

# Amitabh Trehan

## Contact Information

amitabh@cs.unm.edu  
505-277-2241 (office)  
505-340-1532 (Cell Phone)  
505-277-6927 (fax)  
<http://www.cs.unm.edu/~amitabh/>

## Postal Address

Department of Computer Science  
University of New Mexico  
Albuquerque, NM 87131

## Research Interests

My broad research interests are in theory and algorithms with specific interests in distributed algorithms, networks, graph theory and probability. I am also exploring areas of game theory, coding theory. Current interest includes designing distributed algorithms for robustness/self-healing in systems under attack from a computationally unbounded adversary.

## Education

Ph.D., Computer Science, University of New Mexico, 2010 (expected).

Thesis: “Self-healing Networks” (working title), being advised by Prof. Jared Saia.

M.Tech. Computer Applications, Mathematics, Indian Institute of Technology, Delhi, Dec 2002.

Thesis: “A proposal for a phonetic based encoding for Indic scripts”, advised by Profs. Sanjiva Prasad and Wagish Shukla.

M.C.A. (Masters in Computer Applications), Indira Gandhi National Open University, Delhi, Dec 1999.

B.Sc. Biology, Punjab University, June 1994.

## Professional Experience

Research Assistant (2004-present), Computer Science Department. University of New Mexico, U.S.A.

Visiting faculty ( Fall 2003): Management Studies Department. *Indian Institute of Technology*, Roorkee, India.

Project Officer (1999 - 2004): Laboratory for Informatics in the Liberal Arts, *Mahatma Gandhi International Hindi University*, Delhi and Wardha, India.

Faculty (1996 - 1997): *National Institute of Information Technology*. Gurgaon, India.

## Awards and Honors

Graduate Dean’s Dissertation Fellowship, University of New Mexico, 2009-2010.

Student Travel Award, Principles of Distributed Computing (PODC) 2009.

Best poster, “Self-Healing Networks”, in Computer Science at UNM Student Conference (CSUSC), 2008.

Selected for Santa Fe Institute Complex Systems Summer School (CSSS) 2007.

College Color, public speaking, DAV College, Punjab University, 1994.

## Publications

**Note: In theory conferences and journals, author names are almost always in alphabetical order.**

### Conferences and Workshops

Tom Hayes, Jared Saia and Amitabh Trehan, “The Forgiving Graph: A Self-Healing Distributed Data Structure”, in *Principles of Distributed Computing (PODC)*, 2009.

Tom Hayes, Navin Rustagi, Jared Saia and Amitabh Trehan, “The Forgiving Tree: A Self-Healing Distributed Data Structure”, in *Principles of Distributed Computing (PODC)*, 2008.

Jared Saia and Amitabh Trehan, “Picking up the Pieces: Self-Healing in Reconfigurable Networks”, in *IEEE International Parallel and Distributed Processing Symposium*, 2008.

Christian Darabos, Alex Healing, Tim Johann, Amitabh Trehan, and Amélie Véron, “Exploring Healing Strategies for Random Boolean Networks”, Santa Fe Institute CSSS 2007.

Amitabh Trehan and Wenyun Zuo, “Let Us Date!: A Model of Dating”, Santa Fe Institute CSSS 2007 .

Wagish Shukla and Amitabh Trehan, “Typesetting in Devanagari, Persian and Arabic: A beginner’s experience”  $\TeX$  Users Group, 2002.

Amitabh Trehan and Wagish Shukla, “Neural networks, Black boxes? and Fuzzy rule acquisition: An Implementation”, in *International Conference on Cognitive Systems (ICCS’99)*, 1999.

### Book Sections and Chapters

Chapter : “Input/Output Technologies”, Course text book, Indira Gandhi National Open University, 2003.

### Posters

Amitabh Trehan “Self-Healing Networks”, in Computer Science at UNM Student Conference, 2008. **Winner of the best poster award.**

Amitabh Trehan “Self-Healing Networks”, in *PhDForum, IEEE International Parallel and Distributed Processing Symposium*, 2008.

D.A. Bader, V. Sachdeva, A. Trehan, V. Agarwal, G. Gupta, and A.N. Singh, “BioSPLASH: A sample workload from bioinformatics and computational biology for optimizing next-generation high-performance computer systems”, 13th Annual International Conference on Intelligent Systems for Molecular Biology, 2005

### Workshops Organized

Chief organizer: “Caturanga 2002”, Trivandrum, India, “Caturanga 2001”, Pune, India. (International conferences on interdisciplinary research).

“Workshop on  $\LaTeX$  and Free Mathematical Software”, June 2002 at Bhaskaracharya Pratishthaan, Pune and University of Pune, India.

## Invited Presentations

Università di Roma Sapienza, “The Forgiving Tree: towards self-healing networks”, March 2009.

University College, London, SSE Seminar : “The Forgiving Tree: towards self-healing networks”, Dec 2008.

## Press Coverage

“Researchers work towards self healing computer networks’, in *UNM Today*, print ed., Aug 2008.

## Professional Activities

I have reviewed manuscripts for the following conferences: *SPAA 2009, IEEE Globecom 2009, IEEE ICDCN 2009*.

Organizing Committee, T<sub>E</sub>X Users Group (TUG2002) Conference, 2002.

Board member, T<sub>E</sub>X users group, India.

Examiner, BCA/ADCA courses, Indira Gandhi National Open University, 2003

## References

### Jared Saia

Professor, Department of Computer Science  
University of New Mexico  
Albuquerque, NM 87131  
saia@cs.unm.edu  
505-277-5446 (office)  
<http://www.cs.unm.edu/~saia/>

### Thomas P. Hayes

Professor, Department of Computer Science  
University of New Mexico  
Albuquerque, NM 87131  
hayes@cs.unm.edu  
505-277-3112 (office)  
<http://www.cs.unm.edu/~hayes/>

### Tanya Berger-Wolf

Professor, Department of Computer Science  
University of Illinois  
Chicago, IL 60607  
tanyabw@uic.edu  
312-413-8719 (office)  
<http://compbio.cs.uic.edu/~tanya/>