Curriculum Vitae of Dr. Sanghamitra Bandyopadhyay

ADDRESS

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Date of birth: April 17, 1968.

ACADEMIC QUALIFICATIONS

Ph.D. in Computer Science, Indian Statistical Institute, Kolkata, India, 1999 (provisionally awarded in 1998). Title of thesis: Pattern Classification Using Genetic Algorithms.

M. Tech. in Computer and Information Technology, Indian Institute of Technology, Kharagpur, India, 1994, Ranked First with 9.75 points out of 10 (GATE score of 99.10 percentile).

B. Tech. in Computer Science and Engineering from Calcutta University, India, 1991 (exam in 1992), Ranked First with 84.3% marks (1st class with Honors).

B. Sc. with Honors in Physics from Presidency College, Calcutta University, India, 1988 (1st class with Honors).

WORK/RESEARCH EXPERIENCE

- Within India

  i) Director, Indian Statistical Institute, Kolkata, India, since August 2015 to July 2020, and September 2020 (ongoing).
  ii) Professor (Higher Administrative Grade), Indian Statistical Institute, Kolkata, India, since July 2014.
  iii) Professor, Indian Statistical Institute, Kolkata, India, June 2007 to June 2014 (out of turn promotion).
  iv) Associate Professor, Indian Statistical Institute, Kolkata, India, June 2004 to May 2007.
  v) Assistant Professor, Indian Statistical Institute, Kolkata, India, May 2002 to May 2004.
  vi) Lecturer, Indian Statistical Institute, Kolkata, India, September 1999 to May 2002.
  vii) Research Associate, Council of Scientific and Industrial Research (CSIR), worked at Indian Statistical Institute, Kolkata, India, November 1998 to March 1999.
  viii) Senior Research Fellow, Dept. of Atomic Energy, Govt. of India, worked at Indian Statistical Institute, Kolkata, India, April 1994 to November 1998.

- Outside India

  i) Senior Associate, International Center for Theoretical Physics (ICTP), Trieste, Italy, September 9-23, 2018 and November 21-December 01, 2018.

  ii) Visiting Professor, University of Ljubljana, Slovenia, April 2017.

  iii) Visiting Professor, University of Gottingen, Germany, May 2017.

  iv) Visiting Professor, University of Ljubljana, Slovenia, November 2016.

  v) Visiting Professor, University of Gottingen, Germany, May 2016.

  vi) Visiting Scientist, Institut Polytechnique de Grenoble, France, September 2014.

  vii) Senior Associate, International Center for Theoretical Physics (ICTP), Trieste, Italy, May 2014.

  viii) Alexander von Humboldt Experienced Researcher, Germany
    - Max Planck Institute for Informatik, Saarbrucken, April 2012 to June 2012, April 2011 to May 2011, April 2010 to June 2010
    - Bioquant, University of Heidelberg, June 2011

  ix) Visiting Scientist, Faculty of Mathematics and Computer Science, Ruprecht-Karls-University, Heidelberg, Germany, September 2009 to October 2009.

  x) Visiting Professor, Department of Sociology and Communication, Rome University, Italy, May 2008 to June 2008.

  xi) Visiting Scientist, Concordia Institute of Information Science and Engineering, Concordia University, Montreal, Canada, October 2007.

  xii) Visiting Professor, Graduate Summer School on Bioinformatics in China, Department of Automation, Tsinghua University, Beijing, China, July 2007 to August 2007.

  xiii) Visiting Researcher, Department of Automation, Tsinghua University, Beijing, China, July 2006 to August 2006.

  xiv) INSA-DFG Exchange Researcher, Fraunhofer Institute for Autonome Intelligente Systems, St. Augustin, Germany, September 2005 to November 2005.

  xv) Visiting Research Assistant Professor, University of Maryland Baltimore County, USA, June 2004 to July 2004.

  xvi) Visiting Faculty, Department of Computer Science and Engineering, University of Texas at Arlington, Texas, USA, June 2001 to October 2001.

  xvii) Post Doctoral Research Associate, Department of Artificial Intelligence, School of Computer Science and Engineering, University of New South Wales, Sydney, Australia, March 1999 to September 1999.

  xviii) Graduate Research Assistant, X Division, Computation Methods Group, Los Alamos National Laboratory, New Mexico, USA, April 1997 to September 1997.

AWARDS AND RECOGNITIONS

i) Management Excellence Award in the category *Leadership in Institutional Excellence*, Calcutta Management Association (CMA), 2021.

ii) INAE Woman Engineer of the Year Award, 2020.

iii) Prof. P. C. Mahalanobis Distinguished Educator in Engineering Science Award, Operational Research Society of India (ORSI), 2019.

iv) TWAS Prize in Engineering Sciences, 2018.

v) Infosys Prize in Engineering and Computer Science, 2017.

vi) J. C. Bose Fellowship, Engineering Sciences, Department of Science and Technology, Govt. of India, 2017 (five year term).

vii) Distinguished Alumnus Award, IIT Kharagpur, 2017.

viii) Lakshmipat Singhania - IIM Lucknow, National Leadership Award in Science and Technology (Young), 2017.

ix) Shanti Swarup Bhatnagar Prize, Engineering Sciences, Council of Scientific and Industrial Research (CSIR), New Delhi, Govt. of India, 2010.

x) Alexander von Humboldt Fellowship for Experienced Researchers, Germany, 2009-2010.

xi) Senior Associate, International Centre for Theoretical Physics (ICTP), Trieste, Italy, 2013-2019.

xii) Swarnajayanti Fellowship, Engineering Sciences, Department of Science and Technology, Govt. of India, 2006-2007.

xiii) Silver Jubilee Young Engineers Award, Indian National Academy of Engineering (INAE), 2012.

xiv) National Women Bioscientist Award (Young), Department of Biotechnology, Govt. of India, 2012.

xv) Best Paper Award, 2nd IEEE International Conference on Recent Advances in Computational Systems (RAICS), Trivandrum, 2013.

xvi) Young Engineers Award, Computer Science and Engineering, Indian National Academy of Engineering (INAE), New Delhi, 2002.

xvii) Young Scientist Medal, Engineering Sciences, Indian National Science Academy (INSA), New Delhi, 2000.

xviii) Young Scientist Award, Computer Sciences, 87th Indian Science Congress, Pune, January 3-7, 2000.

xix) Dr. Shanker Dayal Sharma Gold Medal from Indian Institute of Technology, Kharagpur, for being adjudged the best all-round post graduate performer in all disciplines of the year 1993-94.

xx) Silver Medal from Indian Institute of Technology, Kharagpur, for being adjudged the best performer in M. Tech. Examination in Computer Science and Engineering, 1994.

xxi) A. K. Chowdhury Memorial Award for being adjudged the best student of B. Tech., Computer Science, Calcutta University, 1991.

xxii) Dr. Jagadish Chandra Bose National Science Award, Science Association of Bengal, 2011.

xxiii) Best Post Graduate Student Paper Award, Workshop on Soft Computing, High Performance Computing (HiPC), Hyderabad, 2003.

xxiv) Outstanding Young Person, Kolkata, Science and Innovation, North Calcutta Junior Chamber, Kolkata, India, 2002.

FELLOWSHIP OF SCIENCE AND ENGINEERING BODIES

i) Fellow, International Association for Pattern Recognition (IAPR), 2020.

ii) Fellow, The World Academy of Sciences (TWAS), 2020.

iii) Fellow, Institution for Electrical and Electronic Engineers (IEEE), 2016.

iv) Fellow, Indian National Science Academy (INSA), 2016.

v) Fellow, Indian National Academy of Engineering (INAE), 2012.

vi) Fellow, National Academy of Sciences, India (NASI), Allahabad, 2010.

vii) Fellow (by invitation), Institution of Electronics and Telecommunications Engineers (IETE), 2013 (Number: F165619).

viii) Fellow, West Bengal Academy of Science and Technology, 2014.

RESEARCH INTERESTS

Bioinformatics and Computational Biology, Systems Biology, Computational Intelligence, Artificial Intelligence and Machine Learning, Multiobjective Optimization.

COURSES OFFERED

- Indian Statistical Institute -

  M. Tech (Computer Science): Neural Networks and Applications, Operating Systems, Database Management Systems, File Structures and File Processing, Computer Networks and Distributed Computing, Computational Molecular Biology and Bioinformatics.

  M.Tech (QR&OR): Programming Techniques & Data Structure, Database Management Systems

  B. Stat: Introduction to Programming and Data Structures

- Electronics Research and Development Corporation, Calcutta - File and Data Structures (C-level Computer Science Course of DoE, India).

- University of Texas, Arlington, USA - Genetic Algorithms: Features, Trends and Applications (Masters and Ph.D level course).

- Short course on Data Mining and Knowledge Discovery, 2007 Graduate Summer School on Bioinformatics of China (GSSBC07), Tsinghua University, Beijing, China.

SIGNIFICANT ACADEMIC ADMINISTRATION/PROFESSIONAL SERVICES

- Member, Prime Ministers Science Technology and Innovation Advisory Council (PM-STIAC), since 2018.

- Member, Scientific Council, CEFIPRA, 2021-2023.

- Co-Chair, Thematic Group 18 of Science, Technology and Innovation Policy, 2020 (STIP-2020).

- Chair, Expert Committee on Mathematical Sciences, Fund for Improvement of S&T Infrastructure (FIST), DST, 2020 onwards.
- Member, Fund for Improvement of S&T Infrastructure (FIST) Advisory Board, DST, 2020 onwards.
- Member, CSIR Society (Chaired by the Prime Minister of India), 2020-2021.
- Member, Ramanujan Fellowship Screening Committee, 2018-2021, 2021-2024.
- Member, Fellowship Scrutiny Committee for NASI (Physical Sciences), 2020-2021.
- Member, Selection Committee for NASI-Reliance Industries Platinum Jubilee Awards, 2021.
- Member, Apex-level Steering Committee, Department of Science and Technology, 2019-20.
- Member, NITI Aayog Advisory Committee on Artificial Intelligence, Govt. of India, 2018-19.
- Chair of Thrust Area - "Emergent Areas of Impact", Scheme for Promotion of Academic and research Collaborations (SPARC), MHRD, 2018-2019.
- Chairperson, Program Advisory Committee (PAC) of Electrical, Electronics and Computer Science, SERB, 2015-2018.
- Chairperson, Program Advisory Committee (PAC) of Women Scientist Scheme (A), DST, 2016-2019.
- Member, Advisory Committee meeting on Bio-Bank facilities and Cohort studies, Department of Biotechnology, 2019-2022
- Member, Advisory Committee on Biological Data Storage, Access and Sharing Policy of India, Department of Biotechnology, 2019-2021.
- Member, Expert Committee to Review Policy Research Centres, DST, 2018.
- Member, Expert Committee on Accelerated Translational Grant for Commercialisation (ATGC), DBT, 2019.
- Member, Science Advisory Panel, Ashoka University, 2018.
- Member, Steering Board of Indo French Centre for Applied Mathematics (IFCAM) Phase II, 2018-2021.
- Member, Board of Governors, IIIT Hyderabad, 2019-2021.
- Member, Board of Governors, Harishchandra Research Institute (HRI), Prayagraj-Allahabad, 2019-2020.
- Member, Council of National Academy of Science, India (NASI), 2019-2020.
- Member, Section Committee for Shortlisting of Fellow and Young Scientist, Section V, INSA, 2019-2020.
- Member, Senate, IISER Mohali since 2019.
- Member, Committee for Selection of Distinguished Alumni Award, IIT Kharagpur, 2018-2020.

- Member, Technical Expert Committee on Theoretical and Computational Biology (Bioinformatics), DBT, Govt. of India, 2019-2022.
- Member, National Panel for the Formulation of Technology-led Innovation Policy, DST, 2017-2018.
- Member, Council of Management, NIAS, Bangalore, 2017-2018.
- Member, Committee to review Policy Research Programme of DST for its Continuation Beyond the 12th Plan Period, 2017-2018.
- Member, Board of Governors, NIT Agartala 2017-2019.
- Member, Program Advisory Committee (PAC) of Electrical, Electronics and Computer Science, SERB, 2018-2021.
- Member, Selection Committee of Swarnajayanti Fellowship, DST, 2015-2018.
- Jury Member, Tata Innovista, 2016.
- Head, Machine Intelligence Unit, Indian Statistical Institute 2014-2015.
- Chair, CIS Chapter of IEEE Kolkata Section, 2015.
- Member, Education Commission of West Bengal, 2013-2015.
- Member, Board of Governors, NIT Warangal, 2011-2014.
- Member, Wellcome Trust/DBT - India Alliance Early Career Fellowships Selection Committee, 2013-2014 and 2015-2017.
- Member, Curriculum Development Committee, Department of Mathematics, NIT Rourkela, 2013-2014.
- Member, Roundtable Discussion on Big Data, Research Council of UK (RCUK), India, New Delhi, Nov. 13, 2013.
- External Expert, Board of Research Studies in Computer Science, Burdwan University, 2013-2014.
- Chief Guest, Research Scholars Day, Department of Information Technology, IIT Kharagpur, January 11, 2014.
- Member, Science & Technology National Screening Committee, Fulbright-Nehru Post Doctoral Research Program (for Indian scholars and professionals), 2012.
- Convocation Chief Guest/Guest of Honor

    a) Chief Guest and Convocation Speaker, St. Xavier's University, Kolkata, 2021.
    b) Chief Guest and Convocation Speaker, Narendapur Ramkrishna Mission Residential College, Kolkata, 2021.
    c) Chief Guest and Convocation Speaker, West Bengal University of Science and Technology, Barasat, 2020.
    d) Chief Guest and Convocation Speaker, Ramkrishna Mission Vidyamandira, Belur Math, 2019.
    e) Chief Guest and Convocation Speaker, National Institute of Engineering, Mysore, 2019.

f) Chief Guest and Convocation Speaker, Dhirubhai Ambani Institute for Information Technology, 2018.

g) Chief Guest and Convocation Speaker, Diamond Harbour Women's University, West Bengal, 2018.

h) Guest of Honor, Dhirubhai Ambani Institute for Information Technology, 2016.

- External Examiner

a) PhD Thesis, CSIR-Institute of Genomics & Integrative Biology (CSIR-IGIB), Academy of Scientific and Innovative Research (AcSIR), 2018.

b) PhD Thesis, University of Nice, France, 2016.

c) PhD Thesis, Indian Institute of Technology, Jodhpur, India, 2015.

d) PhD Thesis, Indian Institute of Management, Kolkata, India, 2015.

e) PhD Thesis, School of Computer & Information Science, University of Hyderabad, India, 2014.

f) PhD Thesis, Kalinga Institute of Information Technology, Bhubaneshwar, 2014.

g) PhD Thesis, Biju Patnaik University of Technology, Bhubaneshwar, 2013.

h) PhD Thesis, Department of Biotechnology, University of Pune, 2013.

i) PhD Thesis, Department of Applied Physics, Calcutta University, 2012.

j) PhD Thesis, Department of Computer Science & Engg., Jadavpur University, 2012.

k) PhD Thesis, School of Computer & Information Science, University of Hyderabad, India, 2009.

l) PhD Thesis, Indian Institute of Management, Kolkata, India, 2007.

m) PhD Thesis, Department of Computer Science, Jawaharlal Nehru University, Delhi, India, 2005.

n) M. Tech Dissertation, Department of Computer Science, Indian Institute of Technology, Kharagpur, India, 2007, 2008, 2009.

o) Graduate dissertation, Department of Computer Science, West Bengal University of Technology, 2007.

p) Graduate dissertation, Department of Computer Science, Sikkim Manipal Institute of Technology, 2002 and 2003.

- Expert in Several Faculty Selection Committees including

i) Chancellor's Nominee, Department of Computer Science, University of Calcutta, 2014-2015.

ii) Nominee of the Hon'ble President of India, School of Physical Sciences, Assam University, Silchar, 2013-2015.

iii) Chancellor's Nominee, West Bengal College Service Commission, 2013.

iv) Department of Mathematics and Computational Sciences, NIT Surathkal, 2013.

v) Department of Computer Science and Engineering, NIT Rourkela, 2013.

vi) School of Mobile Computing, Jadavpur University, 2013.

vii) Department of Computer Science and Engineering, IIT Patna, 2012.

EDITORIAL ACTIVITIES

i) Series Editor, Computational Intelligence Methods and Application, Springer since 2016.

ii) Associate Editor, BioSystems, 2015-2016.

iii) Associate Editor, IEEE Transactions on Artificial Intelligence, 2020 onwards.

iv) Associate Editor, IEEE Transactions on Systems, Man and Cybernetics, Systems, since 2013.

v) Associate Editor, Sadhana Journal, co-published by Springer and Indian Academy of Sciences, 2013-2015.

vi) Member, Editorial Board, Protein and Peptide Letters, Bentham Science, 2010-ongoing.

vii) Member, Editorial Board, INAE Monthly E-News Letter, 2013-2014.

viii) Member, Editorial Advisory Board, Handbook of Research on Cross-Disciplinary Studies in Computational Intelligence with Engineering, Scientific, Medical and Financial Applications, IGI Global, Hershey, USA, 2011.

ix) Special Issues of Journals

(a) Guest Co-Editor, "Pattern Recognition and Machine Learning Algorithms in Computational Biology", Journal of Bioscience, co-published by Springer and Indian Academy of Sciences, 2015.

(b) Guest Co-Editor, Thematic series on "Machine Learning and Graph Algorithms for Analysis and Prediction of Protein Structures, Functions and Interactions", Algorithms for Molecular Biology, 2015.

(c) Guest Co-Editor, Special Issue on "Advances in Multiobjective Evolutionary Algorithms for Data Mining", IEEE Transactions on Evolutionary Computation, vol. 18, no. 1, 2014.

(d) Guest Co-Editor, Special Issue on "Data Mining and Pattern Analysis in Computational Bioscience", International Journal of Computational Bioscience, 2010.

(e) Guest Co-Editor, Special Section on "Distributed and Mobile Data Mining", IEEE Transactions on Systems, Man and Cybernetics, Part B, Volume 34, Number 6, December 2004, ISSN 1083-4419.

(f) Guest Co-Editor, Special Issue on "Evolutionary Computation in Engineering Sciences", Institute of Electrical and Telecommunication Engineers (IETE) Journal of Research, vol. 48, no. 5, September-October 2002, ISSN 0377-2063.

Ph. D. THESIS SUPERVISION

- Completed

i) Monalisa Pal
Thesis Title: Many-Objective Evolutionary Algorithms: Objective Reduction, Decomposition and Multi-Modality
University and Year: Indian Statistical Institute, 2021
Current Affiliation: MathWorks India

ii) Debajyoti Sinha (Co-Supervision)
Thesis Title: Dealing With Dimensionality Using HPC: Application To Genomics
University and Year: University of Calcutta, 2021
Current Affiliation: University of Nantes

iii) Angana Chakrabarty
Thesis Title: Algorithms for Sequence Similarity Search: From Alignment-based to Alignment-free Approaches
University and Year: Indian Statistical Institute, 2020
Current Affiliation: Assistant Professor, Department of Computer Science, Sister Nivedita Government General Degree College for Girls.

iv) Tapas Bhadra (Co-Supervision)
Thesis Title: Machine Learning and Pattern Recognition Algorithms for Knowledge Discovery
University and Year:Jadavpur University, 2018
Current Affiliation: Assistant Professor, Aliah University, Kolkata.

v) Sumanta Ray (Co-Supervision)
Thesis Title: Development of New Computational Methods for Predicting Modules in Large Networks
University and Year:Jadavpur University, 2017
Current Affiliation: Assistant Professor, Aliah University, Kolkata.

vi) Saurav Mallik (Co-Supervision)
Thesis Title: Computational and Statistical Approaches in Data Mining and Bioinformatics
University and Year:Jadavpur University, 2017
Current Designation and Affiliation: Post Doctoral Fellow, Harvard University, MA, USA.

vii) Malay Bhattacharyya
Thesis Title: Mining Co-expression Networks: Applications to MicroRNA Regulation and Disease Analysis
University and Year: Indian Statistical Institute, 2014
Current Affiliation: Assistant Professor, ISI, Kolkata.

viii) Debarka Sengupta (Co-Supervision)
Thesis title: Studies on MicroRNAs: A Computational Approach
University and Year: Jadavpur University, Kolkata, 2014
Designation in ISI Kolkata: JRF & SRF, DST-Swarnajayanti Fellowship Project, MIU, ISI Kolkata, 2009-2013
Current Designation and Affiliation: Assistant Professor, IIIT Delhi.

ix) Soumi Sengupta
Thesis title: Ligand design and virtual screening using metaheuristic algorithms: Applications to Mycobacterium tuberculosis
University and Year: Jadavpur University, Kolkata, 2014
Designation in ISI Kolkata: Project Linked Personnel, MIU, ISI, Kolkata 2010-2013

x) Ramkrishna Mitra (Co-Supervision)
Thesis title: Computational Methods for MicroRNA Target Prediction: Studies in Cancer Development
University and Year: Jadavpur University, Kolkata, 2011
Designation in ISI Kolkata: JRF, DST-Swarnajayanti Fellowship Project, MIU, ISI Kolkata, 2009-2011
Current Designation and Affiliation: Research Instructor, Thomas Jefferson University, PA, USA.

xi) Sriparna Saha
Thesis Title: Single and Multiobjective Approaches to Clustering with Point Symmetry
University and Year: Indian Statistical Institute. 2011
Current Affiliation: Associate Professor, IIT Patna.

xii) Shubhra Shankar Ray (Co-Supervision)
Thesis title: New Computational Methods for Gene Analysis in Microarray Gene Expression Data
University and Year: Jadavpur University, 2008
Designation in ISI Kolkata: Senior Research Fellow, CSIR, 2003-2006
Current Designation and Affiliation: Associate Professor, ISI Kolkata.

xiii) Malay K. Pakhira (Co-Supervision)
Thesis title: Unsupervised Classification using Simulated Annealing and Evolutionary Algorithms
University and Year: Kalyani University, India, 2005
Current Designation and Affiliation: Professor, Kalyani Government Engineering College, Kalyani, West Bengal

xiv) Samir Roy (Co-Supervision)
Thesis title: Search Strategies to Solve Certain Problems of VLSI System Design and Testing
University and Year: Kalyani University, India, 2004
Current Designation and Affiliation: Professor, National Institute of Technical Teachers' Training and Research (NITTR) Kolkata.

- Ongoing

i) Koushik Mallik, University of Calcutta, Kolkata
Past Designation and Affiliation: Project Linked Personnel, MIU, ISI Kolkata, 2012-2013
Current Designation and Affiliation: Assistant Professor, RCCIIT, Kolkata.

ii) Snehalika Lal, Indian Statistical Institute, Kolkata.

iii) Sourav Biswas, University of Calcutta, Kolkata

iv) Sucheta Dawn, Indian Statistical Institute, Kolkata

v) Sayan Saha, Indian Statistical Institute, Kolkata

POSTDOCS MENTORED
2020 - Lahari Sengupta, PhD from University of Eastern Finland.
2018 - Shalini Jha, PhD from IIT (ISM) Dhanbad

NUMBER OF POSTGRADUATE THESIS/PROJECT SUPERVISION - 21 (including 12 M.Tech.(CS)/M.Tech.(QR&OR)/M.Stat of ISI Kolkata/MSc.)

NUMBER OF UNDERGRADUATE THESIS/PROJECT SUPERVISION - 14

FUNDED PROJECTS

i) "Big Data Challenges in Biology: Algorithms for Single Cell Transcriptomic Analysis", Principal Investigator, Indian Statistical Institute, 2019-2022.

ii) "Systems Medicine Cluster (SyMeC): Accelerating Systems Medicine using a Cluster Approach", (Six Institute Cluster Project led by NIBMG), Principal Investigator from ISI, 2017-2021.

iii) "A Big Data Perspective for Energy Management in Smart Grids and Dwelling", Co-Principal Investigator from India, IFCPAR-CEFIPRA Indo-French Project, 2015-2018.

iv) "Copula Functions in Analysis of Single Cell Gene Expression Data", Principal Investigator, JC Bose Fellowship Project, Department of Science and Technology, Govt. of India, 2017-2022.

v) "Computational Methods for Studying HIV-1 Pathogenicity in Humans: Analysis over Multiple Infection Stages, Mechanisms and Biomolecular Networks", Principal Investigator, Indian Statistical Institute, 2016-2019.

vi) "Network Analysis of Biomolecules for Disease Therapeutics", Principal Investigator, Indian Statistical Institute, 2013-2016.

vii) "Computational Methods for MicroRNA Target Detection and Its Role in Cancer Development", Principal Investigator, Department of Science and Technology (Swarnajayanti fellowship scheme), Govt. of India, 2008-2013.

viii) "Development of Efficient Many-objective Optimization Technique with Parallel Computing and Objective Reduction", Principal Investigator, DST-CONACYT Indo-Mexican Scientific-Technological Cooperation Programme, 2010-2013.

ix) "Distributed Knowledge Discovery in Ad Hoc and Sensor Networks for Event Monitoring", Principal Investigator, Department of Science and Technology (Collaborative project with scientists and technologists of Indian origin abroad - CPSTIO), Govt. of India, 2010-2013.

x) "An Integrated Approach to Rational Drug Design", Principal Investigator, Indian Statistical Institute, 2010-2013.

xi) "Development of Algorithms for Protein Analysis: Applications in Rational Drug Design", Principal Investigator, Indian Statistical Institute, 2007-2010.

xii) "Soft Computing in Chemogenomics", Co-Investigator, SilicoGene (an affiliate of TCG), Kolkata, 2003-2004.

xiii) "Discovering Patterns from Large Complex Data with Applications to Bioinformatics", Principal Investigator, Indian Statistical Institute, 2003-2007.

xiv) "Knowledge-based Connectionist Data Mining Systems: Design and Applications", Co-Investigator, Council of Scientific and Industrial Research (CSIR), New Delhi, 2002-2006.

xv) "Soft Computing for Medical Image Segmentation and Classification", Principal Investigator, Indian National Science Academy (INSA), India, (under the category of research support grant for INSA Young Scientist Medal Awardees) 2002-2005.

xvi) "Genetic Algorithms for Classification: Algorithms and Theories", Principal Investigator, Indian Statistical Institute, 1999-2003.

PLENARY/KEYNOTE/PANEL/NAMED TALKS

- Special Lecture - "Building Institutions for Research Excellence: Gender Diversity and Beyond", MHRD-LEAP Initiative, Organized by IIT Kanpur at New Delhi, Feb 24, 2021.

- Address as Sectional President (Physical Sciences), "Interface between Computer Science and Biology: A Symbiotic Relationship", National Academy of Sciences India (NASI), Feb 26, 2021.
- Plenary Talk - Machine Learning in Computational Biology - Three Problems from Three Perspectives, UK-India Royal Society Yusuf Hamied Workshop, March 4, 2021.
- Fireside Chat with Sanghamitra Bandyopadhyay, Women in Data Science (WiDS) Conference 2020, Intuit, Bengaluru, July 17, 2020 (Virtual Event).
- Keynote Talk -"Computer Science Methods to Solve Problems in Biology: Basics and Advancements", CALCON, Kolkata, February 28, 2020.
- Plenary Talk - "Clustering, Optimization and Applications", International Conference on Applied Statistics, Dhaka, Bangladesh, December 27-29, 2019.
- Keynote Lecture - "Clustering in a Multiobjective Framework", IIT Roorkee, SPARC Workshop, November 15, 2019.
- Special Talk in Face-to-Face Session with more than 1000 students - "Artificial Intelligence: The Era of the Fourth Paradigm", India International Science Festival, Kolkata, November 6 & 7, 2019.
- CEFIPRA Annual Lecture - "Optimizing Multiple Objectives for Clustering", LIP6 Laboratory of Computer Science at Sorbonne University, Paris, October 15, 2019.
- CEFIPRA Annual Lecture - "Advances in Multiobjective Optimization and Applications in Clustering and Computational Biology", LiSSi, University Paris-Est Creteil, France, October 15, 2019.
- CEFIPRA Annual Lecture - "Computational Challenges in Biology", LIGlab, Grenoble Institute of Technology, October 16, 2019.
- Special Lecture - "LEAP-Excellence in Research and Innovation", MHRD-LEAP Initiative, Organized by IIT Kharagpur, May 17, 2019.
- Special Lecture - "Foundations of Genetic Algorithms and Applications", Indian Association for the Cultivation of Science, March 17, 2019.
- Plenary - Computational Biology: Foundations, Advances and Challenges, Second International Conference on Advanced Computational and Communication Paradigms (ICACCP), Sikkim Manipal Institute of Technology, February 25, 2019.
- Keynote Lecture - "Multiobjective Optimization for Clustering and Applications", ACM India Annual Event, Kochi, India, February 8, 2019.
- Infosys Lecture - "Algorithms for Biological Data Analysis", Anna University, Chennai, February 7, 2019.
- Infosys Lecture - "Computational Insights into the Role of MicroRNAs in Cancer", Indian Institute of Science, Bengaluru, December 3, 2018.
- TWAS Prize Lecture - "On the Regulatory Network of Transcription Factors, microRNAs and Genes and Discovery of Markers", Trieste, Italy, November 29, 2018.
- Keynote Lecture - "Harnessing the Power of the Fourth Paradigm", Foundation Day of CSIR-4PI, Bangalore, October 31, 2018.

- Keynote and Infosys Lecture - "On the Interface between Computer Science and Biology",3rd Himachal Pradesh Science Congress, IIT Mandi, October 22, 2018.
- Plenary - "Bioinformatics Research at the Indian Statistical Institute: Computational Insights on Genome Biology, Regulatory Networks and Drug Design", CNRS-IFCPAR Women in Science Seminar, CNRS Headquarters, Paris, September 24, 2018.
- Plenary - "Data Clustering with Applications in Remote Sensing Image Analysis and Biology, The 2017 IISA International Conference on Statistics, Hyderabad, December 29, 2017.
- Panelist - "Panel discussion on Women in Statistics and Data Science", The 2017 IISA International Conference on Statistics, Hyderabad, December 29, 2017.
- Keynote - "Data Analytics: Interface between Academia and Industry", Sangam, TCS Kolkata, November 24, 2017
- Keynote - "Multiobjective Optimization for Clustering: A Case Study in Gene Expression Data Analysis", Congress on Evolutionary Computation (CEC), San Sebastian, Spain, June 6, 2017.
- Keynote - "Gender Aspects in Science Policy", National Seminar on Women Leadership in S & T: Opportunities & Challenges, Vigyan Prasar, March 9, 2017.
- Plenary - "Soft Computing and its Applications in Computational Biology", Soft Computing: Theories and Applications, Amity University, Rajasthan, December 28, 2016.
- Keynote - "Recent Advances in Computational Biology", 15th International Conference on Information Technology (ICIT 2016), IIIT Bhubaneshwar, December 22, 2016.
- Dr. Mashelkar Endowment Lecture - "Drug Design in a Multiobjective Optimization Framework", National Chemical Laboratory, Pune, April 01, 2016.
- Ramanujan Distinguished Lecture Series - "Clustering in a Multiobjective Optimization Framework", CR Rao Advanced Institute of Mathematics, Statistics and Computer Science, March 20, 2015.
- Keynote - "Computational Intelligence Techniques for Solving Multi-objective Optimization Problems", International Conference on Computational Intelligence and Networks, KIIT University, Bhubaneshwar, January 12, 2015.
- Panelist - "Role of University in Present Day West Bengal", Presidency College, Department of Physics, December 22, 2014
- Keynote - "Soft Computing Approaches for Data Mining", National Conference on Research Trends in Computer Science and Applications, Siliguri Institute of Technology, February 8, 2014.
- Keynote - "Advances in Computational Biology", First International Conference on Computational Intelligence: Modeling, Techniques and Applications (CIMTA- 2013), Kalyani University, India, September 27, 2013.
- Keynote - "A Machine Learning Approach for Predicting Annotated HIV-1-Human PPIs", Genoa Bioinformatics Workshop, Genoa, Italy, June 14, 2013.
- Panelist - IEEE Women in Computational Intelligence, Panel Discussion during IEEE Symposium Series on Computational Intelligence (SSCI), Singapore, April 17, 2013.

- Keynote - "MOEAs: Applications in Bioinformatics and Data Mining", IEEE Multi Criteria Decision Making (MCDM), IEEE Symposium Series on Computational Intelligence (SSCI), Singapore, April 16, 2013.
- Panelist - "Women empowerment for the development of the country", Panel Discussion in the Women's Science Congress, 100th Indian Science Congress, Kolkata, Jan 5, 2013.
- Plenary - "Emerging Trends in Evolutionary Computation", National Conference on Emerging Trends in Soft Computing (NCETSC 11), Nowrosji Wadia College, Pune, February 2-3, 2011.

INVITED LECTURES/TUTORIALS/SEMINARS (selected list)

- Within India

i) "Machine Learning Approaches in Computational Biology", Perspectives in Computational Biology, IISER Mohali, April 1, 2021.

ii) "Designing Lead Molecules: An Algorithmic Approach", INAE Award Function Lecture (INAE Woman Engineer of the Year Award 2020), January 5, 2021.

iii) "Computational Biology and Big Data", *Birth of Modern Science in India*, An Interactive Meeting with Science Students, INSA Annual General Meeting, October 14, 2017

iv) "Can Life Sciences Progress Without Engineering?", Track on Health Care Engineering, CAETS Annual Convocation, New Delhi, October 12-15, 2015.

v) "Optimizing Multiple Objectives for Clustering", INAE Seminar, Heritage Institute of Technology, Kolkata, February 18, 2015.

vi) "Computational Methods for Solving Problems in Life Sciences", Fourth International Conference of Emerging Applications of Information Technology (EAIT), Computer Society of India, December 20, 2014.

vii) "Evolutionary Computing with Applications in Drug Design", Rajasthan University, December 13, 2014.

viii) "Evolutionary Computing with Applications in Drug Design", IIT Jodhpur, December 8, 2014.

ix) "Computational Challenges in Biology", INDO-CHILE Workshop on Big Data Handling", BITS Pilani KK Birla Goa Campus, (sponsored by DST, India and CONICYT, Chile), June 5, 2014.

x) "Computational Intelligence Applications in Bioinformatics and Computational Biology", Summer School on Advances in Computational Intelligence (SSACI-2014), Institute of Technical Education and Research (ITER) and Siksha O Anusandhan University, Bhubaneswar, Odisha, April 15, 2014.

xi) "Biology Challenges Computational Scientists", Inaugural lecture on Research Scholars Day, Department of Information Technology, IIT Kharagpur, January 11, 2014.

xii) "Multiobjective Clustering with SVM Based Ensembling for Analysis of Gene Expression Data", Indo-US workshop on Statistical Methods for Bioinformatics, Indian Institute of Science, Bengaluru, December 14, 2013.

xiii) "Metaheuristic Optimization and Drug Design", Short Term Course on Computational Biology, Bioinformatics & Their Application to Healthcare, IIT Kharagpur, Nov. 01, 2013.

xiv) "Genetic Algorithms, Multiobjective Optimization and Applications", Maulana Azad National Institute of Technology, MANIT, Bhopal, July 1, 2013.

xv) "Evolutionary Computing in Data Mining", Workshop on Data Mining & its Industrial Applications, Indian Statistical Institute, Kolkata, Feb 20-22, 2013.

xvi) "A Computational Perspective on the Regulatory Network of TFs, microRNAs and Genes", Annual Convention, Indian National Academy of Engineering (INAE), CBRI, IIT Roorkee, December 6-7, 2012.

xvii) "The TF-microRNA-gene Regulatory Network: A Disease Specific Analysis", National Institute of Biomedical Genomics (NIBMG), Kalyani, October 17, 2012.

xviii) "Genetic Algorithms for Clustering", Institute for Development and Research in Banking Technology (IDRBT), Hyderabad, August 6, 2012.

xix) "Genetic Algorithms in Rational Drug Design", Indo-Singapore Workshop on Role of Computational Biology in Advancing Modern Medicine, Saha Institute for Nuclear Physics, Kolkata, February 2-3, 2012.

xx) "Genetic Algorithms in Rational Drug Design", Indian Science Congress, Bhubaneshwar, Jan 7, 2012.

xxi) "Genetic Algorithms: Application in Data Mining", International Conference on Information Systems Design and Intelligent Applications (INDIA-2012), Jan 6, 2012.

xxii) "Predicting Targets of MicroRNAs", Statistics and Mathematics Unit, Indian Statistical Institute, Kolkata, India, March 21, 2011.

xxiii) "Involvement of MicroRNAs in the Regulatory Network of a Cell", 30th Annual Convention of the Indian Association for Cancer Research (IACR), IICB, Kolkata, India, February 6-9, 2011.

xxiv) "Regulation of and by MicroRNAs", Humboldt Kolleg, Bengaluru, India, February 4, 2011.

xxv) "Mining of Biological Data", International Conference on Methods and Models in Computer Science (ICM2CS), Jawaharlal Nehru University, New Delhi, India, December 13-14, 2010.

xxvi) "Pattern Recognition Algorithms for Analyzing Biological Data", Tutorial Lecture, National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), January 15, 2010.

xxvii) "Computational Methods for microRNA Target Detection", Workshop on Data Mining Techniques in Bioinformatics, NIT Rourkela, December 4, 2009.

xxviii) "Soft Computing Methods in Drug Design", IMTECH, Chandigarh, March 23, 2009.

xxix) "Evolutionary Computation in Computational Biology", National Institute of Pharmaceutical Education and Research (NIPER), Mohali, India, July 7, 2008.

xxx) "Genetic Algorithms in Search and Optimization", Pre-Conference Tutorial, International Conference on Neural Networks and Genetic Algorithm in Material Science and Engineering (NGMS), Bengal Engineering and Science University, India, January 8, 2008.

xxxi) "Evolutionary Computation in Structure Based Ligand Design", National Workshop On Application of Bioinformatics in Molecular & Structural Biology, Bose Institute, Kolkata, February 23-24, 2006.

xxxii) "Classification and Clustering of Satellite Images using Evolutionary Computation", Seminar on Advances in Image Processing Techniques, Institution of Electronics and Telecommunication Engineers, Defence Electronics Application Laboratory (DEAL), Dehradun, India, July 1-3, 2005.

xxxiii) "Evolutionary Approach to Molecule Design Using Variable Length Representation", Institute of Mathematical Sciences, Chennai, India, December 27, 2004.

xxxiv) "Feature Extraction for Protein Superfamily Classification", National Center for Biological Science (NCBS), Bangalore, India, October 16, 2003.

xxxv) "Genetic Algorithms and their Applications", Department of Electrical Engineering, Indian Institute of Technology (IIT), Kanpur, July 15, 2003.

- Outside India

i) "Computational Methods in Biology: An Overview of Research in the Indian Statistical Institute", ERK, Piran, Slovenia, September 19, 2018.

ii) "Multiobjective Clustering", Faculty of Computer Science, University of Magdeburg, May 10, 2017.

iii) "A Brief Introduction to the Research Activities at the Indian Statistical Institute", University of Ljubljana, April 14, 2017.

iv) "Multiobjective Clustering", Faculty of Computer Science, University of Ljubljana, November 14, 2016.

v) "Studying the MicroRNA Induced Regulatory Network in Colorectal and Breast Cancer", Czech Technical University (CVUT), Prague, June 16, 2016.

vi) "Locality Sensitive Hashing for Sequence Similarity Search: Application in Big Data", Workshop on Solving Big Data Challenges from Modern Science through Statistical Modelling, 5-8 May 2015, ICMS, Edinburgh.

vii) "MicroRNA Induced Regulatory Network in Colorectal and Breast Cancer: A Machine Learning Perspective", INAE-NATF Workshop on Healthcare, Evry, France, October 15, 2014.

viii) "Fundamentals of Multiobjective Optimization", INRA, Montpellier, France, September 12, 2014.

ix) "Multiobjective Problems in Computational Biology", Laboratoire d'Informatique de Grenoble, University J. Fourier, Grenoble, France, September 18, 2014.

x) "Computational Analysis of MicroRNAs", International Centre for Theoretical Physics (ICTP), Trieste, Italy, May 16, 2014.

xi) "An SVM Based Approach for MicroRNA Target Prediction with Systematic Identification of Negative Samples", Department of Bioinformatics, University of Goettingen, Germany, June 18, 2012.

xii) "A new approach for predicting targets of MicroRNAs", University of Evora, Portugal, May 29, 2012.

xiii) "A New Technique for Multiobjective Optimization", Computer Vision Center, Autonomous University of Barcelona, Barcelona, Spain, May 19, 2011.

xiv) "MicroRNA Target Identification", Department of Computer Science, University of Genoa, Italy, May 13, 2011.

xv) "Research Issues in Computational Biology", I3S Laboratory, University of Nice, Sophia-Antipolis, France, May 9, 2011.

xvi) "Studying the MicroRNA Induced Regulatory Network", 6th Workshop on Computation of Biochemical Pathways and Genetic Networks, University of Heidelberg, Germany, September 16-17, 2010.

xvii) "Metaheuristic Optimization Techniques in Clustering", University of Heidelberg, Germany, October 6, 2009.

xviii) "Clustering Algorithms for Complex Data Mining Applications: Online and Distributed Approaches", International Conference on Adaptive Intelligence Systems (ICAIS), Klagenfurt, Austria, September 25, 2009.

xix) "Research Challenges in Bioinformatics", Machine Learning Group, Department of Computer Science, University of Waikato, Hamilton, New Zealand, November 24, 2008.

xx) "Pattern Recognition and Computational Intelligence in Bioinformatics", Department of Electrical and Computer (ECE) Engineering, University of Auckland, New Zealand, November 24, 2008.

xxi) "Data Mining: Issues, Challenges and Recent Trends", Department of Sociology and Communications, University of Rome, Italy, June 17, 2008.

xxii) "Computational Molecular Biology: Basic Concepts, Challenges and Some Tasks", Dept. of Computer Science, University of Pisa, Italy, June 16, 2008.

xxiii) "Some Computational Tasks in Molecular Biology", Dept. of Mathematics and Computer Science, University of Palermo, Italy, June 13, 2008.

xxiv) "Data Mining and Knowledge Discovery", Department of Statistics, University of Rome, Italy, May 28, 2008.

xxv) "Supervised Classification for Satellite Image Analysis", CATTID Research Center, organized by the Dept. of Physics, University of Rome, Italy, May 27, 2008.

xxvi) "Basic Microarray Analysis and its Role in Cancer Study", CATTID Research Center, organized by the Dept. of Computer Science, University of Rome, Italy, May 22, 2008.

xxvii) "Inhibiting Proteins by Ligand Docking", Department of Computer Science and Engineering, York University, Toronto, Canada, October 15, 2007.

xxviii) "Computational Intelligence Approach for Designing Lead Molecule", School of Computing, National University of Singapore, Singapore, September 25, 2007.

xxix) Invited speaker at the 2007 Graduate Summer School on Bioinformatics of China (GSSBC 07), Tsinghua University, Beijing, China, 2007.

xxx) "Clustering with Evolutionary Computing", AiS, Fraunhofer Institute, Germany, September 26, 2005.

xxxi) "Simultaneous Optimization of Multiple Objectives: New Methods and Application", 8th International Conference on Humans and Computers, University of Aizu, Japan, September 1, 2005.

xxxii) "Genetic Algorithms for Ligand Design", Department of Computer Science and Engineering (DIADIC Lab), University of Maryland Baltimore County, USA, July 7, 2004.

xxxiii) "Pattern Recognition in Soft Computing Framework", Department of Computing, Imperial College, London, UK, September 26, 2001.

xxxiv) "Pattern Recognition in Soft Computing Framework", Department of Computer Science and Engineering, University of Texas, Arlington, USA, August 8, 2001.

xxxv) "Pattern Classification Using Genetic Algorithms", School of Computer Science and Software Engg., Monash University, Melbourne, Australia, September 22, 1999.

xxxvi) "Similarity Aided Linkage Learning in GEMGA", Los Alamos National Laboratory, New Mexico, USA, June 18, 1997.

CONFERENCE/WORKSHOP ORGANIZATIONAL ACTIVITIES

- General Chair, 4th International Conference on Computational Intelligence and Networks (CINE 2020), 27-29 February, 2020.
- Honorary Chair, International Conference on Computational Intelligence, BIT Mesra, December 2018.
- General Chair, Second International Symposium on Signal Processing and Intelligent Recognition Systems (SIRS'15), December 16-19, 2015.
- Program Chair, 6th International Conference on Pattern Recognition and Machine Intelligence (PReMI), Warsaw, Poland, June 2015.
- Co-Chair, 2013 IEEE Workshop on Hybrid Intelligent Models and Applications, Singapore, 2013.
- Special Sessions Chair, 5th International Conference on Pattern Recognition and Machine Intelligence (PReMI), December 2013.
- Track Co-Chair (Applications), 4th International Conference on Contemporary Computing, Noida, Delhi, August 8-10, 2011.
- Tutorial Chair, International Conference on Pattern Recognition and Machine Intelligence (PReMI), Higher School of Economics, Moscow, Russia, June 26-30, 2011.
- Tutorial Chair, International Conference on Data Mining (ICDM), Miami, USA, 2009.
- Design Contest Chair, IEEE WIE National Symposium on Emerging Technologies, West Bengal University of Technology, June 2007.
- Track Chair, Databases and Bioinformatics, 10th International Conference on Information Technology, December, Rourkela, India, 2007.
- Associate Chair, International Conference on Computing: Theory and Applications, Platinum Jubilee Conference of the Indian Statistical Institute, Kolkata India, March 5-7, 2007.
- Program Chair, International Conference on Pattern Recognition and Machine Intelligence, Indian Statistical Institute, December 2005.
- Tutorial Co-Chair, World Congress on Lateral Computing, Bangalore, India, 2004.
- Judge, student paper contest during technical meet at Indian Institute of Information Technology (IIIT), Kolkata, Feb. 21, 2003.
- Organizer, Technical session on Soft Computing for Pattern Recognition and Data Mining, 1st Indian International Conference on Artificial Intelligence (IICAI), Hyderabad, India, Dec. 2003.
- Moderator for technical session at the CIMPA-UNESCO-INDIA School on Soft Computing Approaches to Pattern Recognition and Image Processing, Indian Statistical Institute, December 2-13, 2002.
- Member of the advisory/program/organizing/technical committees of (selected list since 2010)

    i) 5th Fuzzy and Neuro Computing conference (FANCCO) 2015, Hyderabad, India, December 17-19, 2015.

ii) Eighth International Conference on Advances in Pattern Recognition, Kolkata, India, January 4-7, 2015.

iii) 13th International Conference on Information Technology, Bhubaneshwar, 2014.

iv) International Conference on Brain Informatics and Health, Warsaw, Poland, August 11-14, 2014.

v) Joint Rough Set Symposium (JRS), Granada and Madrid, Spain, July 9-13, 2014.

vi) Joint Rough Set Symposium (JRS), Halifax, Canada, October 11-14, 2013.

vii) Workshop on Data Mining and its Industrial Applications, Indian Statistical Institute, Kolkata, February 20-22, 2013.

viii) 10th International Workshop on Fuzzy Logic and Applications (WILF 2013), Universite degli Studi di Genoa, Italy, November 19 - 22, 2013.

ix) 12th International Workshop on Data Mining in Bioinformatics (BioKDD 2013), Chicago, USA, Aug 11-14, 2013.

x) 5th International Conference on Intelligent Decision Technologies KES-IDT-13, Portugal, June 26 - 28, 2013.

xi) Tenth International Meeting on Computational Intelligence Methods for Bioinformatics and Biostatistics, and Eighth IAPR International Conference on Pattern Recognition in Bioinformatics, Nice, France, June 17-19, 2013.

xii) IEEE International Conference on Fuzzy Systems, Hyderabad, India, July 7-10, 2013.

xiii) IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB), Singapore, 2013.

xiv) 7th International Conference on Evolutionary Multi-Criterion Optimization, Sheffield, UK, March 2013.

xv) 21st International Conference on Pattern Recognition (ICPR), Tsukuba Science City, Japan, November 11-15, 2012.

xvi) National Conference on Computing and Communication Systems (NCCCS-2012), Durgapur, November 21-22, 2012.

xvii) Second International Conference on Computer, Communication, Control and Information Technology (C3IT-2012), Kolkata, India, February, 2012.

xviii) IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB), Paris, France, April 11-15, 2011.

xix) IEEE INDICON, Kolkata, December 17-19, 2010.

xx) National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics, LNM Institute of Information Technology, Jaipur, January 2010.

SIGNIFICANT RESEARCH/TRAVEL FELLOWSHIPS

- EMINTE Scholarship from European Commission to visit University of Ljubljana, Slovenia, 2014-2017.
- Erasmus Mundus NAMASTE Scholarship to visit University of Goettingen, Germany, 2014-2017.
- EMECW Scholarship from European Commission to visit INP, Grenoble, France, 2013-2016.
- Fellowship from International Centre for Theoretical Physics (ICTP), Trieste, Italy, 2009.

- IEEE Travel Grant Award, CEC 2007.
- CIMPA IMAMIS MALAYSIA fellowship from International Centre for Pure and Applied Mathematics, Kuala Lumpur, Malaysia, 2006.
- INSA-DFG Exchange Research Fellowship for visiting AiS, Fraunhofer Institute, Germany, 2005.
- Council of Scientific and Industrial Research (CSIR) Research Associateship, 1998-1999.
- CIMPA INRIA UNESCO fellowship from International Centre for Pure and Applied Mathematics, Nice, France, 1996.
- Dr. K. S. Krishnan Senior Research Fellowship, Department of Atomic Energy, Govt. of India, 1994-1998.
- Fellowship received during M. Tech on the basis of GATE score of 99.10 percentile, 1992-1993.

WEBSERVERS DEVELOPED

- TargetMiner: for microRNA target prediction [Bandyopadhyay and Mitra, Bioinformatics, 2009]
  https://www.isical.ac.in/~bioinfo_miu/targetminer20.htm
- MultiMiTar: improved version of TargetMiner [Mitra and Bandyopadhyay, PLoSOne 2011]
  https://www.isical.ac.in/~bioinfo_miu/multimitar.htm
- PuTmiR: database of transcription factors of human microRNAs [Bandyopadhyay and Bhattacharyya, BMC Bioinformatics, 2010]
  https://www.isical.ac.in/~bioinfo_miu/TF-miRNA/TF-miRNA.html
- PmmR: A database for putative microRNA-microRNA regulations [Sengupta and Bandyopadhyay, Molecular Biosystems, 2011]
  https://www.isical.ac.in/~bioinfo_miu/pmmr.php
- DisTMGneT: disease specific TF-miRNA-gene subnetworks [Sengupta and Bandyopadhyay, Molecular Biosystems, 2013]
  https://www.isical.ac.in/~bioinfo_miu/dscsgen.php

OTHER RELEVANT INFORMATION

- Chair of Plenary Session on *Artificial Intelligence and Mathematics* at the *Second Knowledge Summit*, a high-level Franco-Indian summit held on 17 & 18 October, 2019, Lyon, France
- Delivered the CEFIPRA 6th Annual Lecture Series in France, 2019
- Article "A Survey of Multiobjective Evolutionary Algorithms for Data Mining: Part I" listed among the top 50 most popular articles till date in IEEE Transactions on Evolutionary Computation till January 2017
- Journal articles listed as "Highly accessed" in BioMedCentral:
  - Algorithms for Molecular Biology, vol. 8, no. 1, 2013.
  - BMC Bioinformatics, 11:190, 2010.
  - BMC Silence, vol. 1, art no. 6, 2010.

  - BMC Bioinformatics, 10:163, 2009.

- Prediction results of TargetMiner indexed in miRBase, a global repository of microRNAs (e.g, http://www.mirbase.org/cgi-bin/mirna_entry.pl?acc=MI0000786 for human microRNA hsa-mir-378).

- Proposed validity index used in CANARY software of the US Environmental Protection Agency for detection of anomalous water quality (hosted at the US Sandia National Laboratory).

- The paper "Development of the Human Cancer microRNA Network" appeared as a featured article in BiomedCentral website, life-sciences newsletter eBioNews (http://www.ebionews.com/news-center/research-frontiers/rnai-a-microrna/14853-development-of-the-human- cancer-microrna- network.html), and in the annual cancer issue of Genome Technology, April 2010 (http://www.genomeweb.com/dxpgx/systems-biology-fights-cancer?page=show).

- Book "Classification and Learning Using Genetic Algorithms: Applications in Bioinformatics and Web Intelligence", Springer 2007 has been critically reviewed and lauded in the IAPR newsletter, 30(4), page 12, 2008 (http://www.iapr.org/docs/newsletter-2008-04.pdf).

- Academic Contributions as Director of the Indian Statistical Institute, 2015-2020

  - Was instrumental in setting up the Technology Innovation Hub funded by Department of Science and Technology under the National Mission on Interdisciplinary Cyber-Physical Systems (NMICPS) program of the Govt. of India.
  - Initiated a course on Agriculture and Rural Management in ISI Giridih, Jharkhand from 2020.
  - Opened the course on Statistical Methods and Applications to non-domiciled students of the North-East.
  - Initiated a course on Statistical Methods and Applications in ISI Chennai that is more suited to the local needs.
  - Played a key role in initiating and sustaining the tri-institute Post Graduate Diploma in Business Administration with IIT Kharagpur and IIM Calcutta.
  - Played an important role in initiating the M. Tech in Cryptology and Security program at the RCBose Centre for Cryptology and Security.
  - Played an important role in restructuring the M. Tech program in Computer Science to make it track based, with tracks on AI and Data Sciences.
  - Played an key role in the establishment of Centre for AI and ML (CAIML).
  - Establishment of the High Performance Computing Cluster for Systems Medicine for Cancer (SyMeC-HiPC).
  - Played an important role in the establishment of Centre for Economics of Climate, Food and Environment and Energy (CECFEE).

LIST OF PUBLICATIONS OF SANGHAMITRA BANDYOPADHYAY

(SCOPUS ID - 7402057893, ORCID-ID - 0000-0001-6370-2083, WOS RESEARCHER ID - AAO-7010-2020)

CITATION INFORMATION

- Google Scholar (September 20, 2021): More than 17900 citations have been received with h-index=56, i10-index = 199.
- Scopus (September 20, 2021): More than 10000 citations have been received with h-index = 46 (author ids 7402057893).

LATEST IMPACT FACTORS OF TOP TEN JOURNALS (2020/2021)

- Journal of Extracellular Vesicles: 25.84
- IEEE Trans. on Evolutionary Computation: 17.13
- Nucleic Acids Research: 16.971
- IEEE Trans. on Pattern Analysis and Machine Intelligence: 16.389
- Briefings in Bioinformatics: 11.622
- WIREs RNA: 9.957
- Applied Energy: 9.746
- IEEE Trans. on Industrial Informatics: 9.112
- Genome Research: 9.043
- IEEE Trans. on Neural Networks and Learning Systems: 8.793
- Genomics, Proteomics and Bioinformatics: 7.691

- **Patent Granted**

  S. Bandyopadhyay, D. Sengupta and U. Maulik, 2011, "Determining the relative importance of ordered lists for data retrieval and knowledge mining", US Patent Publication Number: US20120254163 A1, 2012, Indian Patent Application No. 423/KOL/201, dated March 30, 2011.

- **Authored Books**

  1. S. Bandyopadhyay and S. Saha, *Unsupervised Classification: Similarity Measures, Classical and Metaheuristic Approaches, and Applications*, Springer, Heidelberg, Germany, 2012.
  2. U. Maulik, S. Bandyopadhyay and A. Mukhopadhyay, *Multiobjective Genetic Algorithms for Clustering: Applications in Data Mining and Bioinformatics*, Springer, Heidelberg, Germany, 2011.
  3. S. Bandyopadhyay and S. K. Pal, *Classification and Learning Using Genetic Algorithms: Applications in Bioinformatics and Web Intelligence*, Springer, Heidelberg, 2007.

- **Edited Books**

1. U. Maulik, S. Bandyopadhyay and J. T. L. Wang (Eds.), *Computational Intelligence and Pattern Analysis in Biological Informatics*, Wiley Interscience, USA, 2010.
2. S. Bandyopadhyay, U. Maulik and J. T. L. Wang, (Eds.), *Analysis of Biological Data: A Soft Computing Approach*, World Scientific, Singapore, 2007.
3. S. Bandyopadhyay, U. Maulik, L. Holder and D. Cook (Eds.), *Advanced Methods for Knowledge Discovery from Complex Data*, Springer, London, 2005.

- **Co-Edited Conference Proceedings**

1. S. M. Thampi, S. Bandyopadhyay, S. Krishnan, K. -C. Li, S. Mosin, M. Ma (Eds.), *Advances in Signal Processing and Intelligent Recognition Systems: Proceedings of Second International Symposium on Signal Processing and Intelligent Recognition Systems (SIRS-2015)*, Springer, 2016.
2. S. Aluru, S. Bandyopadhyay, U. V. Catalyurek, D. Dubhashi, P. H. Jones, M. Parashar, B. Schmidt (Eds.), *Contemporary Computing: 4th International Conference, IC3 2011*, Noida, India, Series: Communications in Computer and Information Science, vol. 168, August 8-10, 2011.
3. S. K. Pal, S. Bandyopadhyay and S. N. Biswas, *Pattern Recognition and Machine Intelligence*, Lecture Notes in Computer Science, Springer-Verlag, Hiedelberg, vol. LNCS 3776, 2005.

- **Journals (published/accepted)**

1. S. Lall, S. Ray, S. Bandyopadhyay, "RgCop-A Regularized Copula based Method for Gene Selection in Single Cell RNA-Seq Data", *PLoS Computational Biology*, bioRxiv 2020, (accepted).
2. K. Gupta, M. Lalit, A. Biswas, C. D. Sanada, C. Greene, K. Hukari, U. Maulik, S. Bandyopadhyay, N. Ramalingam, G. Ahuja, A. Ghosh, D. Sengupta, "Modeling Expression Ranks for Noise-tolerant Differential Expression Analysis of scRNA-seq Data", *Genome Research* (accepted).
3. K. Mallick, S. Mallik, S. Bandyopadhyay, S. Chakraborty, "A Novel Graph Topology based GO-Similarity Measure for Signature Detection from Multi-Omics Data and its Application to Other Problems", *IEEE Transactions on Computational Biology and Bioinformatics* (accepted).
4. S. Sen, A. Dey, S. Bandyopadhyay, V. Uversky, U. Maulik, "Understanding Structural Malleability of the SARS-CoV-2 Proteins and their Relation to the Comorbidities", *Briefings in Bioinformatics*, doi- https://doi.org/10.1093/bib/bbab232, 2021.
5. S. Biswas, S. Ray and S. Bandyopadhyay, "Colored Network Motif Analysis by Dynamic Programming Approach: An Application in Host-Pathogen Interaction Network", *IEEE Transactions on Computational Biology and Bioinformatics*, vol. 18, no. 2, pp. 550-561, 2021.
6. P. Roy, C. Chowdhury, M. Kundu, D. Ghosh, S. Bandyopadhyay, "Novel Weighted Ensemble Classifier for Smartphone Based Indoor Localization", *Expert Systems with Applications*, vol. 164, no. 113758, 2021.
7. T. Bhadra and S. Bandyopadhyay, "Supervised Feature Selection using Integration of Densest Subgraph Finding with Floating Forward-backward Search", *Information Sciences*, vol. 566, pp. 1-18, 2021.

8. M. Pal and S. Bandyopadhyay, "Decomposition in Decision and Objective Space for Multimodal Multi-objective Optimization", *Swarm and Evolutionary Computation*, vol. 62, no. 100842, 2021.
9. A. Chakraborty, B. Morgenstern and S. Bandyopadhyay, "S-conLSH: Alignment-free Gapped Mapping of Noisy Long Reads", *BMC Bioinformatics*, vol. 22, no. 64, 2021.
10. S. Lall, D. Sinha, A. Ghosh, D. Sengupta and S. Bandyopadhyay, "Stable Feature Selection using Copula based Mutual Information", *Pattern Recognition*, vol. 112, art id 107697, 2021.
11. J. Saha, D. Ghosh, C. Chowdhury and S. Bandyopadhyay, "Smart Handheld Based Human Activity Recognition Using Multiple Instance Multiple Label Learning", *Wireless Personal Communications*, https://doi.org/10.1007/s11277-020-07903-0, 2020.
12. J Saha, C Chowdhury, D Ghosh and S Bandyopadhyay, "A Detailed Human Activity Transition Recognition Framework for Grossly Labeled Data from Smartphone Accelerometer", *Multimedia Tools and Applications*, https://doi.org/10.1007/s11042-020-10046-w, 2020.
13. S. Ray, S. Lall and S. Bandyopadhyay, "CODC: A Copula based Model to Identify Differential Coexpression", *npj Systems Biology and Application*, A Journal of the Nature Publishing Group, vol. 6, no. 20, https://doi.org/10.1038/s41540-020-0137-9, 2020.
14. R Sengupta, M Pal, S Saha and S. Bandyopadhyay, "Uniform distribution driven adaptive differential evolution", *Applied Intelligence*, vol. 50, pp. 36383659, 2020.
15. A. Chakraborty and S. Bandyopadhyay, "conLSH: Context based Locality Sensitive Hashing for Mapping of noisy SMRT Reads", *Computational Biology and Chemistry*, vol. 85, no. 107206, April 2020.
16. D. Sinha, P. Sinha, R. Saha, S. Bandyopadhyay and D. Sengupta, "Improved dropClust R Package with Integrative Analysis Support for scRNA-seq Data", *Bioinformatics*, vol. 36, iss. 6, pp. 1946-1947, March 2020.
17. A. Sharma, A. Biswas, H. Liu, S. Sen, A. Paruchuri, P. Katsonis, O. Lichtarge, T. Chand Dakal, U. Maulik, M. M. Gromiha, S. Bandyopadhyay, M. Ludwig, F. G. Holz, K. U. Loeffler, and M. C. Herwig-Carl, "Mutational Landscape of the BAP1 Locus Reveals an Intrinsic Control to Regulate the miRNA Network and the Binding of Protein Complexes in Uveal Melanoma", *Cancers*, vol. 11, vol. 10, art. no. 1600, 2019.
18. M. Pal and S. Bandyopadhyay, "ESOEA: Ensemble of Single Objective Evolutionary Algorithms for Many objective Optimization", *Swarm and Evolutionary Computation (Special Issue on Differential Evolution)*, vol. 50, art.no. 100511, 2019.
19. P. Roy, C. Chowdhury, D. Ghosh, S. Bandyopadhyay, "JUIndoorLoc: A Ubiquitous Framework for Smartphone-Based Indoor Localization Subject to Context and Device Heterogeneity", *Wireless Personal Communications*, Springer, vol. 106, pp. 739-762, 2019.
20. K. Mallick , S. Bandyopadhyay, S. Chakraborty, R. Choudhuri, and S. Bose, "Topo2Vec: A Novel Node Embedding Generation Based on Network Topology for Link Prediction", *IEEE Transactions on Computational Social Systems*, vol. 6, no. 6, pp. 1306-1317, 2019.
21. T. Bhadra, S. Mallik and S. Bandyopadhyay, "Identification of Multi-View Gene Modules using Mutual Information Based Hypograph Mining", *IEEE Transactions on Systems, Man and Cybernetics: Systems*, vol. 49, iss. 6, pp. 1119-1130, June 2019.
22. R. Sengupta, M. Pal, S. Saha and S. Bandyopadhyay, "NAEMO: Neighborhood-sensitive Archived Evolutionary Many-objective Optimization Algorithm", *Swarm and Evolutionary Computation*, vol. 46, pp. 201-218, 2019.
23. M. Pal, A. A. Alyafi, S. Ploix, P. Reignier, S. Bandyopadhyay, "Unmasking the Causal Relationships Latent in the Interplay Between Occupant's Actions and Indoor Ambience: A

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