---------- **Mrityunjoy Chakraborty** ----------

Professor,
Deptt. of Electronics and Electrical Communication Engg.,
Indian Institute of Technology, Kharagpur
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Qualifications :

- Ph.D. (Indian Institute of Technology, New Delhi, 1994)
- Master of Tech., (Indian Institute of Technology, Kanpur, 1985)
- Bachelor of Engg. (Jadavpur University, Calcutta, 1983).

Research interests :

- Digital and Statistical Signal Processing
- Adaptive Filters – algorithm, analysis and implementation
- VLSI Signal Processing – bit level and word level architectural optimization for efficiency in power, chip area and throughput.
- Compressive Sensing
- Applied Linear Algebra

Experience : Faculty member at the Indian Institute of Technology, Kharagpur since 1994, as,

- *Professor* (HAG scale, Aug., 2015 – date)
- *Professor* (January, 2005 – Aug., 2015)
- *Associate Professor* (Aug., 2000- Dec., 2004)
- *Assistant Professor* (September, 1995-July, 2000)
- *Lecturer* (June, 1994-Aug.,1995)

[Earlier, worked as a faculty member at BITS, Pilani during 1986-87.]

Invited Positions :

- Visiting Professor, City University of Hong Kong, May-June, 2006 and June-July, 2007.
- Visiting Professor, Chonbuk National University, South Korea, Aug. – Dec., 2004 and May – July, 2005
- Visiting Scientist, Centre for Wireless Communications, National University of Singapore, April, 1998-Feb., 1999.

Recognitions :

A. Awards, Distinctions etc :

- Fellow, National Academy of Science, India (NASI).
- Fellow, Indian National Academy of Engineering (INAE).
- INAE Chair Professor (2019-2021)
- Chair, DSP Technical Committee of the IEEE Circuits and Systems Society (2016-2018).
- Distinguished Lecturer (2012-2013), Asia Pacific Signal and Information Processing Association (APSIPA).
- INSA-JSPS fellowship (2002-2003, and (2012-2013).
- Kyoto University Foundation fellowship
- Best paper award at IEEE APCAS-2023
- Best paper award at SPCOM-2024

B. Editorial Positions :

- Senior Editorial Board Member, IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS) (2016-2018).
- Senior Editorial Board Member, IEEE Signal Processing Magazine (2016-2019).
- Associate Editor, IEEE Transactions on Circuits and Systems, Part I (2004-2007, 2010-2012).
- Associate Editor, IEEE Transactions on Circuits and Systems, Part II (2008-2009, 2022-2023).
- Guest Editor, IEEE Transactions on Circuits and Systems, Part II (Special, issue, 2018)
- Guest Editor, EURASIP.
- Editorial Board Member, IEEE Computing in Science and Engineering Magazine (2014-2016), as a representative of the IEEE Signal Processing Society.

C. Technical Program Committee

- Co-Chair, Education Activities, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Hyderabad, India, 2025.
- Co-Chair, Special Sessions, IEEE International Symposium on Circuits and Systems (ISCAS), 2028.
- TPC Co-Chair, 2018 IEEE International Workshop on Signal Processing Systems (SIPS), Cape Town, October, 2018.
- DSP Track chair, IEEE International Symposium on Circuits and Systems (ISCAS), 2015- 2022.
- Gabor Track Chair, DSP-2015, Singapore.
- Special session co-chair, DSP-18, Shanghai, 2018.
- General chair and also TPC chair, National Conference on Communications, 2012
- General chair, National Conference on Communications, 2020
- Technical Program Committee member, IEEE International Conference on Communications (ICC) – 2007, 2008, 2009, 2010.
- Technical Program Committee member, IEEE Globecom, - 2007, 2008, 2009, 2010.

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Patents :

- US patent, title : *Method of Designing An Equalizer*, by B. Farhang-Boroujeny, B. Wang and Mrityunjoy Chakraborty, Patent number: 6438161, Filing date: 28 Sep 1999, Issue date: 20 Aug., 2002

Sponsored projects (***Last five years, as PI***) :

1. Title : *Data Acquisition, Learning and Decision Making under Resource Constraints in Large-Scale Wireless Sensor Networks*
   Sponsor : MOE, Govt. of India
   Approved budget : Rs. 56,41,495.00
   Duration : 24 months

2. Title : *New Algorithms for Distributed Recovery of Sparse Signals from Compressed Measurements*
   Sponsor : SERB
   Approved budget : Rs. 26,26,123.00
   Duration : 36 months

3. Title : *Advanced Adaptive Filtering for Estimation and Tracking of Sparse Signals and Systems*
   Sponsor : SERB
   Approved budget : Rs. 23,79,839.00
   Duration : 40 months

4. Title : *Adaptive Filtering of Signals Defined over Graphs and other Irregular Domains*
   Sponsor : SERB
   Approved budget : Rs. 6,60,000.00
   Duration : 36 months

Academic Resource Generation :

- Have delivered a eight week long NPTEL MOOC course on ``Discrete Time Signal Processing".
- Have delivered a eight week long NPTEL MOOC course on ``VLSI signal processing".
- Have delivered a eight week long NPTEL MOOC course on ``Adaptive Signal Processing".
- Developed one NPTEL video course on ``Probability, Random Variables and Random Processes".
- Developed one NPTEL video course on ``Adaptive Signal Processing".
- Developed one NPTEL web course on ``Adaptive Signal Processing".

- Developed a one semester long video course (40 lectures each) on ``Wavelets and Multirate DSP", available with the CET, IIT, Kharagpur.
- Developed a one semester long video course (40 lectures each) on ``VLSI Digital Signal Processing", available with the CET, IIT, Kharagpur.

Knowledge Dissemination :

- Have offered two short term courses entitled "Advanced DSP Design Techniques" and "VLSI Signal Processing" continuously and successfully (with number of participants always above fifty) as principal coordinator over 2008-2018.
- Have recently organized as principal coordinator one GIAN course on ``VLSI Architectures for Signal Processing and Machine Learning" at the IIT, Kharagpur.

Other Outreach Activities :

International :

- Co-founder of APSIPA, a society modeled in the line of IEEE Signal Processing Society to promote broad spectrum of research and education activities in signal and information processing (www.apsipa.org).
- Member, APSIPA board-of-governors, 2013-2016.
- Research proposal evaluator, Research Grants Council, Hong Kong.
- Member, faculty selection committee from overseas, National Chiao Tung University, Taiwan
- Reviewer, IEEE Transactions on Signal Processing, IEEE Signal Processing Letters, IEEE Transactions on Circuits and Systems, Signal Processing (Elsevier).
- Chair, Signal and Information Processing Technical Committee, APSIPA, 2010-2012.
- Delivered invited lectures in many top universities in Japan, Korea, Taiwan, Hong Kong, China, Singapore, USA, Canada, Spain, UK and Australia.
- Ph.D. thesis examiner, NTU, Singapore.
- Invited speaker, APSIPA Annual Summit and Conference, 2015, Hong Kong.
- Invited speaker, APSIPA Annual Summit and Conference, 2017, Kuala Lumpur.

National

- Member, National Board of Accreditation of engineering institutions, Govt. of India.
- Member, Technology Assessment Board, Govt. of India.
- Member, faculty selection expert committees at Indian Institutes of Technology.
- Member, Expert Committee for evaluation of the special assistance program, University Grants Commission, Govt. of India.
- Selection Committee expert regularly at ISRO and DRDO.

SELECT PUBLICATIONS

A. Journal

[1]. *Towards O(1/epsilon) Computational Complexity for PL Functions in Decentralized Stochastic Optimization with Communication Noise,* S.Mukherjee and M. Chakraborty, IEEE Control System Letters, vol. 9, pp. 2477-2482, 2025.

[2]. *Mitigating the Effects of Delay Errors in Delay Line Based Sub-Nyquist Frequency Estimation for Military Aerial Vehicle Applications*, S. Samanta and M. Chakraborty, accepted for publication in the IEEE Transactions on Vehicular Technology, DOI: 10.1109/TVT.2025.3612148.

[3]. *Power Series Based Hard Thresholding Algorithms for Sparse Signal Recovery,* K.A. Bapat and M. Chakraborty, IEEE Signal Processing Letters, Vol. 32, pp. 2474-2478, June 2025.

[4]. *Achieving near-optimal oracle complexity in decentralized stochastic optimization with channel noise,* S. Mukherjee and M. Chakraborty, IEEE Transactions on Control of Network Systems, Vol. 12, No. 2, pp. 1215-1226, June, 2025.

[5]. *Co-operative Base Line Interferometer for SWaP Optimized Direction Finding Receivers*, S. Samanta and M. Chakraborty, IEEE Transactions on Aerospace and Electronic Systems,Vol. 60, pp. 280-290, Oct., 2023.

[6]. *Deterministic and Randomized Diffusion based Iterative Generalized Hard Thresholding (DiFIGHT) for Distributed Recovery of Sparse Signals,* S. Mukhopadhyay and M. Chakraborty, IEEE Transactions on Signal and Information Processing over Networks, Vol. 8, pp. 25-36, 2022.

[7]. *A Two Stage Generalized Block Orthogonal Matching Pursuit (TSGBOMP) Algorithm,* S. Mukhopadhyay, and M. Chakraborty, IEEE Transactions on Signal Processing, Vol. 69, pp. 5846-5858, 2021.

[8]. *Improving the Performance of Multitask Diffusion APA with Controlled Inter-cluster Cooperation,* V. C. Gogineni and M. Chakraborty, IEEE Transactions on Circuits and Systems, Part I, Vol. 67, No. 3, pp. 903-912, March, 2020.

[9]. *A Modified Multiple OLS (m^2OLS) Algorithm for Signal Recovery in Compressive Sensing,* Samrat Mukhopadhyay, S. Satpathi and M. Chakraborty, Signal Processing, Elsevier (DOI: 10.1016/j.sigpro.2019.107337)

[10] *An Adaptive Convex Combination of APA and ZA-APA for Identifying Systems having Variable Sparsity and Correlated Input*, V. C. Gogineni, B. K. Das and M. Chakraborty, Digital Signal Processing, Elsevier, Vol. 82, pp. 118-132, November, 2018.

[11]. *Improved l_0 -RLS Adaptive Filter*, Bijit Kumar Das and M. Chakraborty, Electronic Letters, Vol. 53, No. 25, pp. 1650–1651, December, 2017.

[12]. *A Convex Combination of NLMS and ZA-NLMS for Identifying Systems with Variable Sparsity*, Bijit Kumar Das, Vinay Chakravarthi and M. Chakraborty, IEEE Transactions on Circuits and Systems, Part II, Vol. 64, No. 9, pp. 1112-1116, Sept., 2017

[13]. *On the Number of Iterations for Convergence of CoSaMP and Subspace Pursuit Algorithms*, S. Satpathi, and M. Chakraborty, Journal of Applied and Computational Harmonic Analysis Vol. 43, Issue 3, November 2017, Pages 568-576; DOI : 10.1016/j.acha.2016.10.001.

[14]. *Improving the Convergence of the PNLMS Algorithm via L1 Norm Regularization*, R. L. Das and M. Chakraborty, IEEE Trans. Audio, Speech and Language Processing, Vol. 24, No. 7, pp. 1280-1290, July 2016.

[15]. *Sparse Distributed Estimation via Heterogeneous Diffusion Adaptive Networks*, B. K. Das, M. Chakraborty and J. A. Garcia, IEEE Transactions on Circuits and Systems, Part II, Vol. 63, No. 11, pp. 1079-1083, Nov., 2016.

[16]. *On Convergence of Proportionate-Type Normalized Least Mean Square Algorithms*, R. L. Das and M. Chakraborty, IEEE Transactions on Circuits and Systems, Part II, Vol. 62, No. 5, pp. 491-495, May, 2015.

[17]. *Sparse Adaptive Filtering by an Adaptive Convex Combination of the LMS and the ZA-LMS Algorithms*, Bijit Kumar Das and M. Chakraborty, IEEE Transactions on Circuits and Systems, Part I, pp. 1499-1507, May, 2014.

[18]. *Improving the Bound on the RIP Constant in Generalized Orthogonal Matching Pursuit*, S. Satpathi, R. L. Das and M. Chakraborty, IEEE Signal Processing Letters, pp. 1074-1077, Nov., 2013.

[19]. *A Block Floating Point realization of the Adaptive Decision Feedback Equalizer*, R. Shaik and M. Chakraborty, Signal Processing, Elsevier, pp. 1162-1171, May, 2013.

[20]. *A SPT Treatment to the Realization of the Sign-LMS based Adaptive Filters*, S. Chaudhary, P. Mukherjee, M. Chakraborty and S. S. Rath, IEEE Transactions on Circuits and Systems, Part I, pp. 2025-2033, Sept., 2012

[21]. *A New Adaptive Filter for Estimating and Tracking the Delay and the Amplitude of a Sinusoid*, M. Chakraborty, IEEE Transactions on Instrumentation and Measurement, pp. 3049-3057, Nov., 2010.

[22]. *New Adaptive Algorithm for Delay Estimation of Sinusoidal Signals*, M. Chakraborty, H. C. So and J. Zheng, IEEE Signal Processing Letters, pp. 984-987, Dec., 2007

[23]. *An Efficient Implementation of the Sign LMS Algorithm using Block Floating Point Format*, M. Chakraborty, R. Shaik and M. H. Lee, EURASIP Journal on Advances in Signal Processing, January, 2007.

[24]. *A Block-Floating-Point-Based Realization of the Block LMS Algorithm*, M. Chakraborty, R. Shaik and M. H. Lee, IEEE Transactions on Circuits and Syst, Part II, pp. 812-816, September, 2006.

[25]. *A Block Floating-Point Treatment to the LMS Algorithm : Efficient Realization and a Roundoff Error Analysis*, A. Mitra, M. Chakraborty and H. Sakai, IEEE Transactions on Signal Processing, pp. 4536-4544, December, 2005.

[26]. A Trigonometric Formulation of the LMS Algorithm for Realization on Pipelined CORDIC, M. Chakraborty, A. S. Dhar and M. H. Lee, IEEE Transactions on Circuits and Systems, part II, pp. 530-534, September, 2005.

[27]. *A Block Floating-Point Realization of the Gradient Adaptive Lattice Filter*, M. Chakraborty and A. Mitra, IEEE Signal Processing Letters, pp. 265-268, April, 2005.

[28]. *Convergence Analysis of a Complex LMS Algorithm with Tonal Reference Signals*, M. Chakraborty and H. Sakai, IEEE Transactions on Speech and Audio Processing, pp. 286-292, March, 2005.

[29]. *The NLMS Algorithm in Block Floating Point Format*, A. Mitra and M. Chakraborty, IEEE Signal Processing Letters, pp. 301-304, March, 2004.

[30]. *Pipelining the Adaptive Decision Feedback Equalizer with Zero Latency*, M. Chakraborty and S. Pervin, Signal Processing, Elsevier, pp. 2675-2681, December, 2003.

[31]. *A Systolic Array Realization of the Adaptive Decision Feedback Equalizer*, M. Chakraborty and S. Pervin, Signal Processing, pp. 2633-2640, December, 2000.

[32]. *An Efficient Algorithm for Solving General Periodic Toeplitz Systems*, M.Chakraborty, IEEE Transactions on Signal Processing, pp. 784-787, March, 1998.

[33]. *The Role of Statistics in Signal Processing – A Review and Some Emerging Trends*, S. Prasad, M. Chakraborty and H. Parthasarathy, Indian Journal of Pure and Applied Mathematics, June, 1995.

[34]. *Multichannel ARMA Modeling By Least Squares Circular Lattice Filtering*, M. Chakraborty and S. Prasad, IEEE Transactions on Signal Processing, pp. 2304-2318, September, 1994.

[35]. *Computation of a Useful Cramer-Rao Bound for Multichannel ARMA Parameter Estimation*, M. Chakraborty and S. Prasad, IEEE Transactions on Signal Processing, pp. 466-469, February, 1994.

[36]. *Multivariate ARMA Modeling By Scalar Algorithms*, M. Chakraborty and S. Prasad, IEEE Transactions on Signal Processing, pp. 1692-1697, April, 1993.

[37]. *DSHTSP: Distributed Algorithms with Finite Convergence for Joint Row-Sparse Matrix Recovery*, K.A. Bapat and M. Chakraborty, under review for publication in IEEE Transactions on Information Theory.

B. Conference

[1]. Hard Thresholding based Stochastic Algorithm for Distributed Sparse Recovery, Ketan Atul Bapat, Shashank S., Mrityunjoy Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, London, May, 2025.

[2]. *Convex Combination of Compressed Sensing Algorithms for Multiple Measurement Vectors*, K. A. Bapat, Shashank S. and M. Chakraborty, Proc. SPCOM-2024, IISc Bangalore, July, 2024.

[3]. *Hard Thresholding Based Stochastic Robust Algorithm for Multiple Measurement Vectors*, K. A. Bapat, Shashank S. and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Singapore, May, 2024.

[4]. *Convex Combination of Compressed Sensing Algorithms*, K. A. Bapat and M. Chakraborty, Proc. EUSIPCO-23, Helsinki, Finland, September, 2023.

[5]. *Hard Thresholding based Robust Algorithm for Multiple Measurement Vectors*, K. A. Bapat and M. Chakraborty, Proc. 22nd IEEE Statistical Signal Processing workshop, Hanoi, Vietnam, July, 2023.

[6]. *Heavy Ball Based Hard Thresholding Algorithms for Multiple Measurement Vectors*, K. A. Bapat and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Monterey, CA, USA, May, 2023.

[7]. *Thresholding Based Stochastic Robust Algorithm for Distributed Compressed Sensing*, K. A. Bapat and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Monterey, CA, USA, May, 2023.

[8]. *Randomized Simultaneous Hard Thresholding Pursuit Algorithm for Multiple Measurement Vectors*, K. A. Bapat and M. Chakraborty, Proc. SPCOM-2018, IISc Bangalore, July, 2022.

[9]. *Robust Recovery of Sparse Signals from Compressed Measurements for Wireless Sensor Networks*, K. A. Bapat and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Austin, Texas, USA, May, 2022.

[10]. *Partial Diffusion Affine Projection Algorithm over Clustered Multitask Networks* V. C. Gogineni and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Sapparo, Japan, May, 2019.

[11]. *Diffusion Affine Projection Algorithm over Multitask Networks*, V. C. Gogineni and M. Chakraborty, Proc. APSIPA ASC, 2018, Honolulu, Hawaii, USA, Nov., 2018.

[12]. *A Low Complexity Orthogonal Least Squares Algorithm for Sparse Signal Recovery*, S. Mukhopadhyay, S. Satpathi and M. Chakraborty, Proc. SPCOM-2018, IISc Bangalore, July, 2018.

[13]. *Robust Adaptive Filtering via Convex Combination of L0-RLS Adaptive Filters*, Bijit Kumar Das, Samrat Mukhopadhyay and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Florence, Italy, May, 2018.

[14]. *A Block-Based Convex Combination of NLMS and ZANLMS for Identifying Sparse Systems with Variable Sparsity*, Bijit Kumar Das and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Baltimore, USA, May, 2017.

[15]. *A New Diffusion Sparse RLS Algorithm with Improved Convergence Characteristics*, Bijit Kumar Das and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Montreal, Canada, May, 2016.

[16]. *On Steady State Tracking Performance of Adaptive Networks*, B. K. Das, Ruiz L. A., M. Chakraborty, J. A. Garcia, DSP-15, Singapore, July, 2015.

[17]. *Sparse Distributed Learning via Heterogeneous Diffusion Adaptive Networks*, Bijit K. Das, M. Chakraborty and Jeronimo Arenas-Garcia, Proc. IEEE International Symposium on Circuits and Systems, Lisbon, Portugal, May, 2015.

[18]. *A Variable Step-Size Zero Attracting Proportionate Normalized Least Mean Square Algorithm*, Rajib Lochan Das and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Melbourne, Australia, May, 2014.

[19]. *Sparse Adaptive Filtering by Iterative Hard Thresholding*, Rajib Lochan Das and M. Chakraborty, Proc. APSIPA ASC 2013, Kaohsiung, Taiwan, November, 2013.

[20]. *Sparse Adaptive Filters – an Overview and Some New Results*, Rajib Lochan Das and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Seoul, South Korea, May, 2012.

[21]. *Gradient Comparator Least Mean Square Algorithm for Identification of Sparse Systems with Variable Sparsity*, Bijit Kumar Das and M. Chakraborty, Proc. APSIPA ASC 2011, Xi'an, China, October, 2011.

[22]. *Adaptive Identification of Sparse Systems with Variable Sparsity*, Bijit Kumar Das, Mrityunjoy Chakraborty and Soumitro Banerjee, Proc. IEEE International Symposium on Circuits and Systems, Rio de Janeiro, May, 2011.

[23]. *A SPT Based Low Complexity Realization of the Weight Update Loop of an Adaptive Filter*, S. Choudhary, P. Mukherjee and M. Chakraborty, Proc. APSIPA ASC 2010, Singapore, December, 2010.

[24]. *A Low Complexity Realization of the Sign-LMS Algorithm*, S. S. Rath and M. Chakraborty, Proc. IEEE International Conference on Green Circuits and Systems, Shanghai, China, June, 2010.

[25]. *A SPT Treatment to the Bit-Serial Realization of the Sign-LMS Based Adaptive Filter*, S. Choudhary, P. Mukherjee and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Paris, May, 2010.

[26]. *An Algorithm for Bit-Serial Addition of SPT Numbers for Multiplierless Realization of Adaptive Equalizers*, S. Choudhary, P. Mukherjee and M. Chakraborty, Proc. APSIPA ASC 2010, Sapparo, October, 2009.

[27]. *An Efficient Finite Precision Realization of the Block Adaptive Decision Feedback Equalizer*, R. Shaik, M. Chakraborty and S. Chattopadhyaya, Proc. IEEE International Symposium on Circuits and Systems, Seattle, USA, May, 2008.

[28]. *An Efficient, Finite Precision Realization of the Adaptive Decision Feedback Equalize,* R. Shaik and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, New Orleans, USA, May, 2007.

[29]. *An Efficient Realization of the Decision Feedback Equalizer using Block Floating Point Arithmetic*, R. Shaik and M. Chakraborty, Proc. APCCAS 2006, Singapore.

[30]. *The Block LMS Algorithm and its FFT based Fast Implementation - New Efficient Realization using Block Floating Point Arithmetic*, R. Shaik and M. Chakraborty, Proc. EUSIPCO-2006, Florence, Italy, Sept., 2006.

[31]. *The Gradient Adaptive Lattice Algorithm in Block Floating Point Format,* M. Chakraborty and A. Mitra, Proc. IEEE International Conference on Acoustics, Speech and Signal Processing, Montreal, May, 2004

[32]. *Realization of the NLMS based Transversal Adaptive Filter Using Block Floating Point Arithmetic,* A. Mitra and M. Chakraborty, Proc. IEEE International Symposium on Circuits and Systems, Bangkok, May, 2003.

[33]. *An Efficient Block Floating Point Implementation of the LMS Algorithm,* M. Chakraborty, A. Mitra and H. Sakai, Proc. IEEE International Conference on Acoustics, Speech and Signal Processing, HongKong, April, 2003.

[34]. *An Efficient Block Floating Point Implementation of Fixed Coefficient FIR Digital Filter*, A. Mitra and M. Chakraborty, Proc. National Conference On Communications, Bombay, January, 2002.

[35]. *A Hyperbolic LMS Algorithm for CORDIC Based Realization*, M. Chakraborty, S. Pervin, T. S. Lamba, Proc. IEEE Workshop on Statistical Signal Processing-2001, Singapore, August 6-8, 2001.

[36]. *A CORDIC Realization of the Transversal Adaptive Filter Using a Trigonometric LMS Algorithm,* M. Chakraborty, A. S. Dhar, S. Pervin, Proc. IEEE International Conference on Acoustics, Speech and Signal Processing, Salt Lake City, Utah, USA, May, 2001.

[37]. *A Trigonometric Formulation of the LMS Algorithm,* M. Chakraborty, S. Pervin and A. S. Dhar, Proc. of the National Conference On Comunications, Kanpur, India, January, 2001.

[38]. *Systolization of the Adaptive Decision Feedback Equalizer Using a Symbolic State Space Formulation,* M. Chakraborty and S. Pervin, Proc. of EUSIPCO-2000, Tampere, Finland, Sept., 2000.

[39]. *Pipelining the Adaptive Decision Feedback Equalizers with Zero Latency*, M. Chakraborty, S. Pervin and A. S. Dhar, Proc. of the National Conference on Comunications, New Delhi, January, 2000.

[40]. *A Fast Algorithm for Solving Periodically Toeplitz Systems*, M. Chakraborty, Proc. International Symposium on Signal Processing and Applications, Gold Coast, Australia, August, 1996.

[41]. *An Algorithm for Efficient Inversion of Periodic Toeplitz Matrices*, M. Chakraborty, Proc. National Conference on Communications, IIT, Bombay, Feb., 1996.