

# Prof Manish Gaur

## **Director**

Center for Advanced Studies  
Dr APJ Abdul Kalam Technical University Uttar Pradesh  
Lucknow-226021  
India

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**Research Area** Formal methods and verification of systems, Semantics of programming languages.

## **Fellowship**

1. **Commonwealth-UK: Post Doctoral Academic Fellow**  
Department of Computing Science  
University of Glasgow, UK  
Fellowship Duration: October 2012-January 2013  
Supervisor: Prof Simon Gay

## **Education**

1. **PhD in Computer Science**  
Department of Informatics  
University of Sussex, UK  
Award Date: December 2008  
Thesis Title: A routing calculus: towards formalising the cost of computation in a distributed computer network  
Supervisor: Prof Matthew Hennessy and Dr Ian Mackie
2. **M. Tech. in Computer Science and Engineering**  
Department of Computer Science and Engineering  
Indian Institute of Technology Delhi (IIT Delhi), New Delhi, India  
Date of Graduation: December 2001  
Thesis Title: Deciding efficiency prebisimulation
3. **B.E. in Computer Engineering**  
Department of Computer Engineering  
S.V. Regional College of Engg. and Tech. Surat, India  
(Now S.V. National Institute of Technology Surat, India)  
Date of Graduation: August 1992

## **Short Term Courses**

1. **Midlands Graduate School at University of Nottingham, UK**  
PhD School  
Title: Foundations of Computer Science

Duration and Date: One week, Spring 2007

**2. Technical University of Denmark, Copenhagen, Denmark**

PhD School

Title: GLOBAN 2006-The Global Computing Approach to Analysis of Systems

Duration and Date: One week, Summer 2006

**3. Indian Institute of Technology Delhi, New Delhi, India**

Short term course

Title: Logic Programming and Introduction to PROLOG

Duration and Date: Two weeks, Summer 2004

**4. WIPO World Wide Academy, Geneva**

Distance Learning course

Title: An introduction to Intellectual Property Rights

Duration and date: Six weeks, Spring 2000

**5. Indian Institute of Technology Kanpur, Kanpur, India**

Short term course

Title: Wireless Mobile Radio Communication Networks

Duration and Date: 2 weeks, Winter 1999

**6. Institute of entrepreneurship Development, Lucknow, India**

Short term course

Title: The Trainers Training programme

Duration and Date: One week, Summer 1995

## Experience

### Academic

**1. Center for Advanced Studies, AKTU Lucknow**

Director

July 15,2017- till date

Duties: Founder Director of ambitious research and post graduate technical institute of AKTU

**2. Institute of Engineering and Technology Lucknow, India**

Department of Computer Science and Engineering

**Professor**

**29th Feb 2012-14th July 2017**

(On Service Transfer to AKTU)

Associate Professor

22nd Dec 2006-28th Feb 2012

Asstt. Professor

22nd Dec 2003-21st Dec 2006

Sr. Lecturer

22nd Dec 1999-21st Dec 2003

Lecturer

25th May 1996-21st Dec 1999

Duties: Taking classes for undergraduate/postgraduate computer science

students

Courses: Design and Analysis of Algorithms, Computer Networks, Computability and Complexity Theory.

Other duties: HoD of Computer Science and Engineering department, In-charge Purchase, Hostel warden, Deputy Dean Academics, Professor In-Charge Training and Placement Cell, Dy Coordinator (academic) of Institute Project Implementation Unit (IPIU), World Bank TEQIP-II programme.

**Dr APJ Abdul Kalam Technical University (AKTU Lucknow, Formerly known as UPTU/GBTU Lucknow), Lucknow Assignments:**

Director, Center for Advanced Studies **continuing**, Dean of Student Welfare, Dean of Training and Placements, Member BOS UPTU Lucknow for Computer Science, Member of Counselling Monitoring Committee of SEE-UPTU 2009 (State level assignment), Programme Co-ordinator NSS and Nodal Officer of Youth affairs cell of UPTU, Assistant Co-ordinator State Entrance Examination (SEE) GBTU-2010, Deputy Co-ordinator State Entrance Examination (UPSEE) GBTU-2012, 2013, Deputy Co-ordinator State Entrance Examination (UPSEE) AKTU-2016.

**Government of Uttar Pradesh Assignments:**

Director, Skill Development Institute, Tans Ganga City, Unnao, Uttar Pradesh (**continuing**), Member of syllabus committee for setting up Indian Institute of Information Technology Lucknow (IIIT Lucknow) under PPP model, Think tank member for setting up IIIT Lucknow.

**3. Bundelkhand Institute of Engineering and Technology Jhansi, India**

Department of Computer Science and Engineering

Lecturer

22nd Dec 1993- 24th May 1996

Duties: Taking classes for undergraduate computer science students

Courses: Data Communication, Computer Networks.

Other duties: In-charge Literary activities and various other department and institute level administrative responsibilities.

**Honours and Awards**

1. Commonwealth Academic Staff Fellowship-2012 (Ref. INCS-2012-252) from Commonwealth Scholarship Commission UK (A body established by the Government of U.K. by an act of British Parliament established for this purpose) for post doctoral fellowship at Department of Computing Science, University of Glasgow, UK.
2. Commonwealth UK scholarship-2005 (Ref. INCS-2005-145) from Commonwealth Scholarship Commission UK (A body established by the Government of U.K. by an act of British Parliament established for this purpose) for Pursuing PhD at Department of Informatics, University of Sussex, UK.

3. Young Scientist Award 2003 of Govt of Uttar Pradesh, India for contribution towards science , engineering and academics.
4. Suresh Chandra Memorial Award for best software project among M.Tech. projects completed in the Computer Science and Engineering Department at IIT Delhi , India during session 2001-2002.
5. Merit Scholarship in B.E. I at REC, Surat (Presently NIT, Surat) , India for the session 1988-1989 from MHRD, Govt of India.
6. Certificate of Achievement of the 2003 ACM Asia ICPC contest Kolkata-Roorkee at IIT Roorkee, India October 12, 2003 as coach .
7. Certificate of Achievement of the 2004 ACM Asia ICPC contest Kanpur Site at IIT Kanpur, India December 14-15, 2004 as coach.

## Publications

### Papers

1. A Process Calculi for Intrusion Detection System in Mobile Ad-hoc Networks, Parul Yadav and Manish Gaur, Journal of Communications, ISSN: 1796-2021 (Online); 2374-4367 (Print), Accepted & in process of publication (March, 2018).
2. A Behavioural Theory for Intrusion Detection System in Mobile Ad-hoc Networks, Parul Yadav and Manish Gaur, Proc. of the International Conference on High Performance Compilation, Computing and Communications (HP3C-2018), Hong Kong, China, March 15-17, 2018.
3. A Study of Process Calculus for Formal Verification and Analysis of Security Protocol, Annie Irfan, Manish Gaur and S. P. Tripathi, 4th International Conference on Applied and Theoretical Computing and Communication Technology (iCATccT 2018), AIET Mangalore, 6-8 September 2018, IEEE ISBN: 978-1-5386-7706-3.
4. A routing Calculi with Flooding Updates, Manish Gaur, Simon J Gay and Ian Mackie, 11th International Conference of Distributed Computing and Internet technologies (ICDCIT 2015), Bhubneshwar, India (Proceedings). Lecture Notes in Computer Science, Volume 8956, pp 181-186.
5. A Comparative analysis of NOC over MVG to improve quality of software, Dharmendra Lal Gupta, Anil Kumar Malviya, Manish Gaur and Vikash Chauhan, i-managers journal on software engineering, Vol 10, No 1, July-September 2015.
6. On Efficiency Preorders, Manish Gaur and S Arun-Kumar, 5th IPM International Conference on Fundamentals of Software Engineering (FSEN 2013)(Post Proceedings, Revised), Lecture Notes in Computer Science, Volume 8161, pp 1-12, 2013, Arbab Farhad, Sirjani Marjan (Eds).
7. On Efficiency Preorders, Manish Gaur and S Arun-Kumar, 5th IPM International Conference on Fundamentals of Software Engineering (FSEN 2013)(Pre Proceedings), 24-26th April 2013, Tehran, Iran.

8.  $DR_{\pi}^{\omega}F$  : A Fault Tolerant Distributed Routing Calculi, International Journal of Computer Applications, Manish Gaur and Rama Kant, Volume 40(7),pp 1-7, 2012.
9. Counting the cost in the picalculus (An extended abstract), Electronics Notes of Theoretical Computer Science, Manish Gaur and Matthew Hennessy, Volume 229(3), pp 117-129, 2009.
10. A Survey On Process Algebraic Stochastic Modeling of Large Distributed Systems for its Performance Analysis (Survey Paper), Manish Gaur and Rama Kant, 3rd International Conference on Eco Friendly Computing and Communication Systems (ICECCS 2014), NIT Surathkal, India. Proceedings in IEEE Xplore Pages 206 - 211, DOI:10.1109/Eco-friendly.2014.49.
11. Formal Methods in Adoption of Industrial Automation, Manish Gaur, Seminar on Challenges in Adoption of Industrial Automation: An Indian Perspective on 10th August 2011 at Gautam Buddh Technical University, Noida Campus, Noida (Sponsored by Rockwell Noida).
12. Distance Based Angular Multicast Routing Protocol for Mobile Ad Hoc Networks (DA-MRP), Mumtaz N,Parul Yadav and Manish Gaur, Fifth International Conference on Communication Systems and Network Technologies (CSNT), 2015, IEEE Xplore proceedings, Pages: 253 - 257, DOI: 10.1109/CSNT.2015.231.
13.  $DR_{\pi}^{\omega}$ : A routing calculus for distributed computing, Manish Gaur, Proceedings of Doctoral symposium held in conjunction with Formal Methods 2008, Vol 48, pp 23-32, May 2008, at Turku Centre for Computer Science, Finland.
14. A routing calculus for distributed computing (extended abstract), Manish Gaur, Bulletin of the European Association for Theoretical Computer Science (EATCS), No 95, June 2008.
15. An On the Fly algorithm for deciding efficiency preorders, Manish Gaur and S P Tripathi, International Conference on Computer Science and Information Technologies, Ufa, Russia, 16-18 September, 2003, VOL I CSIT 2003.
16. A talk on Deciding Efficiency Preorders, Manish Gaur, International Conference and Instructional Workshop on Industrial Mathematics(ICIWIM) 2002, 7-9 December 2002, IIT Bombay, Mumbai, India. ICIWIM-2002.
17. Switching Networks for Rural Networks, Manish Gaur and S Verma, Telecommunications for Rural India, 7-8 December 1996, IETE, Lucknow.
18. Industry Academia Interaction towards Increased Productivity and better Research and Development , Manish Gaur and R B Patel, National Conference on Industry Academia Interaction, 12-13 August 1993, M M M Engg College, Gorakhpur.
19. A Stochastic Extension of the Routing Calculi, Ramakant and Manish Gaur, IJCA Proceedings on International Conference on Distributed Computing and Internet Technology ICDCIT 2015(1):13-17,January 2015.

20. A Survey on Formal Modeling for Secure Routing in Mobile Ad-hoc Networks, Parul Yadav and Manish Gaur, IJCA Proceedings on International Conference on Distributed Computing and Internet Technology ICDCIT 2015(1):18-23, January 2015.
21. A Machine Learning Approach for Recommendation in Search Engine, Govind K. Jha, Manish Gaur and A.P Shakya , Second International Conference on Advancement in Computer Engineering and Information Technology (ACEIT) 2018, Integral University, International Journal of Advanced Research in Computer Science, ISBN: 978-93-5311-643-9, E-ISSN-0976-5697, PP-128-132.

### Thesis

1. **PhD Thesis:** A Routing Calculus: Towards Cost of Computation in a Distributed Computer Networks, Department of Informatics, University of Sussex, U.K., December 2008.
2. **M.Tech. Thesis:** Deciding Efficiency Pre-bisimulations, Department of Computer Science and Engg., Indian Institute of Technology Delhi, New Delhi, December 2001.

### Unpublished Technical Report (Likely to be published soon)

1. A Routing Calculus with Backward Learning Updates, Manish Gaur and Ian Mackie and Simon J Gay, Technical Report 2012, School of Computing Science, University of Glasgow, UK.

### Projects

1. Chief Project Investigator, Google Code Lab at Center for Advanced Studies, Sponsored by Google Inc, Mobilised a grant of USD 1.0 Lakh. The prime objective of this lab is to train faculty/students in the areas of Machine Learning, Data Analytics, App Developments, Cyber and Data Security. Project Cost USD 1.0 lakh, (Ongoing)
2. Dy. Coordinator of the project titled "Virtulisation of Technical Education" sponsored by Department of Information Technology, Government of India. The project objective was to develop and connect 14 Nodal Centers all across U.P. and Utrakhand for dissemination of the E-Learning contents through virtual class rooms. Two recording rooms are also being setup for the E-content development. Duration: 3 years (2009-2012), Project Cost: Rs 300 lakhs. (Completed)
3. Co-Investigator of the Interdisciplinary Project titled "Setting up Technology Business Incubation and Innovation Cell (TBIU)". The objective of the TBIU is primarily to promote partnership with new technology entrepreneurs and start-up companies with a view to

- (a) promoting interactions with, and technology/expertise resourcing from, the members of academic staff and research scholars of the Departments and Centres of the Institute, and
- (b) incubating novel technology and business ideas into viable commercial products or services.

Rs 25 lakhs already sanctioned by the Dr APJ Kalam University Uttar Pradesh, Lucknow.

4. Successfully deployed and completed a consultancy project of Uttar Pradesh Subordinate Service Commission, Lucknow, worth Rs 3.80 lakhs, to develop a software for computer based typing test and conduction of examination at three centers. (August-September 2015)
5. Submitted a project titled "SEEdS (Software Export of Educational Services)" for setting up an Institute for skill up gradation for ICT based export of educational services. The project is approved by the Government of Uttar Pradesh. Two more similar projects were integrated with a total outlay of Rs 18.38 crores.

**Workshops/  
Seminar  
Organised**

1. Organised a Faculty Development Program on Formal Methods and Verification and Large Systems on 28-29th December 2015 under the aegis of World Bank TEQIP-II at Institute of Engineering and Technology, Lucknow.
2. Organised a faculty development workshop on "Nano Particles and its applications" on April 29, 2015 under the aegis of World Bank TEQIP-II at IET, Lucknow.
3. Organised a faculty development workshop on "Faculty Development Program on Foundations and Research Trends on Design and Analysis of Algorithms" from 21st May to 24th May 2009 at Hindustan College of Science and Technology, Farah, Mathura.
4. Organised a research development workshop on "An introduction to Formal Methods, Verification and Proof Techniques" from 11th-13th March 2011 at Anand Engineering College, Agra.

**Recent Invited  
Talks/Research  
Presentations/  
Visits**

1. Delivered a TEQIP-II sponsored invited talk at "Short Term Course on Advances in Computing Technology" organised by Department of Computer Science, MMM University of Technology, Gorakhpur during 3-9 July, 2017.
2. Delivered an invited talk at "One week workshop on Emerging Trends in Computer Science" organised by Department of Computer Science, School of Information Science and Technology, Babasaheb Bhimrao Ambedkar University, Lucknow during 24-30 March 2017.
3. Was part of the delegation of Government of Uttar Pradesh who visited Institute of Technical Education (ITE), Singapore from 18-23rd June 2016 for exploring the possibilities of setting up Skill Development Institute in Uttar Pradesh, India.

4. Delivered a research paper on An introduction to  $DR_{\pi}^{\omega}$  at Institute of Mathematical Modelling at Denmark Technical University, Copenhagen on 27th April 2010 (Research Group Seminar); Was invited, during 26th April 2010-29th April 2010, for feasibility study and possibility of research contribution on modelling the work flow of health system of Denmark in a process algebraic frame work during the week 25th April 2010-29th April 2010.
5. Delivered technical talks on *A Routing Calculi* at Centre for Formal Design and Verification of Software at IIT Bombay, Mumbai and Bhabha Atomic Research Centre, Mumbai on 8-9 February 2010.
6. Delivered a way forward note at a faculty development seminar on *Challenges in Adoption of Industrial Automation: An Indian Perspective* at Gautam Buddh Technical University, Noida Campus, Noida on 10th August 2011.

**Doctoral Thesis Supervision**

1. A Stochastic Routing calculi, Rama Kant, 2018, Awarded by Dr APJ Abdul Kalam Technical University Uttar Pradesh, Lucknow.
2. A Formal Modelling of Intrusion Detection System In Mobile Ad-hoc Networks, Parul Yadav, 2019, Submitted to Dr APJ Abdul Kalam Technical University Uttar Pradesh, Lucknow.

**Post Graduate (Master of Technology) Thesis Supervision**

1. A Distributed Routing calculi with Node Mobility, Vijay Katta, 2010 at U.P. Technical University Lucknow, India.
2. A Fault Tolerant Routing Calculi, Rama Kant, 2011, U.P. Technical University Lucknow, India.
3. Modelling Stop and Wait Protocol Behaviour in pi-calculus using Mobility Work Bench, 2011, Gaurav Vats, Dr APJ Abdul Kalam Technical University Lucknow (Formerly U.P. Technical University Lucknow), India.

**Other Technical Skills**

1. **Programming Languages:** Well versed with SML, PROLOG, C/C++ . Implemented the algorithm for deciding efficiency pre-bisimulation in SML, ready to be plugged in CWB-NC (Concurrency Work Bench-New Century).
2. **Verification Tools:** worked on CWB-NC (Concurrency Work Bench-New Century), SPIN, Mobility Work Bench.