

Amitabh Trehan

Contact Information

amitabh.trehaan@gmail.com
+44-(0)74-6667-0830(Cell Phone)
Web: www.amitabhtrehan.net
Blog: www.huntforthewowel.wordpress.com

Postal Address

Computer Science
Durham University
Durham, UK
DH1 3LE

Research Interests

My broad research interests are in CS theory and algorithms, especially those arising from or applicable to real world and human engineered systems. I have specific interests in distributed algorithms, complexity, networks, graph theory, and game theory. Current work includes designing efficient distributed algorithms for robustness/self-healing/self-* properties in systems under attack from a computationally unbounded adversary, questions about algorithms in distributed and biological systems, and game theoretic and other mechanisms for evolving and dynamic networks, such as Peer-to-peer and social networks. I am a fellow of the UK Higher Education Academy (**FHEA**) and fulfill various teaching and administration roles including undergraduate final year project coordinator.

Education

Postgraduate Certificate in Higher Education and Teaching, *Queen's University Belfast (QUB)*
(leading to **Fellowship of Higher Education Academy (FHEA)**), June 2016

Ph.D.(with distinction), Computer Science, *University of New Mexico*, May 2010

Dissertation: "Algorithms for self-healing in networks", advised by Prof. Jared Saia

- UNM Deans Dissertation Award

- Nominee, Principles of Distributed Computing Doctoral Dissertation Award, 2012

M.Tech. Computer Applications (Mathematics interdisciplinary program), *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
Thesis: "Neural Networks and Fuzzy logic", advised by Prof. Wagish Shukla, IIT Delhi

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

Professional Experience

Associate Professor (Oct 2020 -) and Head of *NESTiD*(Network Engineering, Science, and Theory in Durham) research group, Computer Science, *Durham University, Durham, UK*

Lecturer (Feb 2017 - Sep 2020), Computer Science, *Loughborough University, Loughborough*

Lecturer (Oct 2013 - Jan2017), Computer Science, EEECS, *Queen's University, Belfast*

- *High Performance and Distributed Computing Cluster*,

- *Centre for Data Science and Scalable Analytics Systems*, ECIT-2 Global Research Institute.

I-CORE Postdoctoral Research Fellow (Apr 2013 - Oct 2013), School of Engineering and Computer Science, *Hebrew University of Jerusalem* (with Prof. Danny Dolev)

Post-doctoral Fellow (October 2010 - April 2013), Information Systems, Faculty of Industrial Engineering and Management, *Technion-IIT*, Haifa, Israel (with Profs. Shay Kutten and Ron Lavi)

Post-doctoral Researcher (May - September 2010), Computer Science, *University of Victoria*, Canada. (with Prof. Valerie King)

Research Associate (June 2010), Computer Science, *Brown University* (with Prof. Gopal Pandurangan)

Research Assistant (2005-May 2010, 2004), Computer Science, *University of New Mexico*, U.S.A. (with Prof. Jared Saia, Prof. David Bader respectively)

Research Assistant (2005), UNM Biology/ T-10, theoretical biology, *Los Alamos National Lab* (with Dr. William Hlavacek)

Visiting faculty (Fall 2003): Management Studies *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

Courses/Modules taught

Notes: Only University level, full time taught courses listed. **Nominee, most outstanding lecturer 2018-19, Computer Science**

Module leader as Project Coordinator (formerly Part-C/D tutor), UG project modules (COC251, COC253, COC255, COC257, COC259, COD290, COC252, COC800) (2018: 173 students, 26 supervisors, 2017: 157 students, 25 supervisors). Spring 2016 -
- Coordinated UG Projects and individually supervised students: Supervisor of **Best Part-D projects (for both 2017/18 and 2018/19)**

Module leader, COA105: "Introduction to Algorithms", CS Part A, Spring 2017 - , LU (Approx 143 students)

Co-lecturer, COB232: "Operating Systems, Networks and the Internet-2 (OSNI-2), CS Part B, Spring 2016 -, LU (Approx 110 students in 2018-19)

Module leader, CSC2047: "Theory of Computing", B.Eng. CS, Spring and Fall, 2016-17, QUB (approx. 120 students)

Co-lecturer, CSC2001: "Data Structures and Algorithms", B.Eng. CS/SE, Spring 2016-17, QUB (200+ students)

Module leader, CSC7052: "Databases", M.Sc (Software Engineering) Fall 2013-15, QUB (Approx. 80 students)

Module leader, "Database Management Systems", M.B.A., Fall 2003, IIT Roorkee (Approx. 60 students)

Other Trainings

Royal Society's Residential Communication and Media Course, Royal Society, Nov 2017

Complex Systems Summer School (CSSS), *Santa Fe Institute*, Santa Fe, 2007

Advanced Diploma in Computer Applications, *National Institute of Information Technology*, Gurgaon, India, 1994 - 1996

Awards and Honors

Nominee, most outstanding Lecturer, Computer Science , 2018-19

EPSRC First Grant, “Compact Self-Healing and Routing Over Low Memory Nodes”, 2017-18

London Maths Society Scheme 7 Grant (travel collaboration grant) 2017

Visiting Professorship, University of Marseille, France, Spring/Summer 2017

Newton Fund International Collaboration Programme AMC Mobility Grant, 2016. (For a joint project with Prof. Armando Castaneda, Universidad Nacional Autonoma de Mexico), Aug-Sep 2016

Best paper runner-up at *ICDCN 2016*: “Compact Routing Messages in Self-Healing Trees”

Winner, Internal QUB competitions: i) EEECS International Doctoral Training Centre PhD studentship, ii) Faculty of EPS applied maths sandpit competition (PI on interdisciplinary CS-Maths-Phy-Bio proposal)

Newton Incoming Fellowship, 2013 of the Royal Society (at Royal Holloway University of London). Highly competitive (6% - 8% success rate) with financial support of upto £126,000

Israeli Centres of Research Excellence (I-CORE) postdoctoral fellowship, 2013

Best paper runner-up at *PODC 2013* (invited to JACM): “On the Complexity of Universal Leader Election”

Best paper at *ICDCN 2013*: “Sublinear Bounds for Randomized Leader Election”

Nominee (Ph.D. dissertation), Principles of Distributed Computing Doctoral Dissertation Award, 2012

Distinction, Ph.D., University of New Mexico, 2010

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

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

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

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

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

Funding

Successful Grants

PI, EPSRC First Grant, “Compact Self-Healing and Routing Over Low Memory Nodes (COSHER) (Reference: EP/P021247/1)”, Approx £125,000. 2017-19

- Managed the grant and Dr. Jonas Lefèvre as postdoc at Loughborough, prepared publications and planning final workshop DA@L (Distributed Algorithms @ Loughbrough). Website: www.cosher.org

PI, LMS Scheme 7 Grant, London Maths Society (£500 collaborative grant), 2017

- Visited Dr. Pelin Cambolat, KOC University, Istanbul to expand ‘EU Games’ game theory research

PI, Newton Fund International Collaboration Programme AMC Mobility Grant, Newton Fund/Mexico Academy of Sciences, Aug-Sep 2016. (£2,000 and travel cost).

- 6 weeks at Universidad Nacional Autonoma de Mexico, hosted by Dr. Armando Castaneda

Co-I, H2020 Future Emerging Technologies(FET)- HPC (FETHPC-1-2014), “AllScale: An Exascale Programming, Multi-objective Optimisation and Resilience Management Environment Based on Nested Recursive Parallelism”. Approx €3.4 Million (QUB component approx €450,000 (£300,000)) - Work package leader of work package on ‘Self-healing exascale computing’

PI, Royal Society Newton Incoming Fellowship, “Self-healing framework for managed network architectures”. £66,000, 2014-2015; £60,000, 2016-2026

- Highly competitive fellowship (8% acceptance rate); declined due to conflict with lecturer position

Selected Publications

Notes:

- In Computer Science theory conferences and journals, author names are in alphabetical order and some conference publications are as or more prestigious than journal publications.
- Citation count(C): from Google Scholar (July 31, 2019): h-index: 10, i10-index: 10, total citations= 398.
- Conference acceptance rates(A) and Citation count(C) where available have been shown.
- Papers published with a student where I was the primary supervisor have the student’s name underlined.

Under Submission or Review

U1 Shay Kutten, Ron Lavi and Amitabh Trehan, “*Composition Games for Distributed Systems: The EU Grants Games*”, under review for **Journal of Artificial Intelligence Research (JAIR)**, 2019.

U2 Armando Castañeda, Jonas Lefevre, Amitabh Trehan, “*Self-healing Routing and Other Problems in Compact Memory*”, 2018, at www.arxiv.org, under submission to a conference.

Journals

J1 Rafat Alshorman, Ra’ed Bani-Abdelrahman, Walter Hussak and Amitabh Trehan, “: Specification of Synchronous Network Flooding in Temporal Logic”, **The International Arab Journal of Information Technology (IAJIT)**, 2020.

J2 Armando Castaneda, Danny Dolev and Amitabh Trehan, “Compact Routing Messages in Self-Healing Trees”, **Theoretical Computer Science (TCS)**, Vol. 709, 2018. (C: 2)

J3 Gopal Pandurangan, Peter Robinson, and Amitabh Trehan, “DEX: Self-healing Expanders”, **Distributed Computing, Springer, Vol 29, No.3, June 2016.** (C: 22)

J4 Shay Kutten, Gopal Pandurangan, David Peleg, Peter Robinson, and Amitabh Trehan, “On the Complexity of Universal Leader Election”, **Journal of ACM (JACM)**, Vol 62, No. 2, May 2015. (C: 33)

J5 Shay Kutten, Gopal Pandurangan, David Peleg, Peter Robinson, and Amitabh Trehan, “Sublinear Bounds for Randomized Leader Election”, **Theoretical Computer Science (TCS)**, Vol 561, January 2015 (C: 34)

J6 Gopal Pandurangan and Amitabh Trehan, “Xheal: localized self-healing using expanders”, **Distributed Computing, Springer, Vol 27, No 1, February 2014** (C: 45)

J7 Tom Hayes, Jared Saia and Amitabh Trehan, “The Forgiving Graph: A Self-Healing Distributed Data Structure”, **Distributed Computing, Springer, Vol 25, No 4, February 2012.** (C: 62).

- J8 Valerie King, Steven Lonargan, Jared Saia and Amitabh Trehan, “Load balanced Scalable Byzantine Agreement through Quorum Building, with Full Information”, journal version under preparation. (C: 47)
- J9 Atish Das Sarma, Ashwin Lall, Danupon Nanangkoi, and Amitabh Trehan, “Dense Subgraphs on Dynamic Networks”, journal version under preparation. (C: 6)

Conferences and Workshops (A selection of Peer-reviewed publications)

- C1 Seth Gilbert, Gopal Pandurangan, Peter Robinson, Amitabh Trehan, “DConstructor: Network Construction with Polylogarithmic Overhead”, in **ACM Principles of Distributed Computing (PODC), 2020**
- C2 Walter Hussak and Amitabh Trehan, “On The Termination of Flooding”, in **Symposium on Theoretical Aspects of Computer Science (STACS), 2020**
- C3 Armando Castañeda, Jonas Lefevre, Amitabh Trehan, “*Fully Compact Routing in Low Memory Self-Healing Trees*”, in **International Conference on Distributed Computing and Networking (ICDCN), 2020**
- C4 Walter Hussak and Amitabh Trehan, “On Termination of a Flooding Process”, in **ACM Principles of Distributed Computing (PODC), 2019** (A: 29%)
- C5 Daniel Playfair, Amitabh Trehan, Barry McLarnon, Dimitrios S. Nikolopoulos, “Big data availability: partial checkpointing for in-memory database queries”, **Fourth Workshop on Scalable Cloud Data Management, IEEE Big Data 2016**. (C: 1).
- C6 Armando Castaneda, Danny Dolev and Amitabh Trehan, “Compact Routing Messages in Self-Healing Trees”, **International Conference on Distributed Computing and Networking (ICDCN) 2016**. (A: 41%) (C: 2).
- C7 Gregory Chockler and Amitabh Trehan, “Towards Self-healing SDN”, **Distributed Software Defined Networks (DSDN) workshop, Principles of Distributed Computing (PODC), 2014**
- C8 Gopal Pandurangan, Peter Robinson, and Amitabh Trehan, “DEX: Self-healing Expanders”, **IEEE International Parallel and Distributed Processing Symposium (IPDPS)**, 2014. (C: 21, A: 21.1%)
- C9 Shay Kutten, Gopal Pandurangan, David Peleg, Peter Robinson, and Amitabh Trehan, “On the Complexity of Universal Leader Election”, in **Principles of Distributed Computing (PODC), 2013**. (C: 33, A: 25.5%) - **Best paper runner up and invited for journal publication to JACM**.
- C10 Shay Kutten, Ron Lavi and Amitabh Trehan, “Composition Games for Distributed Systems: The EU Grants Games”, in **AAAI Conference on Artificial Intelligence (AAAI-13)**, 2013. **Work supported by Technion-Microsoft Electronic Commerce Research Center** (C: 5, A: 29%).
- C11 Shay Kutten, Gopal Pandurangan, David Peleg, Peter Robinson, and Amitabh Trehan, “Sublinear Bounds for Randomized Leader Election”, in **International Conference on Distributed Computing and Networking (ICDCN)**, 2013.(C: 34, A: 26.8%)
-**Best paper award at ICDCN 2013**. Details previously given for the journal version.
- C12 Atish Das Sarma, Ashwin Lall, Danupon Nanangkoi, and Amitabh Trehan, “Dense Subgraphs on Dynamic Networks”, in **International Symposium on Distributed Computing (DISC)**, 2012. (C:9, A: 22.7%)
- C13 Ashwin Lall, Danupon Nanangkoi, Atish Das Sarma, and Amitabh Trehan, “Brief Announcement: Distributed Algorithms for finding Dense Subgraphs”, in **Principles of Distributed Computing (PODC)**, 2012. (C:1, A: 43%)

- C14 Atish Das Sarma and Amitabh Trehan, “Edge-preserving self-healing: keeping network backbones densely connected”, in **Workshop on Network Science for Communication Networks (NetSci-Com 2012)**, IEEE InfoCom, 2012 (C:16)
- C15 Shay Kutten, Ron Lavi and Amitabh Trehan, “Composition Games for Distributed Systems: The EU Grants Games (Abstract)”, Abstract at *Workshop on the Economics of Networks, Systems and Computation (NetEcon 2012)*, IEEE InfoComm, 2012. (C:5)
- C16 Gopal Pandurangan and Amitabh Trehan, “Xheal: localized self-healing using expanders”, in **Principles of Distributed Computing (PODC)**, 2011. (C: 44, A: 26.4%)
- C17 Shay Kutten, Ron Lavi and Amitabh Trehan, “Brief Announcement: Composition Games for Distributed Systems: The EU Grants Games”, in **International Symposium on Distributed Computing (DISC)**, 2011. (A: 22.8%) (C:5)
- C18 Valerie King, Steven Lonargan, Jared Saia and Amitabh Trehan, “Load balanced Scalable Byzantine Agreement through Quorum Building, with Full Information”, in **International Conference on Distributed Computing and Networking (ICDCN)**, 2011. (C: 47, A: 22.1%)
- C19 Tom Hayes, Jared Saia and Amitabh Trehan, “The Forgiving Graph: A Self-Healing Distributed Data Structure”, in **Principles of Distributed Computing (PODC)**, 2009. (C: 62, A: 24.5%)
- C20 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. (C: 34, A: 45%)
- C21 Jared Saia and Amitabh Trehan, “Picking up the Pieces: Self-Healing in Reconfigurable Networks”, in **IEEE International Parallel and Distributed Processing Symposium (IPDPS)**, 2008. (C: 50, A: 25.6%)
- C22 Christian Darabos, Alex Healing, Tim Johann, Amitabh Trehan, and Amélie Véron, “Exploring Healing Strategies
- C23 Amitabh Trehan and Wenyun Zuo, “Let Us Date!: A Model of Dating”, Santa Fe Institute CSSS 2007 .
- C24 Wagish Shukla and Amitabh Trehan, “Typesetting in Devanagari, Persian and Arabic: A beginner’s experience” *TeX Users Group (TUG)*, 2002.
- C25 Wagish Shukla and Amitabh Trehan, “Typesetting in Devanagari, Persian and Arabic: A beginner’s experience” **TeX Users Group (TUG)**, 2002.
- C26 Amitabh Trehan and Wagish Shukla, “Neural networks, Black boxes? and Fuzzy rule acquisition: An Implementation”, in *International Conference on Cognitive Systems(ICCS’99)*, New Delhi, 1999.

Dissertation and Thesis

- D1 “Algorithms for Self-healing in Networks”, **Ph.D. Dissertation**, University of New Mexico, 2010. (C:23)
- My PhD dissertation consisting mainly of the 3 papers from the previous list (??, ??, ??).
- D2 “A Proposal for a Phonetic Based Encoding for Indic Scripts”, **M.Tech. Thesis**, Mathematics, Indian Institute of Technology, Delhi, India, 2002.
- India has 26 official languages, but 100s of languages and almost unlimited graphemes (symbols) but limited phonemes. We developed PANINDIC codes which would suggest efficient and flexible encodings.
- D3 “Neural Networks and Fuzzy Logic”, **M.C.A. Thesis**, Indira Gandhi National Open University, Delhi, 1999.
- The thesis was a study in combining artificial neural networks (on which deep learning is based) and fuzzy logic. I did all the experimental work and writing for this work.

Books, Book Chapters, Reports and Editorial Work

- B1** Posco Tso, Amitabh Trehan, Iain Phillips and Lin Cui (Editors), **Proceedings of the 2018 Workshop on Theory and Practice for Integrated Cloud, Fog and Edge Computing Paradigms, TOPIC@PODC 2018**, Egham, United Kingdom, July 27, 2018
- B2** Amitabh Trehan, "Report on BCTCS 2016", **Bulletin of the EATCS 119, 2016**
- B3** Amitabh Trehan, "Algorithms for self-healing in networks", ISBN 9781243761774, **Proquest, Umi Dissertation Publishing, 2011 (C:23)**
- B4** Amitabh Trehan, "Self-healing systems and virtual structures", at <http://arxiv.org/abs/1202.2466> (C:6)
- B5** Amitabh Trehan, "Input/Output Technologies", chapter in course text book (Computer Science), **Indira Gandhi National Open University (publishers), 2003.**

Posters

Shay Kutten, Ron Lavi and Amitabh Trehan, "Composition Games for Distributed Systems: The EU Grants Games", in *AAAI Conference on Artificial Intelligence (AAAI-13)*, 2013.

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

Supervision and Assessment

Ph.D. examiner: I have served (or set to serve) as Ph.D. examiner for 6 students. Internal (Loughborough): (i) *Intisar Al-Mandhari*, (ii) *Nebrase Elmrabit*, (iii) *Ahmed Abubakar*, External examiner: (i) George Skretas (U. Liverpool), (ii) *Jaroslav Mirek*(U. Liverpool), (iii) *P. Shanathi* (National Institute of Technology, Trichy, India).

Supervisions:

Nina Klobas, David Kutner: Ph.D. supervisory team, Durham University

Ra'ed Bani Abdelrahman, PhD. (Primary supervisor: 75%, since Oct 2017.Graduated March 2019 LU - Thesis: "The use of temporal logic in specifying and verifying network algorithms";

Dr. Jonas Lefèvre (postdoc on the COSHER EPSRC project), Primary Supervisor: 100%, Sep 2017 - Aug 2018

Gary Bennett, PhD., LU, Oct 2017 - (Primary Supervisor: 80%) -

Daniel Playfair, Ph.D. (co-supervised with Prof. Dimitris Nikolopoulos, primary supervisor (80%) till Jan 2016, now 33%, sponsored by SAP Inc), QUB, Oct 2013 -

Shaul Cemel, M.S. Research (primary supervisor, co-supervised with Prof. Shay Kutten) Technion, Jan 2012 - Nov 2015

Thesis: "Simulation and Analysis of Growing Half-Balls" - research on P2P movies distribution algorithms

Antonia Still, B.Sc, Durham University. Thesis: "Effectiveness Of Current Distance-Based Phylogenetic Reconstruction Algorithms"

Theresa Duffin, Padhraic Campbell, Christopher Lamberton, Seon Bannon, David McGiollaBhríde, 2016; William Stevenson, Richard Robinson, (B.Eng. CS projects), 2015

Michael Callagher, Hannah McDade, 2015-16, David Bridges, Emma Currie, Nial Collins, Hugh Connolly (M.Sc. SE projects) May 2014 - October 2014

Vivek Goyal, Summer Intern (with Jared Saia), UNM, May- July, 2009

Personal Tutorship: Personal tutor to twenty four QUB students (2014-16)

University and Departmental Service

UG Projects Coordinator (previously, Part-C/D Tutor), Computer Science, Loughborough University (2018: 173 students, 26 supervisors, 2017: 157 students, 25 supervisors)

- I have coordinated UG Projects and organised *Day Back Day* for incoming students into Part-C/D. I have led the transition from a partly paper based system to a fully online system transitioning towards fully University compatible software systems. The role involves solving several complex problems related to project/supervisor matching, timetabling, enterprise (including non-disclosure agreements and ethical clearance processes etc.)

Committee member, International Staff Group, Loughborough University, 2018 -

- A revived committee to support international staff at Loughborough University

Student recruitment support in India: I went on a student recruitment trip to India in May-June 2018 as a Computer Science expert.

Founder and Organiser, QUB *CDSSAS seminar series*, 2016; *QUB-TCS-Algo-Maths* and *QUB-GameTheory-SocialComputing* seminar series.

; Discussion groups bring together researchers on the lines of the given topics in weekly seminars (and other activities in the future). First Seminar held in August 2015.

School Champion/Partner for India (research and education), EEECS internationalisation committee: To lead initiatives on improving the School recruitment and internationalisation in India. ; Coordinate with VC's envoy to India (Head of EEECS) and QUB's India consultant to improve student recruitment and experience. Major initiatives including MoU's for joint programs and student (PhD/education) training have been undertaken.

Examinations Officer CS/EEE (Support): To support examinations across CS and EEE departments.

Cluster Leader of Graduate Education: Leader for cluster (High Performance and Distributed Computing) initiatives on graduate education

Leader of cluster UG/PG curriculum reorganisation: QUB did a major academic year restructuring for 2016-17. My role was to coordinate development of a cutting-edge curriculum within school constraints related to HPDC academics for all the UG and PG years.

Member, EEECS Investors in People (IiP) Business Improvement Team: EEECS was the first school in QUB to achieve the *Investors in People* status. I was also a member of the *Knowledge Sharing subgroup*.

Member, EEECS Research Society: The Research Society leads many initiatives and events bringing researchers and students together.

Member, Computer Science Health and Safety Committee: Fire warden duties.

Professional Service

Organiser, Distributed Algorithms @ Loughborough (DA@L), January 2019: Successful workshop organised as the culmination of EPSRC grant COSHER, with multiple eminent invited speakers (including two international speakers from Israel).

Workshops Chair and Conference Committee member , ACM Principles of Distributed Computing (PODC) 2018
- PODC was held at RHUL in July 2018 and I helped organise it, in particular, 6 workshops and 4 tutorials on July 23rd and 27th 2018.

Workshop Co-Chair, Theory and Practice for Integrated Cloud, Fog and Edge Computing Paradigms - TOPIC 2018 (collocated with PODC 2018)

Chief Organiser, 32nd British Colloquium of Theoretical Computer Science (BCTCS) 2016

Program Committee member, ACM Principles of Distributed Computing (PODC) 2019, International Conference on Distributed Computing and Networking (ICDCN) 2020, 2019, 2016, International Conference on Contemporary Computing (IC3) 2019, 2017, International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS) 2018, International Conference on Distributed Computing Systems (ICDCS) 2018, 2017, 14th International Symposium on Pervasive Systems, Algorithms, and Networks (I-SPAN) 2017, Workshop on Foundations of Mobile Computing (FOMC) 2013, 2014

Publicity Chair, Workshop on Foundations of Mobile Computing (FOMC) 2014

Organizing Committee member, T_EX Users Group (TUG2002) Conference, 2002

Board member, T_EX users group, India. (Head of Delhi chapter) (2002 -)

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

Fellow: UK Higher Education Academy, *Member:* ACM, IEEE, SIAM, BCS

Reviewer: UKRI EPSRC grants (ICT theme 2018-19), Israel Science Foundation (Personal Research Grants 2019)

I have reviewed manuscripts for the following conferences/journals: *ACM TALG (2019, 2018), Information Processing Letters (2017), Theoretical Computer Science(2016), Distributed Computing (2014, 2013), Journal of Self-Computing(2013), ACM PODC(2019), IC-3 (2019, 2017), SODA(2018, 2016, 2012), LATIN (2018), ICDCS (2018, 2015), STOC(2017, 2012), IEEE IPDPS (2017,2010), IEEE ICDCN (2017,2016, 2011, 2009), I-SPAN (2017), ICALP(2016), SPAA (2015, 2011, 2010, 2009), FOMC(2014, 2013), SRDS (2013), DISC (2011), OPODIS (2013, 2010), SAGT(2011), CCC (2010), IEEE Globecom (2009)*

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

Workshops Organized

T_EX Users Group (TUG2002) Conference, Trivandrum, India, 2002

“Workshop on L^AT_EX and Free Mathematical Software”, June 2002 at Bhaskaracharya Pratishthaan, Pune and University of Pune, India

Invited Presentations (Besides Conference Presentations)

Nearly fifty individual presentations:

Invited speaker, the second workshop on temporal graphs and algorithms (as part of ICALP 2019), Patras, Greece, July 08, 2019

Invited speaker, Network Algorithms @ Liverpool workshop - June 13th, 2019, University of Liverpool

“Sending and Forgetting: Flooding and Self-healing Routing over Low Memory Networks”, IIT Delhi Computer Science, Jawharlal Nehru University Delhi, University of Houston, Dfinity research San Fransisco, April 2019, Birkbeck college University of London, Loughborough Computer Science Seminar, March 2019

Lectures on Distributed Algorithms (4 lectures), Parametrised Algorithms Group, Computer Science, University of Bergen, Oct 2-6, 2017

“COSHER: Compact Self-healing Algorithms”, Computer Science Seminar, Loughborough University, March 2017, CS Department Seminar, Royal Holloway Univ of London, Nov 2017

“Compact Routing Messages in Self-Healing Trees”, *Highlights of Algorithms (HALG 2016)*, Paris, June 2016, Indian Institute of Science Bangalore (IISc), Chennai Mathematical Institute (CMI), Indian Institute of Technology Madras (IITM), K R Mangalam University, Jan 2016; Computer Science, University of Liverpool, Nov 2015.

Resilient Low Memory Networks: Self-healing plus Compact Routing, **Keynote talk**, CONFLUENCE 2016, Amity University, Noida, India.

“Distributed Computing under the Forgiving Tree”, QUB-TCS-Algo-Maths Seminar, Aug 2015.

“Composition Games for distributed systems: EU Grant games”, March 2015; *QUMS Economics Seminar*, Queen’s University Belfast, March 2014; *HPDC Seminar*, Queen’s University Belfast, March 2014; *Computer Science Seminar*, University of Victoria, July 2013; *DANSS Seminar*, Computer Science, HUJI, May 2013; *Technion-Microsoft EC center*, Technion, May 2012; University of New Mexico CS Theory Group Seminar, April 2012; *Electronic Commerce Seminar*, Technion, faculty of IE & M, Jan. 2012.

”Elections 2013: Sublinear and Universal Leader Elections”, *CE Club Seminar*, Technion, Jan 2014.

“Networks that fix themselves aka Self-healing networks”, *HPDC Seminar*, Queen’s University Belfast, Dec 2013; *Theory Seminar*, Microsoft Research, Mountain view, CA, July 2013; *DANSS Seminar*, Computer Science, HUJI, May 2013; *Foundations of Computer Science seminar*, Weizmann Institute of Science, March 2013; *Computer Science Seminar*, Royal Holloway College, University of London, March 2013; Tata Institute of Fundamental Research, Mumbai, Nov 2012; Tel Aviv University Algorithms seminar, Oct, 2012.

“Algorithms for Self-healing Networks: Forgiving Graph and Xheal”, *Haifa University CS Colloquim* June 2012, University of New Mexico CS Colloquim April 2012; Indraprastha Institute of Information Technology (IIITD), Indian Institute of Technology Ropar (IITRpr), Indian Institute of Technology Delhi (IITD), Chennai Mathematical Institute (CMI), Indian Institute of Technology Madras (IITM), National University of Singapore (NUS), March 2012.

“Forgiving Graph and Xheal: data structures for self-healing networks”, Ben Gurion University, Beer-Sheva, Israel, Jan. 2012.

“Data structures for self-healing networks: Forgiving Graph and Xheal”, Technion, *Computer Science Theory Seminar*, Dec. 2011.

“Algorithms for self-healing in networks”, University of Victoria, June 2010.

“The Forgiving Tree: towards self-healing networks”, Università di Roma Sapienza, March 2009, University College, London, SSE Seminar, Dec 2008.

Press Coverage

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

Other Activities

Actor’s voice, *BBC Panorama*, “Rolls Royce”, 2016

Radio show host, “The International Hour”, Technion Radio, Oct 2011- Feb 2012

President, UNM Cricket Club: Got the University to build a cricket pitch and provide cricket facilities by engaging the university administration at the highest level.

President, India Students Association at UNM: Organized a performance by Indian rock band ‘Indian Ocean’ in three weeks from conception, fund raising to execution.

Interests in Sports (Cricket (league player), Tennis etc); Creative writing (published poetry), Photography and Music.