Curriculum Vitae of Dinesh Garg

E- Enterprises Laboratory   *Voice*:+91-80-22932368-111/228
Department of CSA   *Cell: +91-98-80461289*
Indian Institute of Science   *E-Mail*: dgarg77@yahoo.com
Bangalore-560012, India   WWW: http://people.csa.iisc.ernet.in/~dgarg

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AREAS OF INTERESTS

Game Theory, Mechanism Design Theory, and Theory of Optimization
with applications to
- Communication Networks and World Wide Web
- Online Advertisement Auctions and Sponsored Search Auctions
- Supply Chain Networks

EDUCATION

PhD in Computer Science and Automation   May 2002 – Till Date
Indian Institute of Science, Bangalore, India
Advisor: Prof. Y. Narahari
Dissertation: *Innovative Mechanism Design Approaches to Contemporary
        Problems in Electronic Commerce*

M.Sc (Engg.) in Computer Science and Automation   Aug 2000 – May 2002
Indian Institute of Science, Bangalore, India
Advisor: Prof. Y. Narahari
Dissertation: *Design of Six Sigma Supply Chains*

B.E. (Hons.) in Mechanical Engineering   Aug 1996 – July 2000
Government Engineering College, Kota, Rajasthan, India

SELECTED GRADUATE COURSE WORK

Computer Science Courses: Design and Analysis of Algorithms, Operating Systems, Data Structures and Algorithms, Graph Theory and Algorithms, Simulation and Performance Modeling

Mathematics Courses: Mathematical Analysis, Linear Algebra, Measure Theory,

Applied Courses: Topics in Optimization, Game Theory, Supply Chain Management, Topics in Stochastic Control and Dynamic Programming, Stochastic Processes and Queuing Theory

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EXPERIENCE

- *Summer Intern at* **Theory Group, Microsoft Research Lab, Redmond, USA** *(May 2005 – Aug 2005)*

- *Visiting Student at* **School of TCS, Tata Institute of Fundamental Research (TIFR), Mumabi, India** *(June 2004 – July 2004)*

- *Summer Intern at* **MSR Lab, General Motors Research and Development, Warren, MI, USA** *(March 2003 - April 2003)*

ACHIEVEMENTS AND AWARDS

- Recipient of IBM India Research Lab Fellowship (2006)

- Recipient of IBM India Research Lab Student Travel Grant 2005

- Second Best paper Presentation Award for the paper:

  D. Garg and Y. Narahari, "*A Theory of Mechanism design for Stackelberg Problems with Selfish Agents*" at IRISS, IIT Kanpur, April 1-2, 2005

- The Googol Best New Application Paper Award for the paper:

  D. Garg, Y. Narahari, and N. Viswanadham, "*Design of Six Sigma Supply Chains*", IEEE Transactions on Automation Science and Engineering, Vol. 1, No. 1, July 2004, pp. 38-57

- Prof. F.N. Mowdawala Medal for the Best M.Sc. (Engg.) Thesis in the Division of Electrical Sciences at IISc, 2002-2003

- Best Presentation Award for Perspective Seminar Series held at Department of Computer Science and Automation, IISc, 2003

- Infosys Trophy for Excellence in Management Research in COSMAR-2002 for the best paper:

  D.Garg, and Y. Narahari, "Design of Six Sigma Supply Chains"

- Rajasthan University Gold Medal for University First Rank in B.E, 2000

- Scholarship from S. J. Jindal Trust, New Delhi since 1997 to 1999 for outstanding academic performance in B.E

- Certificate of Merit under National Scholarship Scheme from MHRD, Govt. of INDIA for academic excellence in Senior Secondary Examination-1995 and Secondary School Examination-1993

PUBLICATIONS AND PATENTS

Journal Publications/Submissions and Book Chapters:

- Dinesh Garg, Y. Narahari, Earnest Foster, Devadatta Kulkarni, and Jeffrey D. Tew, "A Mechanism Design Approach to Decentralized Planning in Supply Chain Networks", to appear as a book chapter in *Handbook of Production Planning, editors, K. Kempf, P. Keskinocak, and R. Uzsoy, Kluwer Academic Publisher, December 2006*

- D. Garg, Y. Narahari, and N. Viswanadham, "Achieving Sharp Deliveries in Supply Chains through Variance Pool Allocation", *EJOR- European Journal of Operations Research, Vol. 171, No. 1, pp. 227-54, May 2006*

- Dinesh Garg, Kamal Jain, Kunal Talwar, and Vijay V. Vazirani, "A Primal Dual Algorithm for Computing Fisher Equilibrium in the Absence of Gross Substitutability Property", submitted to *Theoretical Computer Science, March 2006*

- Dinesh Garg, Vivek S. Borkar, and D. Manjunath, "Network Pricing for QoS: A Regulation Approach", appeared as book chapter in *E.H. Abed, editor, Advances in Control, Communication Networks, and Transportation Systems, Birkhauser, pp. 137-157, June, 2005*

- D. Garg, Y. Narahari, and N. Viswanadham, "Design of Six Sigma Supply Chains", *IEEE Transactions on Automation Science and Engineering, Vol. 1, No.1, pp. 38-57, July 2004*

- Dinesh Garg, Y. Narahari, and Siva Sankar Reddy, "An Optimal Mechanism for Sponsored Search Auctions", *to be communicated*

- Dinesh Garg and Y. Narahari, "A Mechanism Design Approach to Hierarchical Decision Making Problems", *to be communicated*

Conference Publications:

- Dinesh Garg and Y. Narahari, "Design of Incentive Compatible Mechanisms for Stackelberg Problems", in proceedings of *1st Workshop on Internet and Network Economics, WINE 2005, pp. 718-727, Springer Verlag LNCS series 3828, December 15-17, 2005, Hong Kong*

- Dinesh Garg and Y. Narahari, "Price of Anarchy of Network Routing Games with Incomplete Information", in proceedings of *1st Workshop on Internet and Network Economics, WINE 2005, pp. 1066-1075, Springer Verlag LNCS series 3828, December 15-17, 2005, Hong Kong*

- Dinesh Garg, Kamal Jain, Kunal Talwar, and Vijay V. Vazirani, "A Primal Dual Algorithm for Computing Fisher Equilibrium in the Absence of Gross Substitutability Property", in proceedings of *1st Workshop on Internet and Network Economics, WINE 2005, pp. 24-33, Springer Verlag LNCS series 3828, December 15-17, 2005, Hong Kong*

- D. Garg, Y. Narahari, Earnest Foster, Datta Kulkarni, and Jeffrey D. Tew, "A Groves Mechanism Approach to Decentralized Design of Supply Chains", in proceedings of 7th International IEEE Conference on E-Commerce Technology, IEEE CEC, July 19-22, 2005, Munich, Germany

- D. Garg, Y. Narahari, and N. Viswanadham, "A New Approach for Achieving Sharp and Timely Deliveries in Supply Chain Networks", in proceedings of *IEEE International Conference on Intelligent Robots and Systems, IROS-2003, Las Vegas, October 27-31, 2003*

- D. Garg, Y. Narahari, and N. Viswanadham, "Design of Six Sigma Supply Chains", in proceedings of *IEEE International Conference on Robotics and Automation, ICRA-2003, Taipei, Taiwan, September 14-19, 2003*

- D. Garg, Y. Narahari, and N. Viswanadham, "Achieving Sharp deliveries in Supply Chains through Variance Pool Allocation", in proceedings of *IEEE International Conference on Robotics and Automation, ICRA-2002, Washington D.C., May 11-15, 2002*

- D. Garg and Y. Narahari, "A Process Capability Indices Based Approach for Supply Chain Performance Analysis", in proceedings of *International Conference on Energy, Automation, and Information Technology, EAIT-2001, IIT Kharaghpur, December 10-12, 2001*

Patents Filed:

- Philip Chou, Kamal Jain, and Dinesh Garg "A Congestion Adaptive Routing Scheme based on Pricing Mechanisms" filed for US Patent by Microsoft Research Labs, Redmond, WA, March 2006

REFEREED RESEARCH REPORTS

- D. Garg, Y. Narahari, N.R.S. Raghavan, Earnest Foster, Devadatta Kulkarni, and Jeffrey D. Tew "A Mechanism Design Approach to Decentralized Design of Six Sigma Supply Chains ", *General Motors Research Report, September, 2004*

- D. Garg, Y. Narahari, Rajeev, Earnest Foster, Devadatta Kulkarni, and Jeffrey D. Tew " Design Optimization of Six Sigma Supply Chains", *General Motors Research Report, January 25, 2004*

- D. Garg, Y. Narahari, Earnest Foster, Devadatta Kulkarni, and Jeffrey D. Tew "A Six Sigma Framework for Supply Chain Design Problems", *General Motors Research Report, June 30, 2003*

- D. Garg, Sandeep Jain, T.S. Chandrashekar, Earnest Foster, Datta Kulkarni, and Jeffrey D. Tew "Study of Supply Chain Performance Analysis Practices at GM: Exploring Opportunities for Applying Six Sigma Approach at GM ", *General Motors Research Report, June , 2003*

- D. Garg, Y. Narahari, Earnest Foster, Devadatta Kulkarni, and Jeffrey D. Tew, "Supply Chain Process Capability Indices ", *General Motors Research Report, June 15, 2003*

- D. Garg and Y. Narahari, "The Role of LP Duality in Mechanism Design", *Research Report, Department of CSA, IISc, April 2003*

RECENT TALKS

- "What is the Best Mechanism for Sponsored Search Auctions?" presented at *Google R&D Center, Bangalore, January 2006*

- "Theory of Mechanism Design for Stackelberg Problems with Selfish Agents", presented at *IRISS, IIT Kanpur, April 1-2, 2005.*

  (*The poser for this talk was presented to The President of India, Dr. A.P.J. Abdul Kalam at Microsoft Academic Summit, New Delhi, April 4-5, 2005*)

- "Opportunity for Mobilized Applications in Supply Chains", presented *at Intel Developer Forum (IDF), Bangalore* October 12-13, 2004

- "Price of Anarchy of Routing Games", presented at School of Technology and Computer Science, TIFR, Mumbai, June, 2004

- "A Tutorial on Game Theory", presented at *The International Workshop on IT-Enabled Manufacturing, Logistics and Supply Chain Management, Bangalore, December 15-17, 2003*

- "Design of Six Sigma Supply Chains", presented at *General Motors Research and Development Center, Warren, MI, USA, March 19, 2003*

- "The Role of LP Duality in Mechanism Design", presented in *Perspective Seminar Series, Department of Computer Science and Automation, IISc, February 2003*

- "Introduction to Data Structures and Algorithm", presented *at COMET-2001, a short-term training program – sponsored by AICTE at Garden City College of Science and Management Studies, Bangalore, June 2001*

PROFESSIONAL ACTIVITIES

- Student Coordinator for Perspective Seminar Series, Department of Computer Science and Automation, IISc, 2004

- Member of Student Organizing Committee, The International Workshop on IT-Enabled Manufacturing, Logistics and Supply Chain Management, Bangalore, December 15-17, 2003

- Teaching Assistant for E- Commerce in 2004 and Supply Chain Management in 2002

REFERENCES

1. **Prof. Y. Narahari**,
    Department of Computer Science and Automation,
    Indian Institute of Science, Bangalore – 560012
    hari@csa.iisc.ernet.in
    +91-80-22932773

2. **Prof. N. Viswanadham**,
    Executive Director,
    Center for Global Logistics and Manufacturing,
    Indian School of Business, Hyderabad, India
    n_viswanadham@isb.edu

3. **Prof. Vivek Borkar**,
    School of Technology and Computer Science,
    Tata Institute of Fundamental Research, Mumbai, India
    borkar@tifr.res.in
    +91-22-22804545 Ext. 2293