Curriculum Vitae

Surajit Borkotokey

Department of Mathematics
Dibrugarh University
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FIELDS OF INTEREST: Cooperative Game Theory, Networks, Fuzzy Sets, Aggregation.

EDUCATION:

Ph.D., **Mathematics,** Dibrugarh University

M. Phil., Mathematics, Delhi University

M.Sc., Mathematics, Delhi University

PROFESSIONAL EXPERIENCE:

Professor, Department of Mathematics, Dibrugarh University since 2014.

Dean, Student Affairs, Dibrugarh University since 2022

Director, The Office of International Affairs, Dibrugarh University, since 2019.

Course Developers and Instructor, SWAYAM Course on Real Analysis, CEC, UGC.

Associate Professor, Department of Mathematics, Dibrugarh University, 2008-2014

Assistant Professor, Department of Mathematics, Dibrugarh University, 1999-2008

Indo-US Fellow at Louisiana State University, USA (2011-12)

Visiting Faculty at Beijing Institute of Technology, China (2014, 2016)

Visiting Faculty at Slovak University of Technology, Bratislava, Slovakia (2017)

EDITORIAL ACTIVITY:

Editor, Game Theory and Networks: New Perspectives and Directions, Springer Nature, India.
(Upcoming Proceedings of the International Conference on Game Theory and Networks, 2018-2019.)
Associate Editor, EduTech, Journal of Education and Technology (Included in UGC-CARE).
Guest Editor, Special Issue of Studies in Microeconomics, SAGE (2015).
Chief Editor, Mathematical Forum (2010-2012).
Member, Editorial Board, Journal of Assam Academy of Mathematics, India.

ADMINISTRATIVE EXPERIENCES/SERVICES:

Head, Department of Mathematics, Dibrugarh University, 2017-2020.
Chairperson, Centre for Computer Science and Applications, Dibrugarh University, 2015-2019.
Member, Academic Council, Dibrugarh University
Member, Faculty Board, Faculty of Science and Engineering, Dibrugarh University.

Member (VC's Nominee), Governing Body, Moran Mahila Mahavidyalaya, Moran, Assam.
Member (VC's Nominee), Governing Body, Silapathar Science College, Silapathar, Assam.
Member, Academic Council, Lakhimpur Autonomous College (2018-2020)

BOOKS PUBLISHED:

Game Theory and Networks : New Perspectives and Directions (2021)
Editors: Surajit Borkotokey, Rajnish Kumar, Diganta Mukherjee, K. S. Mallikarjuna Rao, Sudipta Sarangi
Series Title: Indian Statistical Institute Series
DOI: https://doi.org/10.1007/978-981-16-4737-6
Publisher: Springer Singapore

JOURNAL PAPERS: (From Recent)

(a) Game Theory and Networks:

(i) Dutta, R., Roy, S. & **Borkotokey, S.** (2023) The Generalized Shapley Value of Cooperative Games as a Social Preference Function. *Group Decis Negot* **32**, 277–300. https://doi.org/10.1007/s10726-022-09809-7.

(ii) Baruah, V.J., Neog Bora, P., Sarmah, B., Mahanata, P., Sarmah, A., Moretti, S., Kumar, R. and **Borkotkey, S.** (2022) Game-theoretic link relevance indexing on genome-wide expression dataset identifies putative salient genes with potential etiological and diapeutics role in colorectal cancer. ***Scientific Reports,*** **12**, 13409. https://doi.org/10.1038/s41598-022-17266-0.

(iii) Singh, M.T., **Borkotokey, S.,** Lahcen, R.A.M. *et al.* A generic scheme for cyber security in resource constraint network using incomplete information game. *Evol. Intel.* (2022). https://doi.org/10.1007/s12065-021-00684-w.

(iv) **Borkotokey, S**., Gogoi, L., Choudhury, D. *et al.* (2022) Solidarity induced by group contributions: the MIk□ -value for transferable utility games. *Oper Res Int J* **22**, 1267–1290. https://doi.org/10.1007/s12351-020-00584-4.

(v) Mishra P. P. , Zimic, C., **Borkotokey, S.**, (2022) Determination of EOQ in terms of optimum degrees of horizontal and vertical cooperation at a node of supply chain, Operations Research and Decisions, 32 | 2 | 89-104.

(vi) **Borkotokey**, **S.**, Subhadip Chakrabarti, Robert P. Gilles, Loyimee Gogoi, Rajnish Kumar (2021) Probabilistic network values, Mathematical Social Sciences, 113, 169-180, https://doi.org/10.1016/j.mathsocsci.2021.07.003.

(vii) Niharika Kakoty, Parishmita Baruah & **Surajit Borkotokey** (2021) The role of the non-productive players in cooperative games with transferable utilities: a survey, International Journal of General Systems, 50:5, 527-547, DOI: 10.1080/03081079.2021.1933467

(viii) Neog Bora, P.; Baruah, V.J.; **Borkotokey, S**.; Gogoi, L.; Mahanta, P.; Sarmah, A.; Kumar, R.; Moretti, S. (2020) Identifying the Salient Genes in Microarray Data: A Novel Game Theoretic Model for the Co-Expression Network. Diagnostics, 10, DOI:586.https://doi.org/10.3390/diagnostics10080586.(

(ix) **Borkotokey, S**., Choudhury, D., Gogoi, L., Kumar, R., Group contributions in TU-games: A class of k-lateral Shapley values, *European Journal of Operational Research* (2020) 286(2) 637-648, Elsevier. DOI: 10.1016/j.ejor.2020.03.054

(x) Choudhury, D., **Borkotokey, S**., Kumar, R., Sarangi, S. (2020). The Egalitarian Shapley value: a generalization based on coalition sizes. *Annals of Operations Research*, Springer. DOI: https://doi.org/10.1007/s10479-020-03675-9

(xi) **Borkotokey, S.**, Gogoi, L., Choudhury, D, Kumar, R., (2020) Solidarity induced by Group Contributions: The MI^k-value for Transferable Utility Games, *Operational research,* Springer. DOI: https://doi.org/10.1007/s12351-020-00584-4

(xii) Zou, Z., Zhang, Q., **Borkotokey, S**., & Yu, X. (2020). The extended Shapley value for generalized cooperative games under precedence constraints. *Operational Research*, *20*(2), 899–925, Springer. DOI: https://doi.org/10.1007/s12351-017-0341-6

(xiii) Singh, Tiken M. and **Borkotokey**, **S.** (2019) An Algorithm for Iterated Game to Handle Self-Obsessed Behavior in a Noisy Social Communication Network, *International Journal of Engineering Research and Technology*, 12 (12) 2698-2708.

(xiv) **Borkotokey, S.,** Hazarika, P. & Mesiar, R. (2019) Cooperative games with multiple attributes, *International Journal of General Systems*, Taylor and Francis, DOI: 10.1080/03081079.2019.1659792

(xv) **Borkotokey, S.**, Gogoi, L., Mukherjee, D. (2018) Bi-cooperative network games: A link based allocation rule, *International Journal of Economic Theory* 14 (2), 103-128, Wiley Blackwell. DOI: https://doi.org/10.1111/ijet.12148

(xvi) Hazarika, P., **Borkotokey, S.**, Mesiar R. (2017), Bi-cooperative games in Bipolar Fuzzy Settings, *International Journal of General Systems*, Taylor and Francis. DOI: 10.1080/03081079.2017.1388800.

(xvii) Chunsheng Cui, Zhongwei Feng, Chunqiao Tan, **Borkotokey, S**. (2019) Loss Aversion Equilibrium of Bimatrix Games with Symmetric Triangular Fuzzy Payoffs, *International Journal of Fuzzy Systems,* Springer. DOI: https://doi.org/10.1007/s40815-019-00611-3.

(xviii) **Borkotokey, S**., Kumar, R., Sarangi, S. (2015), A solution concept for network games: The role of multilateral interactions, *European Journal of Operational Research*, 243, 3, 912-920, Elsevier. DOI: 10.1016/j.ejor.2014.12.027

(xix) Biswakarma, R., **Borkotokey, S.,** Mesiar, R. (2017) A simplified expression of Share Functions for Cooperative Games with Fuzzy Coalitions, *Journal of Tatra Mountains Mathematics Publications* 69, 1-6, De Gruyter. DOI: https://doi.org/10.1515/tmmp-2017-0011

(xx) **Borkotokey**, **S.,** Hazarika, P., Mesiar R. (2015) Fuzzy Bi-cooperative Games in Multilinear Extension Form, *Fuzzy Sets and Systems*, 259, 44-55, Elsevier. DOI: 10.1016/j.fss.2014.08.003

(xxi) **Borkotokey**, **S.,** Hazarika, P., Mesiar R. (2015) A Multilinear Extension of a Class of Fuzzy Bi-cooperative Games, *Journal of Intelligent and Fuzzy Systems*, 28, 2, IOS Press. DOI: 10.3233/IFS-141349

(xxii) **Borkotokey**, **S.**, Neog, R. (2014) Dynamic Resource Allocation in Fuzzy Coalitions : A Game Theoretic Model, *Fuzzy Optimization and Decision Making*, 13, 2, 211-230, Springer. DOI: 10.1007/s10700-013-9172-y

(xxiii) **Borkotokey, S.,** Gogoi, L., & Sarangi, S. (2014). A Survey of Player-based and Link-based Allocation Rules for Network Games. *Studies in Microeconomics*, *2*(1), 5–26. DOI: https://doi.org/10.1177/2321022214522744

(xxiv) **Borkotokey, S.,** & Mesiar, R. (2014). The Shapley value of cooperative games under fuzzy settings: A survey. *International Journal of General Systems*, *43*(1), 75–95. Taylor and Francis. DOI: https://doi.org/10.1080/03081079.2013.844695

(xxv) **Borkotokey**, **S.** , Neog, R. (2013) Role of satisfaction in resource accumulation and profit allocation: A fuzzy game theoretic model, Fuzzy Systems (FUZZ), 2013 IEEE InternationalConference on vol.1, no.8, pp. 7-10 July 2013, doi: 10.1109/FUZZ-IEEE. 2013.6622379. DOI: http://ieeexplore.ieee.org/stamp/

(xxvi) **Borkotokey**, S. Sarmah P. (2012) Bi-cooperative games with fuzzy bi-coalitions, *Fuzzy Sets and Systems*. 198 (1) 46-58, Elsevier. DOI: 10.1016/j.fss.2011.10.006

(xxvii) **Borkotokey**, **S.**, Neog, R. (2012) Allocating profit among rational players in a fuzzy coalition: A game theoretic model, *Group Decision and Negotiation*, 21 (4) 439-459, Springer. DOI: 10.1007/s10726-010-9217-3

(xxviii) **Borkotokey, S.** (2008) Cooperative Games with Fuzzy Coalitions and Fuzzy Characteristic Functions, *Fuzzy Sets and Systems*, 159 (2) 138– 151, Elsevier. DOI: 10.1016/j.fss.2007.07.007

(b) Aggregation and Non-Additive Measures

(i) Radko Mesiar, Anna Kolesárová, **Surajit Borkotokey**, LeSheng Jin, (2022) Möbius product-based constructions of aggregation functions, Fuzzy Sets and Systems, 448, 17-34, DOI: https://doi.org/10.1016/j.fss.2022.01.002.

(ii) LeSheng Jin, Radko Mesiar, Ronald R. Yager, Martin Kalina, Jana Špirková , **Surajit Borkotokey** (2023) Deriving efficacy from basic uncertain information and uncertain Choquet Integral, International Journal of General Systems, 52:1, 72-85, DOI: 10.1080/03081079.2022.2104268

(iii) Xu, Y.-Q.; Jin, L.-S.; Chen, Z.-S.; Yager, R.R.; Špirková, J.; Kalina, M.; **Borkotokey, S.** (2022) Weight Vector Generation in Multi-Criteria Decision-Making with Basic Uncertain Information. *Mathematics*, *10*, 572. https://doi.org/10.3390/math10040572.

(iv) Jin, X.; Yager, R.R.; Mesiar, R.; **Borkotokey, S**.; Jin, L. (2021) Comprehensive Interval-Induced Weights Allocation with Bipolar Preference in Multi-Criteria Evaluation. *Mathematics*, *9*. https://doi.org/10.3390/math9162002.

(v) Kolesarova A., Borkotokey S.. 2-set-based extended functions. IRANIAN JOURNAL OF FUZZY SYSTEMS[Internet]. 2021;18(3):13-26. Available from: https://sid.ir/paper/413974/en

(vi) Jin, L. Mesiar, R., Kalina, M., Spirkova, J., **Borkotokey, S.** (2019) New Transformations of Aggregation Functions Based on Monotone Systems of Functions, *International Journal of Approximate Reasoning*, DOI: 10.1016/j.ijar.2019.12.004.

(vii) Jin, L. Kalina, M. Mesiar, R. **Borkotokey, S**. Characterizations of the possibility-probability transformations and some applications. *Information Sciences*, vol. 477, p. 281--290. DOI: https://doi.org/10.1016/j.ins.2018.10.06.

(viii) Wang, Z., Jin, L., Yager, R., **Borkotokey**, **S.,** 2018, Ordered Weighted Sum in infinite sequences environment with applications, November 2018, Journal of Intelligent and Fuzzy Systems DOI: 10.3233/JIFS-181291

(ix) **Borkotokey, S.,** Komorníková, M., Li, J., & Mesiar, R. (2018). Aggregation functions, similarity and fuzzy measures. In *Advances in Intelligent Systems and Computing*, 581, 223–228. Springer. DOI: https://doi.org/10.1007/978-3-319-59306-7_23

(x) Mesiar, R., **Borkotokey, S.,** Jin, L., & Kalina, M. (2018). Aggregation under Uncertainty. *IEEE Transactions on Fuzzy Systems*, *26*(4), 2475–2478. DOI: https://doi.org/10.1109/TFUZZ.2017.2756828.

(xi) Jin, L. S., Mesiar, R., **Borkotokey, S**., & Kalina, M. (2018). Certainty aggregation and the certainty fuzzy measures. *International Journal of Intelligent Systems*, *33*(4),759–770. DOI: https://doi.org/10.1002/int.21961

(xii) Jin, L., Kalina, M., Mesiar, R., & **Borkotokey, S.** (2018). Discrete Choquet Integrals for Riemann Integrable Inputs with Some Applications. *IEEE Transactions on Fuzzy Systems*, *26*(5), 3164–3169. DOI: https://doi.org/10.1109/TFUZZ.2018.27924

(xiii) **Borkotokey, S**., Mesiar, R., Li, J., Kouchakinejad, F., & Šipošová, A. (2018). Event-based transformations of capacities and invariantness. *Soft Computing*, *22*(19),6291–6297. DOI: https://doi.org/10.1007/s00500-017-2970-3

(xiv) Mesiar, R., **Borkotokey, S.,** Jin, L. S., & Kalina, M. (2018). Aggregation functions and capacities. *Fuzzy Sets and Systems*, *346*, 138–146. Elsevier. DOI: https://doi.org/10.1016/j.fss.2017.08.007

(xv) Mesiar, R., **Borkotokey, S.,** Jin, L., & Kalina, M. (2018). Aggregation under Uncertainty. *IEEE Transactions on Fuzzy Systems*, *26*(4), 2475–2478. Elsevier. DOI: https://doi.org/10.1109/TFUZZ.2017.2756828

(xvi) Jin, L. S., Mesiar, R., Kalina, M., Špirková, J., & **Borkotokey, S.** (2019). Generalized phi-transformations of aggregation functions. *Fuzzy Sets and Systems*, *372*, 124–141. Elsevier. DOI: https://doi.org/10.1016/j.fss.2018.09.016

(c) Multicriteria Decision Making

(i) Dutta, P., Borah, G. & **Borkotokey, S.** (2022) Neo Arithmetic and Ranking Techniques for Trapezoidal Generalized Interval Valued Fuzzy Numbers: Their Applications in Decision Making for Medical Investigation. *Neural Process Lett* **54**, 3045–3096. https://doi.org/10.1007/s11063-022-10752-6

(ii) Kakati, P., **Borkotokey, S.**, Rahman, S., & Davvaz, B. (2020). Interval neutrosophic hesitant fuzzy Einstein Choquet integral operator for multicriteria decision making. Artificial Intelligence Review, 53(3), 2171–2206. Springer. DOI: https://doi.org/10.1007/s10462-019-09730-7

(iii) Kakati, P., **Borkotokey, S.**, (2019): Generalized interval-valued intuitionistic fuzzy Hamacher generalized Shapley Choquet integral operators for multicriteria decision making, Iranian Journal of Fuzzy Systems.

(iv) Kakati, P., **Borkotokey, S.,** Mesiar, R., Rahman, S. (2018) Journal of Intelligent and Fuzzy Systems, IOS.

(d) Miscellaneous

(i) Baruah, N., Sarma, S. K., & **Borkotokey, S.** (2020). Evaluation of Content Compaction in Assamese Language. In *Procedia Computer Science* (Vol. 171, pp. 2275–2284). Elsevier. DOI: https://doi.org/10.1016/j.procs.2020.04.246

(ii) Baruah, N., Sarma, S. K., & **Borkotokey, S.** (2019). A Novel Approach of Text Summarization using Assamese WordNet. In *2019 4th International Conference on Information Systems and Computer Networks, ISCON 2019* (pp. 305–310). Institute of Electrical and Electronics Engineers Inc. DOI: https://doi.org/10.1109/ISCON47742.2019.9036285

(iii) Baruah, N., Sarma, S. K., & **Borkotokey, S.** (2019). Text summarization in indian languages: A critical review. In *2019 2nd International Conference on Advanced Computational and Communication Paradigms, ICACCP 2019*. Institute of Electrical and Electronics Engineers Inc. DOI: https://doi.org/10.1109/ICACCP.2019.8882968

(iv) **Borkotokey, S.** (2009) Fuzzy Subspace of a Vector Space: A Topological Approach, *Int. J. of Fuzzy Mathematics*, 2 (17) 403-414.

(v) **Borkotokey, S.** (2007) On Tensor Product of Fuzzy Submodules, *Int. J. of Fuzzy Mathematics*, 15 (2) 581-592.

(vi) **Borkotokey, S.** (2006) RGamma-submodules in Fuzzy Setting, *Int. Review on Fuzzy Mathematics*, 1 (1) 33-46.

(vii) **Borkotokey**, **S.**, Banerjee, B. (2003) Gamma-Semigroup in Fuzzy Setting, *Int. J. of Fuzzy Mathematics*, 11(4) 995-1003.

BOOK CHAPTERS:

i. Kakati, P., **Borkotokey, S.** (2023). Generalized Interval-Valued Intuitionistic Hesitant Fuzzy Power Bonferroni Means and Their Applications to Multicriteria Decision Making. In: Sahoo, L., Senapati, T., Yager, R.R. (eds) Real Life Applications of Multiple Criteria Decision Making Techniques in Fuzzy Domain. Studies in Fuzziness and Soft Computing, vol 420. Springer, Singapore. https://doi.org/10.1007/978-981-19-4929-6_10.

ii. Baruah, N., Sarma, S. K., **Borkotokey, S.**, Borah, R., Phukan, R.D., Gogoi, A. (2023). A Graph-Based Extractive Assamese Text Summarization. In: Asari, V.K., Singh, V., Rajasekaran, R., Patel, R.B. (eds) Computational Methods and Data Engineering. Lecture Notes on Data Engineering and Communications Technologies, vol 139. Springer, Singapore. https://doi.org/10.1007/978-981-19-3015-7_1

iii. Baruah, N., Sarma, S. K., **Borkotokey, S.** (2021). A Single Document Assamese Text Summarization Using a Combination of Statistical Features and Assamese WordNet. In: Panigrahi, C.R., Pati, B., Mohapatra, P., Buyya, R., Li, KC. (eds) Progress in Advanced Computing and Intelligent Engineering. Advances in Intelligent Systems and Computing, vol 1199. Springer, Singapore. https://doi.org/10.1007/978-981-15-6353-9_12

iv. Goala, S., **Borkotokey, S**. (2021). The Efficient, Symmetric and Linear Values for Cooperative Games and Their Characterizations. In: Borkotokey, S., Kumar, R., Mukherjee, D., Rao, K.S.M., Sarangi, S. (eds) Game Theory and Networks. Indian Statistical Institute Series. Springer, Singapore. https://doi.org/10.1007/978-981-16-4737-6_7

v. **Borkotokey, S.**, Gogoi, L., Kumar, R. (2019) Network Games: The Cooperative Approach. In: Chakrabarti A., Pichl L., Kaizoji T. (eds) Network Theory and Agent-Based Modeling in Economics and Finance. Springer, Singapore. DOI: https://link.springer.com/chapter/10.1007/978-981-13-8319-9_21

vi. Singh, M. Tiken, **Borkotokey**, **S.,** (2019) Selfish Controlled Scheme in Opportunistic Mobile Communication Network, In Recent Developments in Machine Learning and Data Analytics, Editors: Kalita, J., Balas, V.E., Borah, S., Pradhan, R. (Eds.), Springer Singapore. DOI: 10.1007/978-981-13-1280-9.

vii. Gogoi, L., **Borkotokey**, **S**., Mukherjee, D., (2019) Multilateral Interactions and Isolation in Middlemen driven Network Games, In.Social Network Analytics, 1st Edition, Computational Research Methods and Techniques,Eds. Nilanjan Dey, Samarjeet Borah, Rosalina Babo, Amira Ashour, Paperback ISBN: 9780128154588, Academic Press, Elsevier. DOI: 10.1016/B978-0-12-815458-8.00009-8

viii. Jin, L., Kalina, M., Mesiar, R., **Borkotokey**, **S.,** Špirková, J., (2019) Generalized phi-transformations and n-uninorms, 6th International Conference on Control, Decision and Information, 506-511, IEEE-Explorer. DOI: 10.1109/CoDIT.2019.8820657

ix. **Borkotokey**, **S.,** Komorníková, A., Li, J., Mesiar, R. (2018) Aggregation Functions, Similarity and Fuzzy Measures. In: Torra V., Mesiar R., Baets B. (eds) Aggregation Functions in Theory and in Practice. AGOP 2017. Advances in Intelligent Systems and Computing, vol 581. Springer, Cham. DOI: https://doi.org/10.1007/978-3-319-59306-7_23

x. **Borkotokey**, **S.,** Li, J., Mesiar, R. (2017) Event-based transformations of capacities, Book Chapter, September 2017 DOI: 10.1007/978-3-319-67422-3_4. In book: Modeling Decisions for Artificial Intelligence, pp.33-39, Springer. DOI: https://doi.org/10.1007/978-3-319-67422-3_4

xi. **Borkotokey**, **S.,** Kumar, R., Sarangi, S. (2014) Bi-cooperative Games : Applications in Management and a Simple Solution, Book Chapter, Applications of Game Theory, Ed. R. K. Mishra, Shaheen, J. Raveendran, S. Deman, 51-65, Academic Foundation Pub.

xii. **Borkotokey**, **S.,** (2011) A Dynamic Solution concept to cooperative games with fuzzy coalitions, Book Article, Topics in Non-convex Optimization, Chapter 13, pp 215-229, Springer Ed. S.K. Mishra. Borkotokey, S. (2013) Recent Advances in Game Theory and its Applications to Net- works, (Book Article) Chapter 7, Mathematical Sciences and their Applications: Recent Advances, Editor(s): Karabi Dutta Choudhury, Devajyoti Biswas, Sumit Saha, Narosa.

AWARDS, GRANTS, DISTINCTION AND FELLOWSHIPS

Going Global Partnership Award for developing a Transnational Course on Strategic Networks and Computations funded by the British Council. Total Amount: 80,000 GBP.

UKIERI Award for a Project on Bi-cooperative Network Games and its Applications to Networks for three years between Dr. Rajnish Kumar, Queen's University, Belfast and Prof. S. Borkotokey, Dibrugarh University. Total amount of 1,62,000 GBP.

NSP (National Scholarship Program) award from SAIA, Slovak Government for three months to work as a visiting faculty at Slovak University of Technology during January- March, 2017.
UGC Major Research Project (2013-2016) on Cooperative Games and its Applications to Networks in crisp and fuzzy environments. Total Amount: Rs. 10.52 Lacs.

Indo-US Research Fellowship for doing research in Network Analysis at the Dept. of Economics, Louisiana State University, USA during 2011 awarded by the Indo-US Science and Technology Forum, India. Total Fellowship Amount: $ 27000.

UGC Major Research Project on "A Study on cooperative games and its application to networks under crisp and fuzzy environment" (2012-2015) Total Fellowship Amount: Rs. 10.53 Lacs.
UGC Funded Project on Innovative Research "Biological Module Extraction: A Game Theoretic Approach" (2015) Total Fellowship Amount: Rs. 4.5 Lacs.

UGC sponsored Minor Research Project (2008-10) on "Cooperative Games with fuzzy coalitions and vague expectations".

National award for Best Research Paper in Mathematical Science Section Presented in the Mathematical Science Section of " Indian Science Congress - 2002" held in Lucknow, India.

Travel Grant from NBHM for a visit to the University of Western Australia, Perth in 2009.

Travel Grant from DST to participate SAET 2013 at Paris, France.

Travel Grant from NBHM to participate IWGT 2014 at Sao Paulo, Brazil.

POST DOCTORAL ACTIVITIES:

Department of Economics, Louisiana State University, Baton Rouge, LA, USA under the Indo-US Science and Technology Research Fellowship for 9 months during September, 2011 – May, 2012 on the project "Mathematical Modelling of Networks" .

REVIEW ACTIVITIES:

European Journal of Operation Research, International Journal of Game Theory, Information Sciences, Fuzzy Sets and Systems, Kybernetika, Journal of Intelligent and Fuzzy Systems, Mathematical Methods of Operations Research, Iranian Journal of Fuzzy Mathematics, Review of Economic Design.

WORKSHOPS AND CONFERENCES:
(a) Organized:

- International Workshop on Game Theory and Networks, 06-07 September 2019 under the aegis of UK-India Education and Research Initiatives (UKIERI), jointly funded by the British Council and University Grants Commission.

- International Workshop on Game Theory and Networks, 13-15 September 2018 under the aegis of UK-India Education and Research Initiatives (UKIERI), jointly funded by the British Council and University Grants Commission.

- International Conference on ***'Network and Games'***, from 27th – 29th April at Queen's Management School, as the part of UK India Education and Research Initiative (UKIERI), jointly funded by the British Council and University Grants Commission.

- International Seminar on Game Theory and Its Applications to Social and Economic Networks, 10-12 December 2014, under the aegis of NBHM and Dibrugarh University.

- Joint Coordinator, A Five day workshop on Statistical Data Analysis organized by the Department of Mathematics and Statistics funded by ISI, Kolkata during 26-30 November 2013.

- Member, Core Committee, Game-Net Workshops in ISI-Kolkata 2013,2016,2017, IGIDR- Mumbai 2015, IIT-Ropar 2014.

(b) Presented Paper:

- "The Alpha-Solidarity value for Network Games**" 8th Network Science and Economics Conference**, Virginia Tech, USA, 03-05 March 2023.

- "The k-SED value for TU Games" , Key-note Speaker, East Asian Game Theory Society, held in Beijing, China, April 24 to 25, 2021.

- "A New voting rule based on generalized cooperative games", International Conference on Social Choice and Voting Theory, Virginia Tech, USA, June 17- 19, 2021.

- ``From Egalitarian to Marginal Values: The Role of Solidarity in TU Games" **International Conference on Mathematical Models in Applied Sciences**, Department of Mathematics, Dibrugarh University, India, 28-30 June 2020.

- "Group Interactions in TU games: The k-lateral value" **Joint Mathematical Meet of the American Mathematical Society**, Baltimore, USA, 16-19 January.

- "Game Theory and Networks" Department of Mathematics, University of Central Florida on 13/01/2019 at the Department of Economics, Virgina Tech, USA on 21/01/2019 and also at the LeMoyne College, Syracuse on 24/01/2019.

- "A new Solution to TU games: The Role of Solidarity", **International Seminar in Economics and Finance**, 19-21 December 2018, Indian Institute of Management, Ahmedabad.

- "Bi-cooperative Network Games: A Solution Concept"
  International Conference on International Conference on ***'Network and Games'***, 27th – 29th April 2018, Queen's Management School, UK.

- "Identifying Biological markers: A Bi-cooperative Game Theoretic Approach" **International Conference on Networks and Games**, 03-04 July 2017, ISI-Kolkata.

- "Middlemen in TU Games"
  International Conference on Multilateral Economic Cooperation Strategy under One Belt One Road framework and Research Development in Game Theory, June 17-19, 2016, Xi'an, China.

- "Role of Middleman in TU games"
  International Symposium on Fundamentals of Games and Decision Making, IGIDR- Mumbai, 12-14 March 2016.

- "Intermediary Values"
  International Conference of Analysis and Applications, BHU, India, 6-8 February 2016.

- "Middleman in Cooperative Games"
  National Conference on Networks and Games, IIT Ropar, India, 7-9 December 2015.

- "A New Solution to Cooperative Games : The Role of a Parasite Player"
  International Conference of Recent Advances in Frontiers of Mathematics, 27-29 March 2015, Gauhati University.

- "An Axiomatic Characterization of a Fixed and Flexible Network Allocation Rule" **IWGTS 2014**, 24-31 July 2014, Sao Paulo, Brazil.

- "Multilinear extension of Fuzzy Bi-cooperative Games"
  International Seminar on Game Theory, Beijing Institute of Technology, 4-5 July 2014.

- "Bi-cooperative Network Games"
  International Seminar on Game Theory, Beijing Institute of Technology, 4-5 July 2014.

- "An Interactive Allocation Rule for Networks"
  International Seminar on Social and Economic Networks' 25/10/2013 to 27/10/2013, IIT, Jodhpur.

- "An Allocation Rule for Networks"
  13th SAET Conference, Mines Paris Tech, Paris, France, 22- 26 July 2013.

- "Role of Satisfaction in Resource Accumulations and Payoff Allocation : A Fuzzy Game Theoretic Model" Fuzz-IEEE 2013, **International Conference on Fuzzy Systems**, Hyderabad, 07-10 July 2013.

- "A Survey on the Shapley value for Cooperative Games under Fuzzy Environment" **NCPAM 2013**, Royal College of Engineering, Guwahati, India held during 09/05/2013- 10/05/2013.

- "A New Allocation Rule for Networks"
  Research meet on Strategic Network Formation & Evolution in ISI- Kolkata, during March 7 & 8, 2013. **http://www.isical.ac.in/~biru/.**

- "Potential in Bi-cooperative Games: A Note"
  The International Conference on Game Theory and Management in Applications, organized jointly by Indian Institute of Public Entrepreneurship, Hyderabad, ISI, Madras and The Center for Economics and Finance, London, UK held during 17-18 December, 2012 at Green Park Hotel, Hyderabad. http://www.gametheorysociety.org/conferences/2012.html

- "Network Allocation Rules"
  11th Meeting of Society for Social Choice and Welfare, 17-20 August 2012, New Delhi, India. http://www.isid.ac.in/~sscw2012/Program.html

- "An allocation rule for Network Games"
  Midwest Economics Association Conference (International), 18-20 May 2012, Bloomington, Indiana University, USA. http://editorialexpress.com/conference/MWETSpring2012/program/MWETSpring2012.html#10

TEACHING: (COURSES TAUGHT)

- **Post Graduate** : Real Analysis, Measure Theory, Abstract Algebra, Operations Research, Operator Theory, Fuzzy Sets and Applications, Commutative Algebra.
- **M.Phil. / Ph.D. Course work:** Cooperative Game Theory, Fundamentals of game Theory, Research Methodology in Mathematics.
- **MBA Program :** Quantitative Techniques.

THESIS/DISSERTATION COMMITTEES:

Rupok Neog (Chair 2012), Pankaj Hazarika(Chair 2014), Loyimee Gogoi (Chair 2016), Pankaj Kakati (Chair 2015), Rajib Biswakarma(Chair 2018), Utpala Borgohain(Chair 2015), Papori Neog Borah(Chair 2018), Nomi Baruah(Chair 2017), Tiken M Singh(Chair 2017), Dhrubajit Choudhury(Chair 2016), Parishmita Baruah(2018), Ritu Dutta(2017), Sujata Gowala(2017).

EXTERNAL EXAMINER FOR DOCTORAL DISSERTATIONS:

Devanjan Hazarika (2016), Thanuja T S.(2018), Anusha Edwin (2018), Karishma Shravan(2019).

OUTREACH ACTIVITIES: (ONLY THE MOST RECENT ARE INCLUDED)

- Involved in Organization of Summer Camps on Mathematics since 2002 to popularize Mathematics among School Children in the upper Assam region.

- About 35 Popular Talks on Real Analysis, Linear Algebra, Game Theory at under graduate levels at different colleges in Assam including some recent online delibrations.
- About 20 Orientation programmes on Choice Based Credit system introduced by Dibrugarh University in its under graduate courses at various colleges affiliated to Dibrugarh and Gauhati University.
- About 15 Expository talks on Cooperative Game Theory at Gauhati University, Assam Academy of Mathematics, Ganit Chara, National Meet for Researchers, Assam University, ISI-Kolkata.

POPULAR PIECES IN NEWSPAPER/MAGAZINE

- When India's Lockdown Ends, Onus of Protecting Our Lives From Covid-19 will Fall on us, Outlook Magazine, 26 May 2020. https://www.outlookindia.com/website/story/opinion-when-indias-lockdown-ends-onus-of-protecting-our-lives-from-covid-19-will-fall-on-us/353517
- Climate Control, Kaziranga Poaching, Mega Dam, etc.: From the eyes of a Game Theorist, https://gonitsora.com/climate-control-kaziranga-poaching-mega-dam-from-the-eyes-of-a-game-theorist/
- Buds blossom in charming allegory, Telegraph https://www.telegraphindia.com/north-east/buds-blossom-in-charming-allegory/cid/603406
- A thought-provoking and innovative play, https://www.telegraphindia.com/north-east/a-thought-provoking-and-innovative-play/cid/603087

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