



Laxminarayan Sahoo
Associate Professor

Academic qualification:

PhD, The University of Burdwan, West Bengal

M. Sc., Vidyasagar University, West Bengal

B. Sc. , Midnapore College, Vidyasagar University, West Bengal

Qualified **NET (CSIR)** held on **December, 30, 2001**

Qualified **GATE 2002** and obtained **All India Rank 41** with **Percentile score 96.39**

Title of The PhD Thesis: Studies on reliability optimization problems by Genetic Algorithm

Supervisors: Prof Asoke Kumar Bhunia, The University of Burdwan & Late Prof. Dilip Roy, The University of Burdwan

Fellowship received:

MHRD fellowship from **Department of Computer Science and Engineering, ISM Dhanbad**, India for M.Tech Programme in Computer Application

Awards and Recognition:

Received Prof. M. N. Gopalan Award for **Best Ph. D thesis in Operations Research** (2012)

Other relevant information:

- Selected for faculty member at NIT Arunachal Pradesh in 2014
- Selected for PhD Course at IIT KGP (Department of Mathematics) in 2003

Present Designation:

Associate Professor of Computer and Information Science, Raiganj University

Date of Joining: 18.02.2020

Communication Address:

Department of Computer and Information Science

Raiganj University, Raiganj 733134

Uttar Dinajpur, West Bengal, India

E-mail: lxsahoo@gmail.com

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Teaching Experience:

Undergraduate level:

- Raniganj Girls' College (From 16.05. 2005 to 09.03.2015)
- Burdwan Raj College (From 10.03.2015 to 09.09. 2015)
- Raniganj Girls' College (from 10.09.2015 to 17.02.2020)

Postgraduate level:

- 09 years (DDE, The University of Burdwan)
- 05 Years (Guest Teacher, Netaji Subhash Open University)
- 01 Year (Guest Teacher, Kazi Nazrul University)

Research Interests:

- Reliability Optimization
- Evolutionary Computations
- Interval Mathematics and Optimizations
- Fuzzy Decision Making
- Operations Research
- Project Management
- Game Theory
- Artificial Neural Network and Machine Learning
- Graph Theory
- Data Analytics
- Multi-Criteria Decision Making under Uncertain Environment
- Wireless Sensor networks

Interested and motivated students may contact with me any time either email or by phone call for their research work.

Research Project: (01)

Agency	Title of the Project	Period of Support	Remarks
UGC	Studies on reliability Optimization Problems by Genetic Algorithm	One and half years (From 14.12. 2010)	Completed

PhD Guidance: (01)

Sl. No.	Title of Thesis	Name of the University & Department	Status
1.	Studies of some evolutionary algorithms and applications in reliability optimization	Jadavpur University, Department of Information Technology	Completed

Publications:

International Journal: 29 (SCI: 4, SCI Expanded: 7, Scopus Indexed: 5 Cite Factor & etc. 02, Others Indexed: 11)

National journal: 01 (UGC Approved)

International Book Chapters: 09 (Springer: 02, CRC Press: 01, McGraw Hill Education: 02, Narosa: 01, I.K.

international: 01, IGI Global: 01, Walter De Gruyter: 01)

National Book Chapters: 03

Book Publications: 02 (Springer Nature (International Level):01, Asian Books Pvt. Ltd (National level):01)

Paper presented in Conference/ Seminars: 14 (International: 08 & National: 06)

Reviewing of research papers

Reviewed a number of research papers of Swarm and Evolutionary Computations (Elsevier), Computers & Industrial Engineering (Elsevier Science), Applied Mathematics and Computation (Elsevier Science), International Journal of System Assurance Engineering & Management (Springer), Neural computing & Applications (Springer), IIE Transactions (Taylor and Francis) Journals, IJLSM Inderscience, IJOR Inderscience and IJMOR Inderscience.

International Journal

SCI Publications:

- [4] Ali Akbar Shaikh, Asoke Kumar Bhunia, Leopoldo Eduardo Cardenas-Barron, **Laxminarayan Sahoo**, Sunil Tiwari, A fuzzy inventory model for deteriorating item with variable demand, permissible delay in payments and partial backlogging with shortage follows inventory (SFI) policy, *International Journal of Fuzzy Systems*, Springer , vol. 20, 1606-1623, 2018.
- [3] **Laxminarayan Sahoo**, Avisekh Banerjee, Asoke Kumar Bhunia, Samiran Chattopadhyay, An efficient GA-PSO approach for solving mixed-integer nonlinear programming problem in reliability optimization, *Swarm and Evolutionary Computations*, Vol. 19, pp. 43-51, 2014.
- [2] **Laxminarayan Sahoo**, Asoke Kumar Bhunia, P. K. Kapur, Genetic Algorithm based multi-objective reliability optimization in interval environment, *Computers and Industrial Engineering*, Vol.-62, pp. 152-160, 2012.
- [1] **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Dilip Roy, Reliability stochastic optimization for a series system with interval component reliability via Genetic Algorithm, *Applied Mathematics and Computation* , Vol.-216(3), pp. 929-939, 2010 .

SCI Expanded Publications:

- [7] **Laxminarayan Sahoo**, Solving matrix game with linguistic payoffs, *International Journal of System Assurance Engineering and Management*, Springer, vol. 10, 484-490, 2019.
- [6] **Laxminarayan Sahoo**, Sanat Kumar Mahato, Asoke Kumar Bhunia, Genetic Algorithm for reliability optimization of redundancy allocation problem in imprecise environment, *Fuzzy Information and Engineering*, Accepted (2016).
- [5] Asoke Kumar Bhunia, Ali Akbar Shaikh, **Laxminarayan Sahoo**, A two-warehouse inventory model for deteriorating item under permissible delay in payment via particle swarm optimization, *International Journal of Logistic and System Management* , Vol. 24(1), pp. 45-69, 2016 .

- [4] **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Dilip Roy, Reliability optimization in Stochastic Domain via Genetic Algorithm, *International Journal of Quality & Reliability Management*, Vol.-31(6), pp. 698-717, 2014.
- [3] **Laxminarayan Sahoo**, Sanat Kumar Bhunia, Asoke Kumar Bhunia, Optimization of system reliability for series system with fuzzy component reliabilities by genetic algorithm, *Journal of Uncertain Systems*, Vol.-8, pp. 136-148, 2014.
- [2] **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Dilip Roy, Reliability optimization with high and low level redundancies in interval environment via Genetic Algorithm, *International Journal of Systems Assurance Engineering and Management*, Vol.-5(4), pp. 513-522, 2014.
- [1] D. Sadhukhan, **Laxminarayan Sahoo**, B. Mondal, M. Maiti, Food chain model with optimal harvesting in fuzzy environment, *Journal of Applied Mathematics and Computing* , Vol.-34, pp. 1-18, 2010.

Scopus Index Journal Publications:

- [5] **Laxminarayan Sahoo**, Genetic Algorithm Based Approach for Reliability Redundancy Allocation Problems in Fuzzy Environment, *International Journal of Mathematical, Engineering and Management Science*, Vol.-2(4), pp. 259-272, 2017.
- [4] Asoke Kumar Bhunia, Avijit Duary, **Laxminarayan Sahoo**, A Genetic Algorithm Based Hybrid Approach for Reliability-Redundancy Optimization Problem of a Series System with multiple-Choice, *International Journal of Mathematical, Engineering and Management Science*, Vol.-2(3), pp. 185-212, 2017.
- [3] **Laxminarayan Sahoo**, An Interval Parametric technique for Solving fuzzy Matrix Games, *Elixir Applied Mathematics*, Vol. 93, pp. 39392-39397, 2016.

- [2] **Laxminarayan Sahoo**, Sanat Kumar Mahato, Asoke Kumar Bhunia, Multi-Level Reliability Redundancy Allocation Problem in Interval Environment via Genetic Algorithm, *Communications in Dependability and Quality Management*, Vol. 18(1), pp. 65-80, 2015.
- [1] Asoke Kumar Bhunia, Amiya Biswas, **Laxminarayan Sahoo**, Comparison of different approaches for Redundancy Allocation Problem with Interval valued Reliability via Genetic Algorithm, *Communications in Dependability and Quality Management*, Vol. 18(4), pp. 33-51, 2015.

Cite Factor & Advanced Science Index Publications:

- [1] **Laxminarayan Sahoo**, Santanu Kumar Ghosh, Solving Assignment Problem with Linguistic Costs, *Journal of New Theory*, Vol.-17, pp. 26-37, 2017.
- [2] **Laxminarayan Sahoo**, Effect of defuzzification methods in solving fuzzy matrix games, *Journal of New Theory*, Vol. 8, pp. 51-64, 2015.

Others Indexed International Journals:

- [11] **Laxminarayan Sahoo**, Sanat K. Mahato, Optimal Redundancy Allocation for Bridge Network System with fuzzy Parameters, *Journal of Applied Quantitative Methods*, Vol-13(1), 2018 (Accepted).
- [10] **Laxminarayan Sahoo**, Solving job sequencing problems with fuzzy processing times, *International journal of Advance Research and Innovative Ideas in Education*, Vol.-3(4), pp. 3326-3329, 2017.
- [9] **Laxminarayan Sahoo**, An application of interval system of linear equations in circuit analysis, *International journal of Advance Research and Innovative Ideas in Education*, Vol.-3(4), pp. 2779-2784, 2017.
- [8] **Laxminarayan Sahoo**, An approach for solving fuzzy matrix games using signed distance method, *Journal of Information and Computing Science*, Vol-12(1), pp. 073-080, 2017.
- [7] **Laxminarayan Sahoo**, Genetic Algorithm Approach to Solve Integer Nonlinear Programming Problem in Reliability optimization, *Journal of Information and Computing Science*, Vol. 10(4), pp. 255-264, 2015.
- [6] Nabendu Sen, **Laxminarayan Sahoo**, Asoke Kumar Bhunia, An Application of Integer Linear Programming Problem in Tea Industry of Barak Valley of Assam, India under Crisp and Fuzzy Environments, *Journal of Information and Computing Science*, Vol-9(2), pp. 132-140, 2014.
- [5] Sanat Kumar Mahato, **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Effects of defuzzification methods in redundancy allocation problem with fuzzy valued reliabilities via genetic algorithm, *International Journal of Information and Computer Science*, Vol.-2(6), pp. 106-115, 2013.
- [4] **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Debkumar Pal, Briendranath Mandal, An Alternative Approach for PDE- Constrained Optimization via Genetic Algorithm, *Journal of Information and Computing Science*, Vol.-8(1), pp. 2041-2054, 2013.
- [3] **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Dilip Roy, An application of genetic algorithm in solving reliability optimization problem under interval component weibull parameters, *Mexican Journal of Operations Research*, Vol.-1(1), pp. 2-19, 2012.
- [2] Sanat Kumar Mahato, **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Reliability-redundancy optimization problem with interval valued reliabilities of components via genetic algorithm, *Journal of Information and Computing Science*, Vol.-7 (4), pp. 284-295, 2012.
- [1] **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Dilip Roy, A Genetic Algorithm based Reliability Redundancy Optimization for Interval Valued Reliabilities of Components, *Journal of Applied Quantitative Methods*, Vol.-5(2), pp. 270-287, 2010.

National Journal

- [1] Asoke Kumar Bhunia, **Laxminarayan Sahoo**, Optimization of constrained multi-objective reliability problems with interval valued reliability of components via Genetic Algorithm, *Indian Journal of Industrial & Applied Mathematics*, Vol.-3 (1), pp. 25-44, 2013.

List of Book Chapters (International Level)

- [9] **Laxminarayan Sahoo**, Solutions of Fuzzy System of Linear Equations, *Emerging Applications of Fuzzy Algebraic Structures (Part of Advances in Computer and Electrical Engineering book series)*, (Eds.) C Jana et al. **IGI Global** (2019).
- [8] **Laxminarayan Sahoo**, Method for Solving Intuitionistic Fuzzy Assignment Problem, *Soft Computing Techniques in Engineering Science*, (Eds.) M Ram, **Walter De Gruyter** (Accepted, 2019)
- [7] **Laxminarayan Sahoo**, Pintu Pal, Solving (2Xn) fuzzy matrix games, *Lecture Notes in Network and Systems, Advances in Computer, Communication and Control*, (Eds.) U Biswas et al. **Springer** (Accepted, 2018)
- [6] **Laxminarayan Sahoo**, System Reliability Optimization in Fuzzy Environment via Hybrid GA-PSO, *System Reliability Management: Solutions and Technologies*, (Eds.) A Anand et al. **CRC Press: Taylor & Francis Group** (Accepted, 2018)
- [5] Asoke Kumar Bhunia, **Laxminarayan Sahoo**, Sanat Kumar Mahato, Chance Constrained Redundancy Allocation Problem with Imprecise Component Reliabilities via Genetic Algorithm: A simulation Based Approach, *Quality, Reliability, Infocom Technology and Industrial Technology Management*, **I. K. International Publishing House**, 55-71, 2015.
- [4] **Laxminarayan Sahoo**, A. Banerjee, A. K. Bhunia and S. Chattopadhyay , Reliability redundancy allocation problem of series system by hybrid GA-PSO approach, *ETES 2014*, pp. 83-89, Asansol Engineering College, Asansol, India, **McGraw Hill Education** (India) Private Limited, ISBN-13: 978-93-392-0316-0, ISBN-10: 93-392-0316-X.
- [3] **Laxminarayan Sahoo**, S. Bala, Genetic algorithm to solve integer programming problem in reliability optimization, *ETES 2014*, 99-103, Asansol Engineering College, Asansol, India, **McGraw Hill Education** (India) Private Limited, ISBN-13: 978-93-392-0316-0, ISBN-10: 93-392-0316-X.
- [2] Asoke Kumar Bhunia, **Laxminarayan Sahoo**, Dilip Roy, Genetic Algorithm based Mixed-integer Nonlinear Programming in Reliability Optimization Problems, *Quality, Reliability and Infocom Technology: Trends and Future Directions*, **Narosa Publishing House**, 25-42, 2012.
- [1] Asoke Kumar Bhunia, **Laxminarayan Sahoo**, Genetic Algorithm Based Reliability Optimization in Interval Environment, *Innovative Computing Methods*, (Eds.) N. Nedjah et al., **Springer-Verlag, Berlin Heidelberg**, 13-36, 2011

List of Book Chapters (National Level)

- [3] **Laxminarayan Sahoo**, Education and National Integration, *National Integrity and Its Crisis: The Role and Responsibilities of NSS*, Seminar Volume, pp.358-360, 2017. (ISBN: 978-81-928721-3-1).
- [2] Asoke Kumar Bhunia, **Laxminarayan Sahoo**, Reliability optimization in imprecise environment via genetic algorithm, **AMOC 2011, 372-379, IIT Roorke.**
- [1] **Laxminarayan Sahoo**, Asoke Kumar Bhunia, Optimization of high and low level redundancies via genetic algorithm with interval valued reliabilities, **AMOC 2011, 380-387, IIT Roorke.**

Books Publications

- [2] Asoke Kumar Bhunia, **Laxminarayan Sahoo**, Ali Akbar Shaikh, Advanced Optimization and Operations Research, (ISBN-978-981-32-9966-5), (ISSN 1931-6836 (electronic)), (ISBN-978-981-32-9967-2 (e Book)), Springer Nature, Singapore, 2020.
- [1] Asoke Kumar Bhunia, **Laxminarayan Sahoo**, Advanced Operations Research, (ISBN-978-81-8412-147-6), **Asian Books Private**, Limited, New Delhi, 2011.

Paper presented in Conference/ Seminars

- [13] Presented a paper "Solving Multi-objective reliability optimization problem via GA-PSO Algorithm" in National Seminar on "Recent Trends in Mathematical Sciences", 6-7 February, 2019, Organized by Department of Mathematics, The University of Burdwan, Burdwan.
- [12] Presented a paper "Interval System of Linear Equation Applied to Electrical Circuit Analysis", in International Conference on "Mathematics and its Applications", 15-17 February, 2018, Organized by Department of Mathematics, The University of Burdwan, Burdwan.
- [11] Presented a paper "A method for solving matrix games with fuzzy payoffs", in National Conference on "Current Trends in Fuzzy Mathematics and its Applications", 7 December, 2016, Organized by Department of Mathematics, MUC Women's College, Burdwan.
- [10] Presented a paper "Effect of defuzzification methods in solving fuzzy matrix games", in International Conference on "Recent Trends in Mathematical Sciences and Applications", 09-11 February, 2016, Organized by Department of Mathematics, The University of Burdwan, Burdwan.
- [9] Presented a paper "An efficient GA-PSO approach for solving mixed-integer non-linear programming problem in reliability optimization", in International Conference on "Frontiers of Mathematics & Applications", 29-31 January, 2014, Organized by Department of Mathematics, The University of Burdwan, Burdwan.
- [8] Presented a paper "Stochastic optimization of System Reliability for series system in Interval Environment", in Theme Meeting on "Fuzzy and Interval Based Uncertainty Modeling", 18-20 July, 2013, Organized by Department of Mathematics, NIT Rourkela, Rourkela.
- [7] Thesis presentation in International Conference on "Optimization, Computing and Business analytics" 20-22 December, 2012, Organized by Operational Research Society of India.
- [6] Presented a paper "On Constrained redundancy allocation Problem with Interval Valued Reliabilities of Components via Genetic Algorithm" in International Conference on "Operations Research for sustainable development in Globalized environment", 6-8 January, 2012, Organized by Operational Research Society of India, Calcutta Chapter.
- [5] Presented a paper "Reliability stochastic optimization for a series system with interval component reliability via genetic algorithm" in National Seminar on "Modern trends in operations research" 31 January, 2011, organized by Department of Mathematics, NIT Durgapur, Durgapur.
- [4] Presented a paper "Genetic algorithm based reliability optimization with interval component Weibull parameters" in National Seminar on "Mathematics & Applications" 24-25 February, 2011, Organized by Department of Mathematics, The University of Burdwan, Burdwan.
- [3] Presented a paper "Reliability optimization under high and low level redundancies via genetic algorithm for imprecise parametric values" in International Conference on "Advances in Modeling, Optimization and computing", 5-7 December, 2011, Organized by Department of Mathematics, IIT Roorkee, Roorkee.

- [2] Presented a paper “Reliability optimization in Stochastic Domain via Genetic Algorithm” in International Conference on “Recent advances in mathematics & applications”, 13-15 January, 2010, Organized by Department of Mathematics, The University of Burdwan, Burdwan.
- [1] Presented a paper “An application of Genetic Algorithm in solving Reliability redundancy allocation problems with interval valued reliabilities of components” in National Conferences on “Advances in Mathematics”, 4-7 September, 2008, Organized by Department of Mathematics, Gauhati University, Assam.

Recent Submitted Papers

- [4] Laxminarayan Sahoo, Interval valued Fermatean Fuzzy sets and its application in multi Criteria decision making, submitted to Soft Computing, Springer.
- [3] Laxminarayan Sahoo, Transportation problem in Fermatean fuzzy environment, submitted to RAIRO-Operations Research.
- [2] Laxminarayan Sahoo, Improved Score Functions on Fermatean Fuzzy Sets and Its application to Bride Selection for possible marriage based on TOPSIS Method, submitted to Iranian Journal of Fuzzy Systems.
- [1] Laxminarayan Sahoo, Avisekh Banerjee, Asoke Kumar Bhunia, Samiran Chattopadhyay, Multi-objective reliability optimization problem via hybrid GA-PSO algorithm, submitted to IEEE Transactions on Reliability.

Refreshers courses and Orientation Program

- [1] UGC Sponsored 73rd four week Orientation Programme, 4-31 December, 2009, Organized by **Academic Staff College, The University of Burdwan.**
- [2] UGC Sponsored 12th three week Refresher Course in **Mathematical Sciences**, 16th December, 2010- 5th January, 2011, Organized by **Academic Staff College, The University of Burdwan.**
- [3] UGC Sponsored Refresher Course on **Mathematics and Its Applications**, 2nd January, 2017 to 21st January, 2017, Organized by **Department of Mathematics, Jadavpur University.**
- [4] UGC Sponsored Refresher Course on **Advances in Instrumentation and Automation: Role of ICT**, 3rd December, 2018 to 22nd December, 2019, Organized by **Department of IEE, Jadavpur University.**

Declaration:

I hereby declare that the information given above is true to the best of my knowledge and belief.

Laxminarayan Sahoo

(Laxminarayan Sahoo)