24. Mittal, S. and **Deb, K.** (2007). Three-dimensional offline path planning for UAVs using multi-objective evolutionary algorithms. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 3195–3202).

25. Avigad, G. and **Deb, K.** (2007). The sequential optimisation-constraint multi-objective problem and its applications for robust planning of robot paths. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 2101–2108).

26. Sharma, D., Kumar, A., Sindhya, K., and **Deb, K.** (2007). Hybridization of SBX based NSGA-II and sequential quadratic programming for solving multi-objective optimisation problems. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 3003–3010).

27. Kumar, A., Sharma. D., and **Deb, K.** (2007). A hybrid multi-objective optimisation procedure using PCX based NSGA-II and sequential quadratic programming. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 3010–3018).

28. Anand, A., Suganthan, P., and **Deb, K.** (2007). A novel fuzzy and multi-objective evolutionary algorithm based gene assignment for clustering short time series expression data. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 297–304).

29. Daum, D., **Deb, K.**, and Branke, J. (2007). Reliability-based optimisation for multiple constraints with evolutionary algorithms. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 911–918).

30. Saxena, D. and **Deb, K.** (2007). Trading on infeasibility by exploiting constraints criticality through multi-objectivization: A system design perspective. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 919–926).

31. Garrett, A., **Deb, K.**, and Dozier, G. (2007). NEMO: Neural enhancement for multi-objective optimisation. *Proceedings of the Congress on Evolutionary Computation (CEC-2007)*, (Singapore), (pp. 3108–3113).

32. **Deb, K.**, Padhye, N., and Neema, G. (2007). Interplanetary Trajectory Optimization with Swing-bys Using Evolutionary Multi-Objective Optimization. In L. Kang, Y. Liu, and S. Zeng (eds.) *Proceedings of the Second International Symposium on Intelligence Computation and Application (ISICA-2007)*, LNCS 4683, (Wuhan, China). (pp. 26–35).

33. **Deb, K.**, Lele, S., and Datta, R. (2007). A Hybrid Evolutionary Multi-objective and SQP Based Procedure for Constrained Optimization. In L. Kang, Y. Liu, and S. Zeng (eds.) *Proceedings of the Second International Symposium on Intelligence Computation and Application (ISICA-2007)*, LNCS 4683, (Wuhan, China). (pp. 36–45).

34. **Deb**, K. and Kumar, A. (2007). Interactive evolutionary multi-objective optimization and decision-making using reference direction method. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO-2007)*, New York: The Association of Computing Machinery (ACM), (London, UK), (pp. 781–788).

35. **Deb, K.**, Karthik, S. and Okabe, T. (2007). Self-adaptive simulated binary crossover for real-parameter optimization. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO-2007)*, UCL London (July 7-11, 2007). New York: The Association of Computing Machinery (ACM), (London, UK), (pp. 1187–1194).

36. **Deb, K.** and Chaudhuri, S. (2007). I-MODE: An Interactive Multi-Objective Optimization and Decision-Making using Evolutionary Methods, *Proceedings of the Fourth International Conference on Evol. Multi-Criterion Optimization (EMO-2007)*, 5-8 March, Sendai, Japan. (LNCS, Springer) (pp. 788–802)

37. **Deb, K.**, Rao, U. B. and Karthik, S. (2007). Dynamic Multi-Objective Optimization and Decision-Making Using Modified NSGA-II: A Case Study on Hydro-Thermal Power Scheduling Bi-Objective Optimization Problems. *Proceedings of the Fourth International Conference on Evol. Multi-Criterion Optimization (EMO-2007)*, 5-8 March, Sendai, Japan. (LNCS, Springer) (803–817) (3)

38. **Deb, K.**, Padmanabhan, D., Gupta, S. and Mall, A. K. (2007). Reliability-Based Multi-Objective Optimization Using Evolutionary Algorithms. *Proceedings of the Fourth International Conference on Evol. Multi-Criterion Optimization (EMO-2007)*, 5-8 March, Sendai, Japan. (LNCS, Springer) (pp. 66–80)

39. Datta, D., **Deb, K.** and Fonseca, C. M. (2007). Multi-Objective Evolutionary Algorithms for Resource Allocation Problems. *Proceedings of the Fourth International Conference on Evol. Multi-Criterion Optimization (EMO-2007)*, 5-8 March, Sendai, Japan. (LNCS, Springer) (pp. 401–416)

40. Saxena, D. K. and **Deb, K.** (2007). Non-linear Dimensionality Reduction Procedures for Certain Large-Dimensional Multi-Objective Optimization Problems: Employing Correntropy and a Novel Maximum Variance Unfolding. *Proceedings of the Fourth International Conference on Evol. Multi-Criterion Optimization (EMO-2007)*, 5-8 March, Sendai, Japan. (LNCS, Springer) (pp. 772–787)

41. **Deb, K.** and Saxena, D. (2006). Searching For Pareto-Optimal Solutions Through Dimensionality Reduction for Certain Large-Dimensional Multi-Objective Optimization Problems. *Proceedings of the World Congress on Computational Intelligence (WCCI-2006)* (IEEE Press). Vancouver, Canada. (pp. 3352–3360) (4)

42. Sinha, A., Srinivasan, A. and **Deb, K.** (2006). A Population-Based, Parent Centric Procedure for Constrained Real-Parameter Optimization. *Proceedings of the World Congress on Computational Intelligence (WCCI-2006)* (IEEE Press). Vancouver, Canada. (pp. 943–949).

43. Deshwal, P. and **Deb, K.** (2006). Ergonomic Design of an Optimal Hindi Keyboard for Convenient Use. *Proceedings of the World Congress on Computational Intelligence (WCCI-2006)* (IEEE Press). Vancouver, Canada. (pp. 7951–7958).

44. King, R. T., Rughooputh, H. C. S. and **Deb, K.** (2006). Reliability-Based Stochastic Evolutionary Multi-Objective Environmental/Economic Dispatch. *Proceedings of the World Congress on Computational Intelligence (WCCI-2006)* (IEEE Press). Vancouver, Canada. (pp. 3369–3376).

45. Kukkonen, S. and **Deb, K.** (2006). Improved Pruning of Non-Dominated Solutions Based on Crowding Distance for Bi-Objective Optimization Problems. *Proceedings of the World Congress on Computational Intelligence (WCCI-2006)* (IEEE Press). Vancouver, Canada, (pp. 3905–4002).

46. **Deb, K.** and Srinivasan, A. (in press). Monotonicity analysis, evolutionary multi-objective optimization, and discovery of design principles. *Proceedings of the Bio-Inspired Computing: Theory and Applications*. Wuhan: China (September 18-22, 2006).

47. Bui L. T, **Deb K.**, Abbass H. A. (2006). Dual guidance in evolutionary multi-objective optimization by localization *Proceedings of the Simulated Evolution and Learning*. Lecture Notes in Computer Science (LNCS) 4247. (pages 384–391).

48. Kukkonen S. and **Deb K.** (2006). A fast and effective method for pruning of non-dominated solutions in many-objective problems. *Proceedings of the Parallel Problem Solving from Nature (PPSN) Conference*, Lecture Notes in Computer Science (LNCS) 4193. (pages 553–562).

49. **Deb, K.**, Chaudhuri, S. and Miettinen, K. (2006). Towards estimating nadir objective vector using evolutionary approaches. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO-2006)*, New York: The Association of Computing Machinery (ACM), (pp. 643–650).

50. **Deb, K.** and Srinivasan, A. (2006). Innovization: Innovating design principles through optimization. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO-2006)*, New York: The Association of Computing Machinery (ACM), (pp. 1629–1636) (4)

51. **Deb, K.** and Sundar, J. (2006). Reference point based multi-objective optimization using evolutionary algorithms. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO-2006)*, New York: The Association of Computing Machinery (ACM), (pp. 635–642) (5)

52. **Deb, K.**, Sinha, A. and Kukkonen, S. (2006). Multi-objective test problems, linkages and evolutionary methodologies. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO-2006)*, New York: The Association of Computing Machinery (ACM), (pp. 1141–1148) (**11**)

53. Singh, G. and **Deb, K.** (2006). Comparison of multi-modal optimization algorithms based on evolutionary methodologies. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO-2006)*, New York: The Association of Computing Machinery (ACM), (pp. 1305–1312).

54. Mittal, S. and **Deb, K.** (2006). Optimal strategies of the iterated prisoner's dilemma problem for multiple conflicting objectives. *2006 IEEE Symposium on Computational Intelligence and Games*, Piscataway, NJ: IEEE Press, (pp. 197–204).

55. **Deb, K.** (2006). Practical optimization using evolutionary methods. *International Workshop on Neural Networks and Genetic Algorithm in Material Science and Engineering*, New Delhi: Tata-McGraw-Hill. (pp. 26–43).

56. **Deb, K.** and Chaudhuri, S. (2005). I-EMO: An interactive evolutionary multi-objective optimization tool. *Proceedings of the First International Conference on Pattern Recognition and Machine Intelligence (PReMI'05)*. Berlin: Springer, (pp. 690–695). (1)

57. Gupta, H. and **Deb, K.** (2005). Handling constraints in robust multi-objective optimization. *Proceedings of the Congress on Evolutionary Computation (CEC-05)*. IEEE Press. (pp. 25–32).

58. Sinha, A., Tiwari, S., and **Deb, K.** (2005). A population-based, steady-state procedure for real-parameter optimization. *Proceedings of the Congress on Evolutionary Computation (CEC-05)*. IEEE Press. (pp. 514–521). (1)

59. **Deb, K.** and Tiwari, S. (2005). Omni-Optimizer: A procedure for single and multi-objective optimization. *Proceedings of the Third International Conference on Evolutionary Multi-Criterion Optimization (EMO-2005).* Guanajuato, Mexico. Lecture Notes on Computer Science 3410, (pp. 41–65). (8)

60. **Deb, K.** and Gupta, H. (2005). Searching for robust Pareto-optimal solutions in multi-objective optimization. *Proceedings of the Third International Conference on Evolutionary Multi-Criterion Optimization (EMO-2005).* Guanajuato, Mexico. Lecture Notes on Computer Science 3410, (pp. 150–164). (**12**)

61. Shukla, P. and **Deb, K.** (2005). Comparing classical generating methods with an evolutionary multi-objective optimization method. *Proceedings of the Third International Conference on Evolutionary Multi-Criterion Optimization (EMO-2005).* Guanajuato, Mexico. Lecture Notes on Computer Science 3410, (pp. 311-325). (7)

62. King, R. T. F., Rughooputh, H. C. S. and **Deb, K.** (2005). Evolutionary multi-objective environmental/economic dispatch: Stochastic versus deterministic approaches. *Proceedings of the Third International Conference on Evolutionary Multi-Criterion Optimization (EMO-2005).* Guanajuato, Mexico. Lecture Notes on Computer Science 3410, (pp. 677-691).

63. Datta, D. and Deb, K. (2005). Design of optimum cross-sections for load-carrying members using multi-objective evolutionary algorithms, *Proceedings of International Conference on Systemics, Cybernetics and Informatics (ICSCI)*, Vol. 1, (pp. 571–577).

64. Branke, J., **Deb, K.**, Dierolf, H., and Osswald, M. (2004). Finding knees in multi-objective optimization, In *Parallel Problem Solving from Nature (PPSN-VIII)*, LNCS 3242, Springer, (pp. 722–731).

65. **Deb, K.** and Pal. K. (2004). Solving large-scale integer linear programs using a customized genetic algorithm. *Proceedings of the Genetic and Evolutionary Computation Conference, GECCO-2004.* Seattle, 26-30 June, (pp. 1054–1065). (Also Lecture Notes in Computer Science (LNCS) 3102). (1)

66. **Deb, K.** and Gupta, N. (2004). Optimal operating conditions for overhead crane maneuvering using multi-objective evolutionary algorithms. *Proceedings of the Genetic and Evolutionary Computation Conference, GECCO-2004.* Seattle, 26-30 June, (pp. 1042–1053). (Also Lecture Notes in Computer Science (LNCS) 3102). (3)

67. **Deb, K.**, Mitra, K., Dewri, R. and Majumdar, S. (2004). Unveiling optimal operating conditions for an epoxy polymerization process using multi-objective evolutionary computation. *Proceedings of the Genetic and Evolutionary Computation Conference, GECCO-2004.* Seattle, 26-30 June, (pp. 920–931). (Also Lecture Notes in Computer Science (LNCS) 3102). (1)

68. Branke, J., Schmeck, H., **Deb, K.** and Reddy. M. (2004). Parallelizing multi-objective evolutionary algorithms: Cone separation. *Proceedings of the Congress on Evolutionary Computation (CEC-2004).* (pp. 1952–1957).

69. Stanley Y. M. Shi, Suganthan, P. N. and **Deb, K.** (2004). Multi-class protein fold recognition using multi-objective evolutionary algorithms. *Proceedings of the IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB'04)*, (pp. 61–66).

70. **Deb, K.** and Reddy, A. R. (2003). Large-Scale Scheduling of Casting Sequences Using a Customized Genetic Algorithm. *Proceedings of the 6th International Conference on Artificial Evolution (EA-2003)*. Marseille, France. (pp. 248–259). (Also appeared in LCNS-2936: pages 141-152, 2004) (1)

71. Nain, P. K. S. and **Deb, K.** (2003). Computationally effective search and optimization procedure using coarse to fine approximations. *Proceedings of the Congress on Evolutionary Computation (CEC-2003)*, Canberra, Australia, (pp. 2081–2088). (4)

72. **Deb, K.**, Chaudhuri, S., Jain, P., Naveen, G., and Maji, H. (2003). Revealing useful design principles by means of multiple conflicting objectives. *International Congress on Evolutionary Methods for Design, Optimization and Control with Applications to Industrial Problems (EUROGEN 2003)*. Barcelona, Spain.

73. Meena, B. R., Gupta, H., Bandyopadhyay, P., **Deb, K.** and Adimurthy, V. (2003). Robust estimation of aerospace propulsion parameters using optimization techniques based on evolutionary algorithms. *54th International Astronautical Congress of the International Astronautical Federation, the International Academy of Astronautics, and the International Institute of Space Law*, Bremen, Germany.

74. **Deb, K.** , Zope, P. and Jain, A. (2003). Distributed Computing of Pareto-Optimal Solutions Using Multi-Objective Evolutionary Algorithms. *Proceedings of the Second Evolutionary Multi-Criterion Optimization (EMO-03) Conference*, 8-11 April, Faro, Portugal. (pp. 535–549). (Also Lecture Notes in Computer Science (LNCS) 2632). (9)

75. **Deb, K.**, Mohan, M. and Mishra, S. (2003). Towards a quick computation of well-spread Pareto-optimal solutions. *Proceedings of the Second Evolutionary Multi-Criterion Optimization (EMO-03) Conference*, 8-11 April, Faro, Portugal. (pp. 222–236). (Also Lecture Notes in Computer Science (LNCS) 2632). (**27**)

76. Reddy, A. R. and **Deb, K.** . (2003). Identification of Multiple Gene Clusters Using Multi-Objective Evolutionary Algorithms. *Proceedings of the Second Evolutionary Multi-Criterion Optimization (EMO-03) Conference*, 8-11 April, Faro, Portugal. (pp. 623–637). (Also Lecture Notes in Computer Science (LNCS) 2632). (2)

77. Khare, V., Yao, X. and **Deb, K.** . (2003). Performance Scaling of Multi-objective Evolutionary Algorithms. *Proceedings of the Second Evolutionary Multi-Criterion Optimization (EMO-03) Conference*, 8-11 April, Faro, Portugal. (pp. 376–390). (Also Lecture Notes in Computer Science (LNCS) 2632). (**19**)

78. Farina, M., **Deb, K.**, and Amato, P. (2003) Dynamic multiobjective optimization problems: Test cases, approximation and applications. *Proceedings of the Second Evolutionary Multi-Criterion Optimization (EMO-03) Conference*, 8-11 April, Faro, Portugal. (pp. 310–324). (Also Lecture Notes in Computer Science (LNCS) 2632). (3)

79. Abbass, H. and **Deb, K.** (2003). Searching under multi-evolutionary pressures. *Proceedings of the Second Evolutionary Multi-Criterion Optimization (EMO-03) Conference*, 8-11 April, Faro, Portugal. (pp. 391–405). (Also Lecture Notes in Computer Science (LNCS) 2632). (3)

80. **Deb, K.** and Jain, S. (2002). Running performance metrics for evolutionary multi-objective optimization. *Proceedings of the Fourth Asia-Pacific Conference on Simulated Evolution and Learning (SEAL'02)*, (Singapore). (pp. 13–20). (**17**)

81. Goel, T. and **Deb, K.** (2002). Hybrid methods for multi-objective evolutionary algorithms. *Proceedings of the Fourth Asia-Pacific Conference on Simulated Evolution and Learning (SEAL'02)*. (Singapore), (pp. 188–192). (2)

82. **Deb, K.**, Joshi, D., and Anand, A. (2002). Real-coded evolutionary algorithms with parent-centric recombination. *Proceedings of the Congress on Evolutionary Computation (CEC-2002)*. (Honolulu, USA). (pp. 61–66). (7)

83. **Deb, K.**, Thiele, L., Laumanns, M. and Zitzler, E. (2002). Scalable multi-objective optimization test problems. *Proceedings of the Congress on Evolutionary Computation (CEC-2002)*. (Honolulu, USA). (pp. 825–830). (**80**)

84. Laumanns, M., Thiele, L., Zitzler, E., Welzl, E. and Deb, K. (2002). Running time analysis of a multi-objective evolutionary algorithm on a simple discrete optimization problem. *Proceedings of Parellel Problem Solving from Nature (PPSN-VII) Conference*, (LNCS 2439), (pp. 44–53). (2)

85. Jiménez, F., Gómez-Skarmeta, A. F., Sánchez, G. and **Deb, K.** (2002). An evolutionary algorithm for constrained multi-objective optimization. *Proceedings of the Congress on Evolutionary Computation (CEC-2002)*. (Honolulu, USA). (pp. 1133–1138).

86. Mohan, A. and **Deb, K.** (2002). Genetic-fuzzy approach in robot motion planning revisited: Rigorous testing and towards an implementation. *Proceedings of the Advances in Soft Computing Conference (AFSS-2002)*, 3–6 February. (Calcutta, India), (pp. 414–420).

87. **Deb, K.** and Goel, T. (2001) Controlled elitist non-dominated sorting genetic algorithms for better convergence. *Proceedings of the First International Conference on Evolutionary Multi-Criterion Optimization (EMO-2001)*, 7–9 March. (Zürich, Switzerland), (Also LNCS 1993) (pp. 67–81). (**69**)

88. **Deb, K.**, Pratap, A., and Meyarivan, T. (2001). Constrained test problems for multi-objective evolutionary optimization. *Proceedings of the First International Conference on Evolutionary Multi-Criterion Optimization (EMO-2001)*, 7–9 March. (Zürich, Switzerland), (Also LNCS 1993) (pp. 284–298). (**35**)

89. **Deb, K.** and Goel, T. (2001). A hybrid multi-objective evolutionary approach to engineering shape design. *Proceedings of the First International Conference on Evolutionary Multi-Criterion Optimization (EMO-2001)*, 7–9 March. (Zürich, Switzerland), (Also LNCS 1993) (pp. 385–399). (**35**)

90. **Deb, K.**, Pratap, A., Moitra, S. (2000). Mechanical component design for multiple objectives using elitist non-dominated sorting GA. *Proceedings of the Parallel Problem Solving from Nature VI Conference*, 16-20 September. (Paris, France), (pp. 859–868). (**10**)

91. **Deb, K.**, Agrawal, S., Pratap, A., Meyarivan, T. (2000). A Fast Elitist Non-dominated sorting genetic algorithm for multi-objective optimization: NSGA-II. *Proceedings of the Parallel Problem Solving from Nature VI Conference*, 16-20 September. (Paris, France), (pp. 849–858). (**420**)

92. Beyer, H.-G. and **Deb, K.** (2000). On the desired behaviors of self-adaptive evolutionary algorithms. *Proceedings of the Parallel Problem Solving from Nature VI Conference*, 16-20 September. (Paris, France), (pp. 59–68). (1)

93. **Deb, K.** (2000). Multi-objective Evolutionary Algorithms: Past, present, and future. *Proceedings of the Fourth Advanced Computing in Design and Manufacture (ACDM-2000) Conference*, 26-28 April. (Plymouth, UK), (pp. 225–236). (3)

94. **Deb, K.** (2000). Multi-objective evolutionary algorithms. *Tenth National Seminar on Aerospace Structures*, 8–10 December 2000. (Kanpur, India), (pp. 116–130).

95. Goel, T. and **Deb, K.** (2000). Optimal shape design using a hybrid genetic algorithms. *Tenth National Seminar on Aerospace Structures*, 8–10 December 2000. (Kanpur, India), (pp. 138–152).

96. **Deb, K.**, Khan, N. and Jindal, S. (2000). Optimal truss-structure design for multiple objectives. *Tenth National Seminar on Aerospace Structures*, 8–10 December 2000. (Kanpur, India), (pp. 168–180). (1)

97. **Deb, K.** (1999). Construction of test problems for multi-objective optimization. *Proceedings of the Genetic and Evolutionary Computation Conference*. 13-17 July 1999. (Orlando, USA), (pp. 164–171). (2)

98. **Deb, K.** (1999). Solving goal programming problems using multi-objective genetic algorithms. *Proceedings of Congress on Evolutionary Computation*, 6-9 July (Washington DC, USA), (pp. 77–84). (3)

99. **Deb, K.** (1999). Evolutionary Algorithms for Multi-Criterion Optimization in Engineering Design. In K. Miettinen, M. Mäkelä, P. Neittaanmäki, and J. Périaux (Eds.) *Proceedings of Evolutionary Algorithms in Engineering and Computer Science (EUROGEN-99)*, 29 May – 03 June 1999. (Jyväskylä, Finland), (pp. 135–161). (**62**)

100. **Deb, K.** and Agrawal, S. (1999). A niched-penalty approach for constraint handling in genetic algorithms. *Proceedings of the International Conference on Artificial Neural Networks and Genetic Algorithms (ICANNGA-99)*. 6–9 April, 1999. (Portoroz, Slovenia), (pp. 235–243). (**19**)

101. **Deb, K.** and Beyer, H.-G. (1999). Self-adaptation in real-parameter genetic algorithms with simulated binary crossover. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)*. 13–17 July 1999. (Orlanda, USA) (pp. 172–179). (**16**)

102. Michalewicz, Z., **Deb, K.**, Schmidt, M., and Stidsen, T., Towards Understanding Constrained-Handling Methods in Evolutionary Algorithms, *Proceedings of the Congress on Evolutionary Computation, CEC'99*, 6–9 July, 1999, (Washington DC), (pp. 581–588).

103. Michalewicz, Z., **Deb, K.**, Schmidt, M, and Stidsen, T. (1999). Evolutionary Algorithms Engineering applications. In K. Miettinen, M. Mäkelä, P. Neittaanmäki, and J. Périaux (Eds.) *Proceedings of Evolutionary Algorithms in Engineering and Computer Science (EUROGEN-99)*. 29 May – 03 June 1999. (Jyväskylä, Finland), (pp. 73–94). (2)

104. Pratihar, D. K., **Deb, K.**, and Ghosh, A. (1999). Design of a Genetic-Fuzzy System for Planning Optimal Path and Gait Simultaneously of a Six-legged Robot. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)*. 13–17 July 1999. (Orlanda, USA), (pp. 1678–1684).

105. Pratihar, D.K., **Deb, K.**, Ghosh, A. (1999). Path and gait generation of a six-legged robot—A genetic-fuzzy approach. *Proceedings of the International Conference on Mathematical Modeling of Non-linear Systems, ICOMMONS99*, (pp. 86–100).

106. Pratihar, D. K., **Deb, K.**, and Ghosh, A. (1999). Fuzzy-genetic algorithms and mobile robot navigation among static obstacles. *Proceedings of Congress on Evolutionary Computation*, 6-9 July (Washington DC, USA), (pp. 327–334). (5)

107. Pratihar, D. K., **Deb, K.**, Ghosh, A. (1999). Mobile robot navigation among moving obstacles using GA-fuzzy approaches. *Proceedings of the National Conference on Machines and Mechanisms, NACOMM-99* (pp. 394–403).

108. Pratihar, D. K., **Deb, K.**, Ghosh, A. (1999). Design of a genetic-fuzzy system for planning optimal turning gait of a six-legged robot. *Proceedings of the International Conference on Information Technology, ICIT-99*, (pp. 109–114).

109. Oyman, A. I., **Deb, K.**, and Beyer, H.-G. (1999). An alternative constraint handling method for evolution strategies. *Proceedings of Congress on Evolutionary Computation*, 6-9 July (Washington DC, USA), (pp. 612–619).

110. Chakraborty, S., De, S., and **Deb, K.** (1999). Model-based object recognition from a complex binary imagery using genetic algorithms. In R. Poli, H.-M. Voigt, S. Cagnoni, D. Corne, G. D. Smith, and T. C. Fogarty (Eds.) *Evolutionary Image Analysis and Signal Processing and Telecommunications, (EvoIASP'99), Lecture Notes in Computer Science, Springer Verlag, 1596*, (pp. 150–161).

111. **Deb, K.**, Pratihar. D. K., and Ghosh, A. (1998). Learning to avoid moving obstacles optimally for mobile robots using a genetic-fuzzy approach. *Parallel Problem Solving From Nature V*, (Amsterdam, The Netherlands), (pp. 583–592). (2)

112. Chakraborty, S. and **Deb, K.** (1998). Analytic curve detection from a noisy binary edge map using genetic algorithms. *Parallel Problem Solving From Nature V*, (Amsterdam, The Netherlands), (pp. 129–138). (3)

113. **Deb, K.** and Chakraborti, N. (1998). A combined heat transfer and genetic algorithm modeling of an integrated steel plant bloom re-heating furnace. *EUFIT'98*, (Aachen, Germany), (pp. 439–443). (9)

114. Pratihar, D. K., **Deb, K.**, and Ghosh, A. (1998). Planning crab gaits of a six-legged robot using a GA-Fuzzy approach. In R. N. Mahapatra (Ed.): *Proceedings of the International Conference on Information Technology*, (Bhubaneswar, India), New Delhi: Tata-McGraw-Hill, (pp. 221-226).

115. **Deb, K.** and Gulati, S., and Chakraborti, S. (1998). Optimal truss-structure design using real-coded genetic algorithms. *Symposium on Genetic Algorithms*, (Madison, USA), San Mateo: Morgan Kaufmann. (pp. 479–486).

116. Lobo, F., **Deb, K.**, Goldberg, D. E., Harik, G. R., and Wang, L. (1998). Compressed introns in a linkage learning genetic algorithm. *Symposium on Genetic Algorithms*, (Madison, USA), San Mateo: Morgan Kaufmann. (pp. 551–558).

117. **Deb, K.** (1998). Genetic algorithms in search and optimization: The technique and applications. *Proceedings of International Workshop on Soft Computing and Intelligent Systems*, (ISI, Calcutta, India), (pp. 58–87). (**14**)

118. **Deb, K.** (1997). Genetic algorithms as an optimization tool for engineering design. *Proceedings of the Eighth National Conference on Machines and Mechanisms (NACOMM-97).* (IIT Kanpur, India), (pp. C-119–130).

119. Chakroborty, P. and **Deb, K.** (1997). A genetic algorithm based procedure for optimal transit systems scheduling. *Proceedings of Fifth International Conference on Computers in Urban Planning and Urban Management*, (IIT Mumbai, India), (pp. 330-341).

120. **Deb, K.** and Saxena, V. (1997). Car suspension design for comfort using genetic algorithms. In Thomas Back (Ed.) *Proceedings of the Seventh International Conference on Genetic Algorithms*, (East Lansing, USA), (pp. 553–560). (4)

121. **Deb, K.** and Goyal, M. (1997). Optimizing engineering designs using a combined genetic search. In Thomas Back (Ed.) *Proceedings of the Seventh International Conference on Genetic Algorithms*, (East Lansing, USA), (pp. 521–528). (**20**)

122. **Deb, K.** (1997). Optimizing Engineering Designs: A need of time for Indian industries. *Young Scientists Session* at the *84th Indian Science Congress*, (New Delhi, India), (pp. 36–37).

123. Sivakumar, K., Iyenger, N. G. R., and **Deb, K.** (1997). Optimum design of laminated composite plates undergoing large amplitude vibration using genetic algorithms. *Fourth International Conference on Composite Engineering (ICCE)*, (Kona, Hawaii).

124. **Deb, K.** (1997). Parallel genetic algorithms: Past, present, and future. *Parallel Computing Conference*, (IIT Kanpur, India).

125. **Deb, K.** (1995). When will genetic algorithms work? In P. K. Roy and S. D. Mehta (Eds.), *Proceedings of the Symposium on Genetic Algorithms*, (Dehradun, India), (pp. 5–22).

126. Srinivas. N. and **Deb, K.** (1995). Comparative study of vector evaluated GA and NSGA applied to multiobjective optimization. In P. K. Roy and S. D. Mehta (Eds.), *Proceedings of the Symposium on Genetic Algorithms*, (Dehradun, India), (pp. 83–90).

127. Chaturvedi, D., **Deb, K.**, and Chakrabarty, S. K. (1995). Structural optimization using real-coded genetic algorithms. In P. K. Roy and S. D. Mehta (Eds.), *Proceedings of the Symposium on Genetic Algorithms*, (Dehradun, India), (pp. 73–82).

128. Agrawal, R. B., Mukherjee, A., and **Deb, K.** (1995). Modelling of inexact 2D shapes using real-coded genetic algorithms. In P. K. Roy and S. D. Mehta (Eds.), *Proceedings of the Symposium on Genetic Algorithms*, (Dehradun, India), (pp. 41–50).

129. Horn, J., Goldberg, D. E., **Deb, K.** (1995). Long path problems. *Proceedings of Parallel Problem Solving from Nature, III*, (Jerusalem, Israel), (pp. 149–158).

130. Rao, T. S., Bose, S. K., Srivathsan, K. R., and **Deb, K.** (1995). A new approach to network topology optimization. In S. V. Raghavan and B. N. Jain (Eds.) *Computer Networks, Architecture and Applications*, (Bangalore, India), (pp. 358–371).

131. **Deb, K.** (1993). Genetic algorithms in engineering design optimization. In J. N. Reddy et al. (Eds.), *Proceedings of the Advanced Study Institute on Computational Methods for Engineering Analysis and Design*, (IIT Chennai, India), (pp. 12.1–12.25). (7)

132. **Deb, K.** (1993). Genetic algorithms in optimal optical filter design. In E. Balagurusamy and B. Sushila (Eds.), *Proceedings of the International Conference on Computing Congress*, (Hyderabad, India), (pp. 29–36).

133. Goldberg, D. E., Deb. K., Kargupta, H, and Harik, G. (1993). Rapid, accurate optimization of difficult problems using messy genetic algorithms. In S. Forrest (Ed.), *Proceedings of the Fifth International Conference on Genetic Algorithms*, (Urbana, USA), (pp. 56–64). (**68**)

134. Kargupta, H., **Deb, K.**, and Goldberg, D. E. (1992). Ordering genetic algorithms and deception. In R. Manner and B. Manderick (Eds.), *Parallel Problem Solving from Nature II*, (Brussels, Belgium), (pp. 47–56). (9)

135. Goldberg, D. E., **Deb, K.**, and Horn, J. (1992). Massive multimodality, deception, and genetic algorithms. In R. Manner and B. Manderick (Eds.), *Parallel Problem Solving from Nature II*, (Brussels, Belgium), (pp. 37–46). (**56**)

136. Goldberg, D. E., **Deb, K.**, and Korb, B. (1991). Don't worry, be messy. In R. Belew and L. Booker (Eds.), *Proceedings of the Fourth International Conference in Genetic Algorithms and their Applications*, (San Diego, USA), (pp. 24–30). (1)

137. Parker, J. K., Tan, C., and **Deb, K.** (1991). Determining PID control gain by genetic algorithms, *Twentysecond Annual Pittsburgh Conference on Modeling and Simulation*, (Pittsburgh, USA).

138. **Deb, K.** and Goldberg, D. E. (1990). Natural frequency calculation using genetic algorithms. In S. V. Hanagud et al. (Eds.), *Proceedings of the Fifteenth Southeastern Conference on Theoretical and Applied Mechanics*, (Atlanta, USA), (pp. 94–101).

139. **Deb, K.** (1990). Optimal design of a welded beam via genetic algorithms, *Proceedings of the 31st AIAA/ASME /ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference (CP-902)*, (Long Beach, CA, USA), (pp. 444-453). (**5**)

140. **Deb, K.** and Goldberg, D. E. (1989). An investigation of niche and species formation in genetic function optimization, In J. D. Schaffer (Ed.), *Proceedings of the Third International Conference on Genetic Algorithms*, (Washington DC, USA), (pp. 42–50). (**267**)

141. Gupta, S. and **Deb, K.** (1990). Strength-to-weight ratio optimization of laminated composite plates under inplane loading, In S. V. Hanagud et al. (Eds.), *Proceedings of the Fifteenth Southeastern Conference on Theoretical and Applied Mechanics*, (Atlanta, USA), (pp. 127–134).

142. Wilson, H. and **Deb, K.** (1989). Numerical accuracy in cable dynamics equations, *Proceedings of Twelfth Canadian Congress of Applied Mechanics*, (Toronto, Canada), (pp. 385-386).

143. Samanta, B., Mukherjee, A., and **Deb, K.** (1987). Bond graph adapted modular approach to analysis of planar mechanisms, *Proceedings of Seventh World Congress on the Theory of Machines and Mechanisms*, (Sevilla, Spain), (pp. 439-442).

Papers to be Published in Conference Proceedings

1. Kodali, S. P., **Deb, K.**, Bandaru, S., Munshi, P., and Kishore, N. N. (in press). Simulation studies on a genetic algorithm based tomographic reconstruction using time-of-flight data from ultrasound transmission tomography. *Proceedings of the International Conference on Adaptive and Natural Computing Algorithms (ICANNGA-09)*, (23-25 April, 2009, Kuopio, Finland)

2. **Deb, K.** and Miettinen, K. (in press). A Review of Nadir Point Estimation Procedures Using Evolutionary Approaches: A Tale of Dimensionality Reduction. *Proceedings of the Multiple Criterion Decision Making (MCDM-2008) Conference*, Heidelberg, Germany: Springer.

3. Bader, J., **Deb, K.**, and Zitzler, E. (in press). Faster hypervolume-based search using Monte Carlo sampling. *Proceedings of the Multiple Criterion Decision Making (MCDM-2008) Conference*, Heidelberg, Germany: Springer.

4. Srivastava, K., Srivastava, S., Pathak, B. K. and **Deb, K.** (in press). Discrete time-cost tradeoff with a novel hybrid meta heuristic. *Proceedings of the Multiple Criterion Decision Making (MCDM-2008) Conference*, Heidelberg, Germany: Springer.

Keynote/Plenary Lectures on Genetic and Evolutionary Algorithms

1. 26 April, 2000: **Keynote lecture** at the Advanced Computation in Design and Manufacturing Conference (ACDM-2000) in the University of Plymouth, UK entitled 'Multi-objective evolutionary optimization: Past, present, and future'.
2. 16 January, 2003: **Keynote lecture** on 'Evolutionary Algorithms for Single and Multiple Objective Optimization' during the Symposium on Evolutionary Algorithms at Doshisha University, Kyoto, Japan.
3. 17 September, 2003: **Plenary lecture** on 'Recent Advances on Evolutionary Multi-Objective Optimization' during EUROGEN-2003 conference in Barcelona, Spain.
4. 8 December, 2003: **Keynote lecture** during 'CEC-2003' conference entitled 'Multi-Objective Evolutionary Optimization' in Canberra, Australia.
5. 23 June, 2004: **Keynote lecture** during 'Hydroinformatics' Conference entitled 'Single and Multi-Objective Optimization Using Evolutionary Algorigthms' held in Singapore.
6. 7 August, 2004: **Premier Plenary Lecture** entitled 'Evolutionary Multi-Criterion Optimization' during the 17h International Conference on Multiple Criteria Decision Analysis held in Whistler, British Columbia, Canada.
7. 12 December, 2005: **Keynote lecture** at GM Symposium entitled 'Practical Optimization Methods' held in Bangalore, India.
8. 12 January, 2006: **Plenary lecture** at International workshop on Neural Networks and Genetic Algorithms in Materials Science and Engineering entitled 'Practical Optimization Methods in Engineering Design' held in Kolkata, India.
9. 3 August, 2006: **Keynote lecture** at Second South-Asia Altair CAE Users Conference-2006 entitled 'Deciphering Innovative Design Principles Through Optimization' to be held in Bangalore, India.
10. 18 September, 2006: **Plenary lecture** at Bio-inspired Computing: Theory and Applications (BIC-TA)' entitled 'Evolutionary Multi-Objective Optimization (EMO): An Emerging Field of Computing for Practical Problem-Solving' to be held in Wuhan, China.
11. 3 November, 2006: **Keynote lecture** at the 2006 International Conference on Computational Intelligence and Security (CIS) entitled 'Evolutionary Optimization for Practical Problem-Solving' to be held in Guangzhou, China.
12. 12 February, 2007: **Keynote lecture** at the Water Resources Workshop at the University of Adelaide, Australia entitled 'Evolutionary optimization for engineering systems'.
13. 23 February, 2007: **Keynote lecture** at the Conference on Current Trends in Computing & Bioinformatics at CSJM University, Kanpur entitled 'Soft Computing Methodologies and Their Potential in Science and Technology'.
14. 24 February, 2007: **Vision talk** at the Indo-US Workshop on Soft, Quantum and Nano Computing (SQUAN-2007) at Dayalbagh University, Agra entitled 'Evolutionary Computing for Practical Optimization'.
15. 23 March, 2007: **Keynote lecture** at Global Conference on Production and Industrial Engineering at National Institute of Technology, Jalandhar entitled 'Computational optimization: An indespensible companion to scientists and practitioners'.

16. 17 April, 2007: **Keynote lecture** at the First international Conference Multidisciplinary Design Optimization and Applications entitled 'Evolutionary Multi-Objective Optimization and Applications' held in Besanon, France.

17. 30 August, 2007: **Plenary Talk** on the 'Research Day' at Helsinki School of Economics, Finland, entitled 'Multi-Criterion Optimization and Decision-Making Using Darwinian Evolutionary Principles: Research and Practices of the Past Decade'.

18. 21 September, 2007: **Keynote lecture** at Symposium on Intelligence Computation and Applications (ISICA 2007) to be held in Wuhan, China.

19. 12 December, 2007: **Plenary talk** at 7th International Conference on Optimization: Techniques and Applications (ICOTA-07) held in Kobe, Japan entitled 'Evolutionary Multiobjective Optimization and Decision Making'.

20. 09 January, 2008: **Keynote lecture** at 19th International Conference on Multiple Criteria Decision Making (MCDM) held in Auckland, New Zealand entitled 'Evolution's Niche in Multi-Criterion Optimization'.

21. 30 September, 2008: **Keynote lecture** at Rolls-Royce Aerodynamic Design optimization Seminar (RR-ADOS) to be held in Rolls-Royce in Derby, UK entitled 'Evolutionary Optimization for Practical Problem Solving'.

22. 13 October, 2008: **Keynote lecture** at the 3rd International Conference on Bioinspired Optimization Methods and their Applications (BIOMA-2008) to be held in Ljubliana, Slovenia entitled 'Evolutionary Multi-Objective Optimization and Decision Making'.

23. 07 December, 2008: **Keynote lecture** at the Seventh International Conference on Simulated Evolution And Learning (SEAL'08) to be held in Melbourne, Australia entitled 'Evolutionary Multi-Objective Optimization and Decision Making'.

24. 12 February, 2009: **Keynote lecture** at the Sixth Spanish Conference on Metaheuristics entitled 'Evolutionary Multi-objective Optimization'.

25. 19 May, 2009: **Keynote lecture** at the IEEE Congress on Evolutionary Computation (CEC-2009) to be held in Trondheim, Norway entitled 'Evolution's Niche in Applied Optimization and Informatics'.

26. 4 June, 2009: **Keynote lecture** at Papermaking Research Symposium in Kuopio, Finland entitled 'Evolutionary Optimization in Practice'.

Invited Tutorials/Workshops on Multi-Objective Optimization (July'98 – Present)

1. 26 September 1998: Parallel Problem Solving from Nature-98, Amsterdam, The Netherlands

2. 6 April 1999: International Conference on Artificial Neural Networks and Genetic Algorithms (ICANNGA-99), Portoroz, Slovenia

3. 15 April 1999: ACDM/EvoDES Workshop, University of Bath, United Kingdom

4. 3 May 1999: French JET (Journees Evolutionaires Trimestrielles), University of Paris, France

5. 2 June 1999: EUROGEN Workshop, 'Evolutionary Algorithms for Multi-Criterion Optimization in Engineering Design', University of Jyväskylä, Finland

6. 13 July 1999: Workshop at Genetic and Evolutionary Computation Conference (GECCO), Omni Rosen Hotel, Orlando, USA

7. 14 July 1999: 'Messy Genetic Algorithms and Linkage Learning', Genetic and Evolutionary Computation Conference, Orlando, USA

8. 10 April 2001: An invited lecture at the Colliquium organized by the Biology-Inspired Computation Group, ETH, Zürich, Switzerland entitled 'An Introduction on Evolutionary Multi-Criterion Optimization'.

9. 27 May 2001: An invited tutorial given at the 'International Conference on Multi-Criterion Decision Making' held in Cairo, Egypt entitled 'An Introduction to Evolutionary Multi-Objective Optimization'.

10. 8 July 2001: An invited tutorial given at the GECCO-2001 Conference held in San Fransisco, USA in July 2001 entitled 'Multi-Criterion Optimization'.

11. 10 July 2002: Invited to present a tutorial during CEC-2002 Conference held in Honolulu, USA entitled 'Recent Trends in Evolutionary Multi-Criterion Optimization'.

12. 18 November, 2002: Invited to present a tutorial during SEAL-2002 Conference to be held in Singapore entitled 'Multi-Criterion Evolutionary Optimization'.

13. 17 August, 2003: Invited to present a tutorial during 'Multi-disciplinary International Scheduling Conference (MISTA)' under the theme 'Tutorials in Modern Optimization Methods' at the University of Nottingham, UK.

14. 26 June, 2004: Invited to deliver a tutorial on Evolutionary Multi-Objective Optimization during Genetic and Evolutionary Computation Conference (GECCO) 2004 conference held in Seattle, USA.

15. 8 November, 2004: A tutorial entitled 'Evolutionary Multi-objective Optimization' at Schloss Dagstuhl, Germany.

16. 7 February 2005: Workshop on 'Evolutionary Optimization Techniques' at GE's John F. Welch Technology Centre, Bangalore.

17. 10 January, 2006: Tutorial entitled 'An Introduction to Genetic Algorithms' held in Bengal Engineering and Science College, Kolkata, India.

18. 2-15 July, 2006: Tutorial entitled 'Evolutionary Methods to Multi-Criterion Optimization' at the 2006 MCDM Summer School held in Kainan University of Taiwan.

19. 9 July, 2006: Tutorial entitled 'Evolutionary Practical Optimization' at the 2006 Genetic and Evolutionary Computation Conference (GECCO-2006) held in Seattle, USA.

20. 16 July, 2006: Tutorial entitled 'Evolutionary Multi-Objective Optimization' at the World Congress on Computatinal Intelligence (WCCI-2006) held in Vancouver, Canada.

21. 18 July, 2006: Organizer of the Panel Discussion on 'Evolutionary Multi-Objective Optimization' held during WCCI Conference in Vancouver, Canada.

22. 7 July, 2007: Tutorial at GECCO-2007 in University College London entitled 'Evolutionary Practical Optimization'

23. 8 July, 2007: Tutorial at GECCO-2007 in University College London entitled 'Evolutionary Multi-Criterion Optimization' (along with Eckart Zitzler)
24. 20 September, 2007: Tutorial delivered at the Seventh International Conference on Evolvable Systems – From Biology to Hardware (ICES 2007) held in Wuhan, China entitled 'Evolutionary Multi-Objective Optimization (EMO)'.
25. 25 September, 2007: Tutorial delivered entitled 'Evolutionary Multi-Criterion Optimization (EMO): Fundamentals, State-of-the-art Methodologies and Future Challenges' during Congress on Evolutionary Computation (CEC-2007) in Singapore.
26. 12 July, 2008: Tutorial delivered at GECCO-2008 in Renaissance Atlanta Hotel, USA, entitled 'Evolutionary Multi-Criterion Optimization' (along with Eckart Zitzler).
27. 13 July, 2008: Tutorial delivered at GECCO-2008 in Renaissance Atlanta Hotel, USA, entitled 'Evolutionary Practical Optimization'.
28. 07 December, 2008: Tutorial to be delivered at SEAL-2008 Conference in Melbourne, Australia entitled 'Evolutionary Multi-Objective Optimization (EMO)'.
29. 18 May, 2009: Tutorial to be delivered at CEC-2009 Conference in Trondheim, Norway entitled 'Recent Challenges to Evolutionary Multi-Criterion Optimization (EMO)'.
30. 12 June, 2009: Tutorial to be delivered at ACM SIGEVO sponsored Genetic and Evolutionary Computation (GEC-Summit) in Shanghai, China entitled 'Evolutionary Multi-Objective Optimization: Current Approaches and Future Directions'.
31. 21 June, 2009: Tutorial at Multiple Criterion Decision Making (MCDM) Conference in Chengdu, China entitled 'Evolutionary Multi-Criterion Optimization and Its Applications'.

Invited Talks on Genetic and Evolutionary Algorithms (Jan'98 – Present)

1. 12 January 1998: 'An Introduction to Genetic Algorithms', International Workshop on Soft Computing and Intelligent Systems, Indian Statistical Institute, Calcutta, India
2. 4 May 1998: 'An Introduction to Genetic Algorithms', National Remote Sensing Agency, Hyderabad, India
3. 15 July 1998: 'An Introduction to Genetic Algorithms', University of Braga, Portugal
4. 15 July 1998: 'Multi-Objective Optimization Using Genetic Algorithms', University of Braga, Portugal
5. 16 July 1998: 'Messy Genetic Algorithms: An Introduction', University of Braga, Portugal
6. 17 July 1998: 'An Introduction to Genetic Algorithms', University of Porto, Portugal
7. 20 July 1998: 'An Introduction to Multi-Objective Optimization Using Genetic Algorithms', University of Coimbra, Portugal
8. 26 October 1998: 'Real-parameter Genetic Algorithms Using Simulated Binary Crossover', University of Dortmund, Germany
9. 28 October 1998: 'An Overview of Genetic Algorithms', Swiss Federal Institute of Technology, ETH, Zürich, Switzerland

10. 12 November 1998: 'Genetic Algorithms in Engineering Design', University of Mainz, Germany
11. 20 November 1998: 'Real-Parameter Genetic Algorithms with Simulated Binary Crossover', Technical University of Berlin, Germany
12. 1 December 1998: 'Multi-Objective Genetic Algorithms with Non-Dominated Sorting', Centrum voor Wiskunde en Informatica (CWI), Amsterdam, The Netherlands
13. 17 March 1999: 'Real-parameter Genetic Algorithms for Engineering Design', GMD, St. Augustin, Bonn, Germany
14. 8 April 1999: 'Multi-Objective Genetic Algorithms', University of Ljubljana, Slovenia
15. 9 April 1999: 'Introduction to Genetic Algorithms and Multi-Objective Optimization', University of Trieste, Italy
16. 16 April 1999: 'Self-Adaptation in Real-Parameter Genetic Algorithms', Plymouth Engineering Design Centre, University of Plymouth, United Kingdom
17. 3 May 1999: 'An Overview of Multi-Objective Genetic Algorithms', University of Paris, France
18. 22 May 1999: 'Multi-Criterion Optimization Using Evolutionary Algorithms', University of Karlsruhe, Germany
19. 31 May 1999: 'Real-Parameter Genetic Algorithms in Engineering Design', EUROGEN-99, University of Jyväskylä, Finland
20. 9 July 1999: 'An Introduction to Multi-Objective Evolutionary Algorithms', Department of Computer Science, University of Missouri at St. Louis, USA
21. 12 July 1999: 'Multi-Objective Genetic Algorithms', Air Force Institute of Technology, Wright-Patterson Research Laboratory, Ohio, USA
22. 16 February 2000: 'Real-Coded Genetic Algorithms', Dagstuhl Seminar, at Schloss Dagstuhl, Saarbrücken, Germany.
23. 22 September 2000: 'An Introduction to Genetic Algorithms', ABB Heidelberg, Germany.
24. 9 December 2000: 'Non-dominated Sorting Genetic Algorithms for Multi-Objective Optimization', Tenth NASAS Conference, IIT Kanpur.
25. 6 July 2001: 'Evolutionary Multi-Objective Optimization' at National Institute for Standards and Technology (NIST), Gaithersburg, USA.
26. 14 January 2002: 'Test Problem Design for Multi-Objective Evolutionary Algorithms', Dagstuhl Seminar, at Schloss Dagstuhl, Saarbrücken, Germany.
27. 25 February 2002: Invited to present a lecture on 'An Introduction to Evolutionary Multi-Criterion Optimization' at Vikram Sarabhai Space Research Centre, Trivandram, India.
28. 17 June, 2002: 'An Introducton to Multi-objective Evolutionary Algorithms' at Univesity of Essex, UK.
29. 21 June, 2002: 'Real-Parameter Genetic Algorithms' at University of Birmingham, UK.

30. 24 June, 2002: 'An Introduction to Multi-Objective Evolutionary Algorithms' at the University of West of England, UK.
31. 21 November, 2002: 'Evolutionary Multi-Objective Optimization' to be delivered at National University of Singapore (NUS).
32. 4 December, 2002: 'Evolutionary Algorithms Pattern Recognition and Image Proceesing', CIMPA (International Center for Pure and Applied Mathematics, France) School on Soft computing approach to pattern recognition and image processing at Indian Statistical Institute, Kolkata, India.
33. 14 January, 2003: 'Evolutionary Multi-Objective Optimization' at Osaka Prefecture University, Japan.
34. 24 June, 2004: 'Advances on Evolutionary Multi-Objective Optimization' at Nang Yang Technological University (NTU) in Singapore.
35. 6 August, 2004: 'Single and Multi-Objective Evolutionary Optimization' at Simon Fraser University, Surrey Campus in Vancouver, Canada.
36. 17 May, 2005: 'Single and Multi-Objective Evolutionary Optimization for Engineering Problem Solving' at University of Pavia, Italy.
37. 18 May, 2005: 'Evolutionary Multi-Objective Optimization: A Decade of Research and Applications' at University of Pavia, Italy.
38. 27 July, 2005: 'Innovization: Innovative Designs Through Optimization' at University of Algarve, Portugal.
39. 5 September, 2005: 'Innovization: Innovating Design Principles Through Optimization' at University of Aalborg, Denmark.
40. 3 October, 2005: 'Optimization: A Indespensible Companion to Engineers and Scientists', N. Rama Rao Distinguished Lecture at CSE, IIT Kanpur.
41. 13 December, 2005: 'Multi-Objective Optimization Using Evolutionary Methods' at Post-SAROD Coference in IISc, Bangalore.
42. 9 January, 2006: 'Practical Methods of Optimization' at Tata Steel, Jamshedpur, India.
43. 7 February, 2006: 'Functional Decomposition of NSGA-II for Various Problem Solving Tasks', Schloss Dagstuhl, Germany.
44. 11 February, 2006: 'Hans-Paul, Predator-Prey and Multi-Objective Optimization', Colloquium at University of Dortmund, Germany.
45. 14 February, 2006: 'Practical Optimization Using Evolutionary Optimization', General Motors, Warren, USA.
46. 15 February, 2006: 'Discovering Important Design Principles Using Multi-Objective Optimization', Clemson University, USA.
47. 28 February, 2006: 'Evolutionary Optimization for Problem Solving and Knowledge Discovery', CNR Rao Distinguished Lecture, IIT Kanpur.
48. 24 May, 2006: 'Unveiling Innovative Design Principles Using Multi-Objective Optimization', Department of Electrical and Computer Engineering, National University of Singapore (NUS).

49. 8 June, 2006: 'Innovization: Innovating Design Principles Through Optimization', School of Electrical and Electronic Engineering, Nanyang Technological University (NTU), Singapore.

50. 4 August, 2006: Invited lecture entitled 'Evolutionary Practical Optimization' during Altair CAE User's Conference held in Bangalore.

51. 6 January, 2007: 'Non-linear Multi-Objective Optimization using Evolutionary Algorithms', IIT Kharagpur during ORSI Convention.

52. 8 February, 2007: 'Optimization Research at IIT Kanpur', during Indo-US Workshop on Computational Optimization and Analysis of Systems (COSA-2007)' at IIT Kanpur.

53. 06 July 2007: 'Innovization: Unveiling Design Principles Using Optimization' at the Department of Mechanical Enginerring, Helsinki University of Technology, Espoo, Finland.

54. 06 September 2007: 'Evolutionary Practical Optimization' at the Systems Analysis Laboratory, Helsinki University of Technology, Espoo, Finland.

55. 14 September 2007: 'Introduction to Evolutionary Optimization' at Department of Business Technology, Helsinki School of Economics.

56. 18 September 2007: 'Introduction to Evolutionary Optimization' at the Department of Mathematical Information Technology, University of Jyvskyl

57. 24 October 2007: 'Evolutionary Optimization for Practical Problem Solving' at Nokia, Espoo, Finland.

58. 8 November 2007: 'Evolutionary Optimization for Practical Problem Solving' at the Department of Physics, University of Kuopio

59. 22 November 2007: 'Evolutionary Optimization: Introduction and Applications' at the Department of Mechanical Engineerng, University of Turku

60. 05 December, 2007: 'Evolutionary Computing for Applied Single and Multi-Criterion Optimization' – an invited lecture at University of Skovde, Sweden

61. 31 January 2008: 'Evolutionary computation for applied single and multi-criterion optimization' at University of Nantes, France.

62. 10-12 February 2008: Short course on 'Evolutionary Computation' delivered for PhD students at University of Carlos III, Madrid, Spain.

63. 12 March 2008: 'Higher Education in India' at the Doctoral Studies Centre, Helsinki School of Economics, Finland.

64. 19 March 2008: 'Practical Optimization Using Evolutionary Methods' at KONE, Espoo, Finland.

65. 28 March 2008: 'Innovization: Innovation through Multi-Criterion Optimization' at the Department of Mathematical Information Technology, University of Jyvskyl

66. 4 April 2008: 'Evolutionary Practical Optimization' at the Ship Laboratory, Helsinki University of Technology, Espoo, Finland

67. 9-11 April 2008: Master's Course on 'Evolutionary Computation' delivered at University of Pavia, Italy.

68. 07 May 2008: 'Computational Optimization for Innovative Knowledge Discovery' at MASI Technology programme, Finnish Funding Agency for Technology and Innovation (TEKES), Finland

69. 22 May 2008: 'Knowledge Discovery Through Multi-Criterion Optimization', Invited Boat Seminar organized by Helsinki School of Economics

Sponsored Projects Executed

Funding Agency	*Year*	*Topic*	*Alone/ Team*	*Amount (INR)*
DST	1993	Real-parameter GA with SBX/mutation operator	Alone	300,000
MHRD	1995	Technology Development Mission on Rapid Prototyping	Team	40,000,000
MHRD	1996	Parallel evolutionary computation	Alone	600,000
DoE	1997	Transient Identification and Fault tolerant system design	Alone	700,000
British Telecom, UK	1998	Evolutionary multi-objective optimization applications	Alone	500,000
DST	1999	Genetic-Fuzzy approach for on-line optimization and control	Alone	1,200,000
Asia ITC, UK	2000	Dev. of master's programme in Natural Computation at UoB, UK	Team	$\sim$ GBP 250,000
MHRD	2000	Evolutionary multi-objective optimization (NSGA-II)	Alone	1,000,000
ISRO	2002	Space-craft Trajectory optimization	Alone	700,000
ARC Complex Systems, Australia	2004	Evolutionary computing in complex systems design	Team	A$ 10,000,000
STMicroelectronics, Italy	2004	Multi-objective optimization applications	Alone	4,000,000
Indo-Portugal Project	2003	Evolutionary resource allocation problems	Team	600,000
General Motors	2004	Reliability based design optimization	Alone	600,000
Honda R&D, Japan	2005	Meta-model assisted optimization	Alone	750,000
General Electric	2005	Parallel multi-objective optimization	Alone	700,000
A* Singapore	2005	Evolutionary optimization in data-mining	Team	$\sim$S$ 300,000
Indo-Swiss Project	2006	Many objective problem solving	Team	1,200,000
General Motors	2007	Multi-objective optimization and decision making	Alone	15,000,000