# BIODATA

1. **Name** : *Dr. Babita Roslind Jose*

2. *Address* : *Professor*
   *Division of Electronics, School of Engineering,*
   *Cochin University of Science and Technology.*
   *Contact Ph: 9846222168(mobile), 0484-2556187(off)*

3. *Academic Qualification* : Ph.D. (Electronics Engineering), Cochin University
   MS (System on Chip Designs), KTH, Stockhom, Sweden
   M.E (Digital Electronics), Karnataka University
   B Tech. (Electronics and Commn.), M. G. University.

4. *Research Topic* : **Wireless Designs, System-on-Chip architectures**
   - Multi-standard Wireless Designs, Signal Processing, Machine learning architectures
   - VLSI, Micro-electronics, Communication Systems

8. *Total Experience* : *Teaching -* 17 years
   *Research –* 16 years

9. *Research guidance* : **6 Phds** produced

| SI No. | Title | Name of co-guides (if any) | Name of student | University | Year |
|---|---|---|---|---|---|
| | **Ph D – Degree Awarded** | | | | |
| 1. | Effective Approaches for Spectrum Sensing and Occupancy analysis for Cognitive Radio Networks | | Jaison Jacob | SOE, Cusat | 2017 |
| 2. | Efficient sigma-delta modulator architectures for next generation wireless transceivers | | Jos Prakash A V | SOE, Cusat | 2017 |
| 3. | Design, Modeling and Analysis of Multiple Input Buck-Boost Switched Capacitor based Converter | | Chikku Abraham | SOE, Cusat | 2018 |
| 4 | Cascaded Sigma Delta Modulator Architectures for Wideband ADCs | Dr. Shahana T K | Rijo Sebastian | SOE, Cusat | 2019 |
| 5 | Accelerating Two Dimensional FFT and Convolutional Neural | | Kala S | SOE, Cusat | 2020 |

| | | | | |
|---|---|---|---|---|
| | Networks on FPGA | | | | |
| 6 | Efficient Approaches for Image/Video Analysis in Surveillance | | Michael George | SOE, Cusat | 2021 |

## 10. *Projects / Grants:*

- **Co-ordinator of AICTE MODROBS** project on "Modernisation of Computational Lab"**(Rs. 6.49 Lakhs)** for two years from 2021-23

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- **Co-ordinator of AICTE sponsored Faculty Development Programme** on "Machine Learning and Deep Learning: A hand-on Approach"**(Rs. 3,98,333)** during June 7$^{th}$-19$^{th}$ 2020

- *Co-Principal Investigator of KSCSTE Project* "Reconfigurable Memristive Radio Frequency Devices" of Rs. 6.83 lakhs under ETP Programme for 2 years from 2019 onwards

- **Scientist Mentor of KSCSTE – WSD "Back-to-Lab" Programme –** Project which has been sanctioned to my research scholar Kala. S under **'Back to Lab'** programme of Women Scientist Division of KSCSTE (Council (P) OrderNo742/2018/KSCSTE dated 05.12.2018)

- **KSCSTE research project grant of Rs. 10.29 lakhs as the Principal Investigator (Grant No: 423/2013/KSCSTE dated 26.03.2013)** has been completed during the period 2013-2016, titled "System-level Design and Analysis of a reconfigurable Multi Standard Sigma-Delta Analog to Digital Converters for next Generation of Wireless Transceivers" under the ETP scheme.

  - ➢ *Outcome of the Project*
    - o **KSCSTE Project was ranked 'A' Grade (Excellent).**
    - o **A Patent was filed (**with Application No. 201741022304) based on this work.
    - o **A KSCSTE Best Paper Award Project** "A bandpass sigma delta modulator with direct RF-sampling for nuclear magnetic resonance imaging" (Council (P) Order No:70/2015/KSCSTE dated 20.4.2015) has been carried out during 2015-17 by my research scholar Jos Prakash A.V

- **TEQIP Seed Money Project** of Rs. 1 lakh has been carried out for the Project titled "Automated Methods for Abnormal Activity Detection in Video Surveillance" during 2019-20.

- **Co-ordinator of AICTE sponsored Staff Development Programme** on "System Level Modeling: A Practical Approach"**(Rs. 4.61 Lakhs)** during June 6$^{th}$-17$^{th}$ 2011.

## 10. *Patents Filed*

- Kala S, Babita Roslind Jose, Jimson Mathew, Nalesh S, "A method for implementing convolutional neural networks using Winograd minimal filtering and GEMM" **Application No. 201841038043 A**

- Michael George, Babita Jose, Jimson Mathew, "A System And Method For Abnormal Activity Detection Using Autoencoding And Parallelepiped Spatio-Temporal Region", **Indian Patent Application No.: 201841031716**
- "Band-Pass Differential Quantizer Based Error Feedback Modulator" **Patent Filed (Application No. 201741022304)** with Jos Prakash A V, Babita Roslind Jose, Jimson Mathew.
- "A Dual Input Buck, Boost and Inverted mode switched capacitor based voltage converter" **Patent Filed (Application No. 201741031722)** with Chikku Abraham, Babita Roslind Jose, Jimson Mathew, Vivekanandan Subburaj.

11. *Awards /Fellowship*:
- **UK-India Staff Exchange program Fellowship (2011).** Visited University of Bristol, UK from April 5th to May 23rd 2012 under the UK-India Staff Exchange Programme **(UKIERI Award)**
- **The Best Paper Award** in **27th Kerala Science Congress** held at Alleppey during 27 to 29 January 2015, with Jos Prakash A.V, "A Low-Power Reconfigurable Cross-Coupled $\Sigma\Delta$ Modulator for Multi-Standard Wireless Applications"
- **Best Paper Award:** DSP/Multimedia Session, International Conference on Embedded Systems, Mobile Communication and Computing, PESIT, Bangalore, India, 2006
- **Best Student Research Forum Runner Up Award** for my student Kala S in VLSID 2020 for the paper titled "Accelerating Convolutional Neural Networks on FPGA"

## 12. Publications:

Publications in refereed International journals: **33**

Publications in refereed International conferences: 62

Total number of Publications : **95**

| Number of Quality Publications in referred/SCI journal | | | | Ph.Ds completed | Ph.Ds guiding |
|---|---|---|---|---|---|
| SCI Journals | Impact factor >2 | Impact factor (above 1 upto 2) | Impact factor ( upto 1) | 6 | 6 |
| 18 | 3 | 9 | 7 | | |

**From Google scholar**

| | All | Since 2017 |
|---|---|---|
| Citations | 462 | 269 |
| h-index | 11 | 9 |
| i10-index | 15 | 9 |

# List of Publications

## International Journals

1. Chithra Liz Palson, Deepti Das Krishna, and Babita Roslind Jose, "A Varactor Based Impedance Tuner Circuit Operating at ISM Frequency Band Centered at 2.45 GHz", Artificial Intelligence Driven Circuits and Systems, pp 77-85, Springer, Singapore.

2. Preenu Paul, Babita R. Jose, T. K. Shahana, Chikku Abraham, and Jimson Mathew. "High Gain Isolated Quasi Switched Boost Converter Embedded with Switched Capacitor Cell" Electric Power Components and Systems, Taylor and Francis, SCIE Journal, 49:4-5, 333-344,16 October 2021(published online), https://doi.org/10.1080/15325008.2021.1971334, Impact factor : 1.22

3. Michael George, **Babita Roslind Jose**, J. Mathew, "Abnormal Activity Detection Using Shear Transformed Spatio-Temporal Regions at the Surveillance Network Edge" **Multimedia Tools and Applications 2020, Springer Nature,** doi:10.1007/s11042-020-09277-8. **Impact factor: 2.313 (SCI)**

4. Kala S., **Babita Roslind Jose**, Jimson Mathew, Nalesh S, "High Performance CNN Accelerator on FPGA using Unified Winograd-GEMM Architecture" *IEEE Transactions on Very Large Scale Integration (VLSI) Systems***, Vol.27, Issue:12, pp.2816-2828, Dec 2019, DOI: 10.1109/TVLSI.2019.2941250, **Impact factor: 1.698 (SCI)**

5. Michael George, **Babita Roslind Jose**, J. Mathew, "Real Time Single-View Face Detection and Face Recognition based on Aggregate Channel Feature" International Journal of Biometrics, vol.11, No.3, pp. 207-221, Inderscience Publishers, Jan 2019, **Impact factor: 0.7**

6. Chitra Liz Paulson, DD Krishna, **Babita Roslind Jose**, J. Mathew, Marco Ottavi "Memristor based Planar Tunable RF Circuits" *Journal of Circuits, Systems & Computers*, vol.28, No.13, pp. 225-239, Jan 2019, **Impact factor : 0.595 (SCI)**

7. Kala S., Jimson Mathew, **Babita Roslind Jose**, Nalesh S: " Radix-4³ based Two Dimensional FFT Architecture with Efficient Data Reordering Scheme", In *IET Computers and Digital*

*Techniques, 2018,* vol.13, Issue:2, March 2019, pp. 78-86.DOI:10.1049/iet-cdt.2018.5075, **Impact factor : 0.855 (SCI)**

8. Michael George, **Babita Roslind Jose**, Jimson Mathew, Pranjali Kokare, "Autoencoder Based Abnormal Activity Detection using Parallelepiped Spatio-Temporal Region", *IET Computer Vision*, vol.13, Issue:1, February 2019, pp. 23-30, DOI: 10.1049/iet-cvi.2018.5240, **Impact factor : 1.648 (SCI)**

9. Rijo Sebastian, Jos Prakash**, Babita Roslind Jose**, Jimson Mathew "A Differentially Quantized Bandpass Error Feedback Modulator for ADCs in Digital Radio" *Springer  Circuits, Systems, and Signal Processing* (2018) ,vol.37, Issue:10, pp.4181-4199, February 2018, **Impact factor : 1.922 (SCI)**

10. Chikku Abraham, **Babita Roslind Jose**, Jimson Mathew, "Reconfigurable highly efficient CMOS-based dual input variable output switched capacitor converter for low power applications", IET ELECTRONIC LETTERS, Issue 2, vol.54, pp.89-91, January 2018, doi:10.1049/el.2017.3576, **Impact factor : 1.327 (SCI)**

11. Rijo Sebastian, Jos Prakash, **Babita Roslind Jose**, Shahana T.K, "Multi-Stage Noise Shaping $\Delta\Sigma$ Modulator with Enhanced Noise Shaping for Low Power Wideband Applications", Journal of Low Power Electronics, Volume 13, Number 4, December 2017, pp. 661-668(8), Scopus- 0.35, ESCI (indexed).

12. Rijo Sebastian, **Babita Roslind Jose**, Shahana T.K, Jimson Mathew "A Low-distortion Hardware Efficient MASH Sigma Delta Modulator with Enhanced Noise Shaping" Journal of Smart Science, (Taylor and Francis), Vol.6, issue 2, pp.158-172, Published online: 22 Dec 2017. doi.org/10.1080/ 23080477.2017.1417962

13. Jos Prakash A.V, **Babita R Jose**, Jimson Mathew, "A Differential Quantizer based Error Feedback Modulator for Analog to Digital Converters" published in the IEEE Transactions on Circuits and Systems II: Express Briefs, vol. 65, issue 1, pp. 21-25, Feb 2017, DOI:10.1109/TCSII.2017.2666822, **Impact factor : 3.25 (SCI)**

14. Jos Prakash A.V, **Babita R Jose**, Jimson Mathew, Bijoy A.J "A Triple-mode Hexa-standard Reconfigurable TI Cross-Coupled $\Sigma\Delta$ Modulator" International Journal of Electronics (Taylor & Francis), Vol.104, No.7, pp. 1142-1160, Oct 2016, DOI: 1080/00207217.2017.1285441, **Impact factor: 1.07 (SCI)**

15. Jaison Jacob, **Babita R Jose**, Jimson Mathew, "An Antenna Selection Scheme with MRE and AWC for Decision Fusion in Cognitive Radio" Transactions on Emerging Telecommunications Technologies, Wiley, Vol. 28, No. 10, March 2017, DOI:10.1002/ett.3161, ISSN 2161-3915, **Impact factor : 1.258 (SCI)**

*16.* Chikku Abraham, **Babita R Jose**, Jimson Mathew, Michael Evzelman, "Modelling, Simulation and Experimental investigation of a New Two Input Series Parallel Switched Capacitor Converter",  IET Power Electronics, vol.10, No.3, DOI:  10.1049/iet-pel.2015.1000 , ISSN 1755-4543, **Impact factor : 3.11 (SCI)**

17. Jaison Jacob, **Babita R Jose**, Jimson Mathew  "Bayesian Analysis of spectrum occupancy prediction in  Cognitive Radio " Int. Journal, Smart Science ,(2016) Taylor & Francis publication,vol. 4, No.2,  DOI:  10.1080/23080477.2016.1182360, Indexed in the Emerging Sources Citation Index

18. Jaison Jacob, **Babita R Jose**, Jimson Mathew ,  "Fusion Rule for Cooperative Spectrum Sensing in Cognitive Radio" Journal of  Circuits, Systems & Signal Processing (CSSP), Springer , CSSP 35(9): 3418-3430(2016), vol. 35, No.9. pp. 3418-3430. **Impact factor 1.922 (SCI)**

*19.* Chikku Abraham, **Babita R Jose** and Jimson Mathew, "A dual source switched-capacitor converter with solar energy integration capability", Int. J. Energy Technology and Policy, Inderscience Publishers, vol. 12, Issue 4, pp. 53-72, 2015.

20. Chikku Abraham, **Babita R Jose**, "A Multiple Input Variable Output Switched CapacitorDC–DC Converter for Harnessing RenewableEnergy and Powering LEDs", Journal of Low Power Electronics, Vol. 11, pp. 1-11, 2015, Scopus- 0.35, ESCI (indexed)

21. Jos Prakash A.V, **Babita R Jose**, "A Low Cost Design of Time Division Multiplexing Based 3rd Order Continuous-Time Incremental ΣΔ Modulator with Excess Loop Delay", published in the Journal of Low Power Electronics, Vol. 10, no. 3, pp. 495-505(11), September 2014, Scopus-0.35, ESCI (indexed)

*22.* Jaison Jacob,  **Babita R. Jose**, Jimson Mathew: "Cellular Automata Approach for a Low Power Fusion Center to Evaluate Spectrum Status and Coverage Area in Cognitive Radios", J. Low Power Electronics 9(3): 332-339 (2013), Scopus- 0.35, ESCI (indexed)

23. J. Mathew, K. Maharatna, **Babita R. Jose**, D.K. Pradhan, "Pseudo-parallel Datapath Structure for Power Optimal Implementation of 128-pt FFT/IFFT for Wireless Personal Area Networks", Springer Circuits, Systems, and Signal Processing, vol. 30, No.4, pp. 871-882,ISBN ISSN: 0278-081X. April 2011, **Impact factor : 1.922 (SCI)**

24. **Babita R. Jose,** J Mathew, P.Mythili, "A Multi-mode Sigma-delta ADC for GSM/WCDMA/WLAN Applications", Journal of Signal Processing Systems, 01/2011; 62(2):117-130. DOI: 10.1007/s11265-008-0326-z, **Impact factor : 1.035 (SCI)**

25. **Babita R. Jose,**P.Mythili, J Mathew, "GA-based Optimization of Sigma-delta Modulators for Wireless Transceivers", Engineering letters,Vol.16, no.4,pp 473-479, 2008.

26. **Babita R. Jose,** J Mathew, P.Mythili, "Wideband Low-distortion Sigma-Delta ADC for Wlan with RNS Based Decimation Filter" ,IETECH International Journal of information systems, No.2, pp.68-75, 2008 .

27. **Babita R. Jose,** J Mathew, P.Mythili , "Dual-Band Sigma-delta ADC for WCDMA/WLAN Receivers", International Journal of Applied Engineering Research,vol 3, pp.257-273,2008.

28. Shahana T. K, **Babita R. Jose,** Rekha K. J., K. P. Jacob,S. Sasi, "Sigma-Delta Analog to Digital Converter for WLAN with RNS based Decimation Filter", IETECH Journal of Information Systems, International Engineering and Technology Publications, Vol. 2, No. 2, pp. 68-75, 2008.

29. Shahana T. K, **Babita R. Jose,** Rekha K. J., K. P. Jacob,S. Sasi, "A Toolbox Approach to Decimation Filter Design for Multi-Standard Wireless Transceivers", Journal of Communication Techniques, International Engineering and Technology Publications, Vol.2, No.3, pp. 181-188, 2008.

30. Shahana T. K, **Babita R. Jose,** Rekha K. J., K. P. Jacob,S. Sasi, "RNS based Programmable Decimation Filter for Multi-Standard Wireless Transceivers", ECTI Transaction on Electrical Engineering, Electronics and Communications, ECTI " Transaction Journal, Vol. 6, No. 2, pp. 57-66, 2008.

31. Shahana T. K, **Babita R. Jose,** Rekha K. J., K. P. Jacob,S. Sasi, "A Novel Sigma-Delta based Parallel Analog-to-Residue Converter", International Journal of Electronics, Taylor and Francis, vol 96, No.6, pp. 571-583 2009, **Impact factor : 0.939 (SCI)**

32. Shahana T. K, **Babita R. Jose,** Rekha K. J., K. P. Jacob,S. Sasi, "Decimation Filter Design Toolbox for Multistandard Wireless Transceivers using MATLAB", International Journal of Signal Processing, Volume 5 Number 2 Spring 2009.

33. Shahana T. K., **Babita R. Jose**, K. Poulose Jacob and SreelaSasi, "RRNS - Convolutional Concatenated Code for OFDM based Wireless Communication with Direct Analog-to-Residue Converter", International Journal of Electrical, Computer and Systems Engineering, World Academy of Science, Engineering and Technology, Vol. 2, No. 2, Spring 2008, pp.86-93

## *International Conferences/Workshops*

1) **Babita R. Jose,** Ana Rusu, Mohammed Ismail and HannuTenhunen, " A Dual-Band Sigma-Delta Modulator for GSM/WCDMA Receivers", Proceedings of the International XIX Conference on Design of Circuits and Integrated Systems DCIS 2004, Bordeaux, France, pp. 673-676, November 2004.

2) **Babita R. Jose,** Ana Rusu, Mohammed Ismail and HannuTenhunen, "Linearity Enhancement in a Configurable Sigma-Delta Modulator", in Proceedings of IEEE NEWCAS 2005, Quebec, Canada, pp.25-28, June 2005.

3) **Babita R. Jose**, P. Mythili., Vishnu V., Sudeesh T V , "Non-Idealities in a Second Order Traditional and Feed-forward Sigma Delta ADC for GSM/WCDMA: A Study", Proceedings International Conference on Embedded Systems, Mobile Communication and Computing, August 4-5 2006, Banglore, India 2006.

4) **Babita R. Jose**, Vishnu V, Bijoy A. J, JyothishSoman, Jimson Mathew, "A Fault Tolerant Multiplierless Decimation Filter", **Best Paper Award: DSP/Multimedia Session,** International Conference on Embedded Systems, Mobile Communication and Computing, August 4th -5th , 2006, PESIT Bangalore, India

5) **Babita R. Jose**, J. Mathew, P.Mythili "A Triple-mode Feed-forward Sigma-delta Modulator Design for GSM/WCDMA/WLAN Applications", Proceedings 20th IEEE International System On Chip Conference (SOCC' 2007) ISBN: 978-1-4244-1593-9 , pp. 309-312, Hsinchu, Taiwan 2007.

6) **Babita R. Jose**, P. Mythili, "A Low Power Programmable Sigma-Delta Modulator for Dual-Band Multi-Mode Receivers", Proceedings World Congress in Computer Science, Computer Engineering,& Applied Computing (ESA 2007), Las vegas, June 2007.

7) **Babita R. Jose**, J. Mathew, P. Mythili, "Wideband Low-Distortion Sigma-Delta ADC for WLAN" Sixth IEEE International Conference on Information, Communications & Signal Processing (ICICS'07) ISBN: 978-1-4244-0983-9, pp. 1-5, December 2007, Singapore.

8) **Babita R. Jose,**Shahana T. K. and P. Mythili, "Wideband Low-Distortion Sigma-Delta ADC for WLAN with RNS based Decimation Filter",IET International Conference on Information and Communication Technology in Electrical Sciences (ICTES 2007), Chennai, India, ISSN: 0537-9989,pp. 546-552, 20-22 December 2007.

9) Shahana T. K., **Babita R. Jose**, Rekha K. James, K. Poulose Jacob and SreelaSasi, "GUI Based Decimation Filter Design Tool For Multi-Standard Wireless Transceivers", IET International Conference on Information and Communication Technology in Electrical Sciences (ICTES 2007), Chennai, India, ISBN: 978-1-4244-0637-1, pp. 600-605, 20-22 December 2007.

10) Shahana T. K, Rekha K. James, **Babita R. Jose,** K. Poulose Jacob,SreelaSasi, "Performance Analysis of FIR Digital Filter Design: RNS Versus Traditional", 7th IEEE International

Symposium on Communications and Information Technologies (ISCIT 2007), Sydney, Australia, October 16-19, 2007.

11) Shahana T. K, Rekha K. James, **Babita R. Jose,** K. Poulose Jacob,SreelaSasi, "Polyphase Implementation of Non-recursive Comb Decimators for Sigma-Delta A/D Converters",IEEE international Conference on Electron Devices and Solid-State Circuits, ISBN: 978-1-4244-0637-1, pp. 825 – 828, Taiwan, December 20-22, 2007.

12) Shahana T. K, **Babita R. Jose,**Rekha K. James, K. Poulose Jacob,SreelaSasi, "Dual-Mode RNS based Programmable Decimation Filter for WCDMA and WLANa", Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS 2008), ISBN: 978-1-4244-1684-4, pp. 952 – 955,Washington, USA, 18-21 May, 2008.

13) Shahana T. K, **Babita R. Jose,**Rekha K. James, K. Poulose Jacob,SreelaSasi, "RNS based Programmable Multi-mode Decimation Filter for WCDMA and WiMAX", Proceedings of the IEEE 67th Vehicular Technology Conference: VTC2008-Spring, ISSN: 1550-2252, ISBN: 978-1-4244-1645-5, pp. 1831 – 1835, 11–14 May 2008, Marina Bay, Singapore.

14) Shahana T. K**., Babita R. Jose**, Rekha K. James, K. Poulose Jacob and SreelaSasi, "RRNS-Convolutional encoded Concatenated Code for OFDM based Wireless Communication", 16th IEEE International Conference on Networks (ICON 2008), ISSN: 1556-6463, pp.1-6, New Delhi, India, 12-14 December 2008.

15) Paul Ansel, **Babita R Jose** "Study of Non-Idealities in a Second Order Traditional Sigma Delta Modulators" Proceedings of International Workshop on Embedded Computing and Communication Systems(IWECC) December 2011.

16) Jaison Jacob, **Babita R Jose**, "Performance Evaluation of a Cooperative Spectrum Sensing Algorithm for Cognitive Radio", Proceedings of International Workshop on Embedded Computing and Communication Systems(IWECC) December 2011, pp. 18-22.

17) Jilu George, **Babita R Jose**, "A Review on Medical Image Registration and Transformation Techniques", Second International Workshop on Advances in Computing and Communications, Kochi, pp. 19-21, August 2012.

18) Sabarinath G., Paul Ansel**, Babita R Jose**, "Performance Analysis of Feedback Architecture and Input Feed Forward Architecture in Non-Ideal Low Pass Sigma Delta Modulators", Second International Workshop on Advances in Computing and Communications, Kochi, pp. 87-91, August 2012.

19) Anuradha P V, **Babita R. Jose**, "Diagnostic Expert System Model based on Fuzzy Logic", ICACC/ICECCS Workshops on Computing and Communications, 9-11 August 2012, ISBN 978-93-82338-14-7| © 2012 Bonfring, pp.23-26.

20) Jaison Jacob, **Babita R. Jose** "Cellular Automata Approach for Spectrum Sensing in Energy Efficient Sensor Network Aided Cognitive Radio" Lecture notes in Computer Science ( Springer) ICECCS, August 2012 Pages 54-61, DOI 10.1007/978-3-642-32112-2_9, ISBN 978-3-642-32111-5

21) K G Remya, Chikku Abraham and **Babita R. Jose,** "A Slope Compensated Current Mode Controlled Boost Converter" Lecture notes in Computer Science ( Springer) ICECCS, August 2012 Pages 69-76, DOI 10.1007/978-3-642-32112-2_9, ISBN 978-3-642-32111-5

22) Jaison Jacob, **Babita R Jose,** "Decision Fusion in Co-Operative Spectrum Sensing: A Fuzzy Based Approach" Third International Conference on Advances in Computing and Communications (ICACC-2013), 29-31 August 2013, Kochi.

23) Jos Prakash A.V, **Babita R Jose**, "ADC Bottleneck - Past, Present and Future" IEEE International Workshop on Recent Advances in Computing and Communications (ACCW-2013), held at Rajagiri School of Engineering and Technology, published in the workshop proceedings, pp 48-62, August 2013, ISBN: 978-93-83083-25-1.

24) Jos Prakash A.V**, Babita R Jose**, "TDM Based 3rd Order CT Incremental $\Sigma\Delta$ Modulator for Low Frequency ADC Application" 26th Kerala Science Congress, held at wayanad, published by KSCSTE, ShasthaBhavan, Pattom, Trivandrum – 695004. (Nominated for the Best paper Contest), 2014

25) Jos Prakash A.V, **Babita R Jose**, Jimson Mathew, "TDM Based 3rd Order CT Incremental $\Sigma\Delta$ Modulator for Low Frequency ADC Application" Proceedings of the International Conference on Next Generation Computing and Communication Technologies (ICNGCCT) held at Dubai, pp. 220-225, April 2014, ISBN 978-93-83303-42-7. (Got the Outstanding Paper Presentation Award during the event)

26) Jos Prakash A.V, **Babita R Jose**, "A Low-Power Reconfigurable Cross-Coupled $\Sigma\Delta$ Modulator For Multi-Standard Wireless Applications", Proceedings of the Fourth International Conference on Advances in Computing and Communications ACC-2014, DOI 10.1109/ICACC.2014.37. ISBN 978-1-4799-4364-7, pp 130 – 133, 27-29 Aug. 2014.

27) Jos Prakash A.V, **Babita R Jose**, Jimson Mathew, "Dual Extended Noise Shaping for High Performance Cross-Coupled Sigma-Delta Modulators" Proceedings of the 8th International Conference on Next Generation Mobile Applications, Services and Technologies (NGMAST2014), University of Oxford, UK, ISBN 978-1-4799-5072-0, pp 209 – 214, 10-12 Sept. 2014. **[Paper Presented]**

28) Jaison Jacob, **Babita R Jose**, Jimson Mathew, "Spectrum Prediction In Cognitive Radio Networks : A Bayesian Approach" Proceedings of the 8th International Conference on Next Generation Mobile Applications, Services and Technologies (NGMAST2014), University of Oxford ,UK, ISBN 978-1-4799-5073-7/14, pp 203 – 208, 10-12 Sept. 2014.

29) Anuradha P V, **Babita R. Jose**, "Segmentation of suspicious regions for detection of masses in mammograms", Fourth International Workshop on Advances in Computing and Communication Systems (ACC 2014), 27-29 August 2014, ISBN 978-93-392-1784-6,pp.171-175.

30) Chikku Abraham, Preetha. G, Susan Ninan, **Babita R Jose**, "Charge Pump Driven High Step-up Converter for Renewable Energy Harvesting", Int. Conf. on Emerging Trends in Electrical Engineering(ICETREE-14) (1–4), 4-6 Aug 2014, ISBN: 9789351072669, © Elsevier Publications 2014.

31) Chikku Abraham, Poornima M S, **Babita R. Jose**, "A Novel Multiple Gain inductorless Buck-Boost DC-DC Converter", International Conference on Advances in Computing & Communications (ICACC) ISBN: 978-1-4799-4362-3, pp. 356-361, 27-29 Aug 2014.

32) Chikku Abraham, Rakhee R, **Babita R. Jose**, "A Multiple Input Multiple Gain Switched Capacitor DC-DC Converter with ReducedSwitch Count", International Symposium on Electronic System Design (ISED) Dec 2014, NIT Manglore, ISBN: 978-1-4799-6964-7, pp. 104 - 108

33) Sabarinath, Jos Prakash, **Babita R. Jose**, Jimson Mathew, "Overloading Prediction in Symmetric Cross Coupled Low-Pass Sigma Delta Modulators" International Conference on Information and Communication Technologies (ICICT 2014), Dec 2014, Vol. 46, 2015, Pages 1223–1229, Elsevier Publication.

34) Paul Ansel V, Jos Prakash A. V, **Babita R. Jose**, Jimson Mathew, "Enhanced Noise Shaping based Band-Pass Cross-Coupled ΣΔ Modulators for Advanced Wireless Transceivers" International Conference on Information and Communication Technologies (ICICT 2014), Dec 2014, Vol. 46, 2015, Pages 1254–1260, Elsevier Publication.

35) Jaison Jacob, **Babita R Jose**, Jimson Mathew, "A Fuzzy Approach to Decision Fusion in Cognitive Radio", International Conference on Information and Communication Technologies (ICICT 2014), Dec 2014, <u>Vol. 46</u>, 2015, Pages 425–431, Elsevier Publication.

36) Anuradha.P.V, **Babita R. Jose**, Jimson Mathew, "Improved Segmentation of Suspicious Regions of Masses in Mammograms by Watershed Transform", International Conference on Information and Communication Technologies (ICICT 2014), Dec 2014, <u>Vol. 46</u>, 2015, Pages 1483–1490, Elsevier Publication.

37) Jos Prakash A.V, **Babita R Jose**, "A Low-Power Reconfigurable Cross-Coupled $\Sigma\Delta$ Modulator for Multi-Standard Wireless Applications", presented and won **The Best Paper Award** in **27th Kerala Science Congress** held at Alleppey during 27 to 29 January 2015. It was organized by Kerala State Council for Science, Technology & Environment (KSCSTE) jointly with National Transportation Planning and Research Centre (NATPAC). The Best Paper Award carries a **Certificate of merit**, a cash prize **of Rs. 10,000**/- and a **contingency grant of Rs. 100000/-** (Rupees One lakh only) for two years for pursuing further research.

38) Rijo Sebastian, **Babita Roslind Jose**, Shahana T.K.,'An Optimized High Resolution $\Sigma\Delta$ Modulator for Digital Hearing Aid Applications'published in the Proceedingsof Fifth International Workshop on Advances in Computing and Communications 3-5september 2015, McGrawHill Education,page no.144-147

39) Rijo Sebastian, **Babita R Jose**, Shahana T.K., Jimson Mathew,' GA based Second Order $\Sigma\Delta$ Modulator for Digital Hearing Aid Applications, Fourth International Conference on Ecofriendly Computing and Communication Systems (ICECCS)7-8 December 2015,National Institute of Technology, Kurukshetra, India, published by Elsevier Procedia Computer Science. [**Paper presented]**

40) Rijo Sebastian, **Babita R Jose**, Shahana T.K.,"Low Distortion MASH $\Sigma\Delta$ Modulator for Digital Audio Applications"published in the Extended Abstracts, 28th Kerala Science Congress held at University of Calicut,28-30 Jan 2016, pageno.1066-1071

41) Jos Prakash A.V, **Babita R Jose**, Jimson Mathew,"A Novel Excess Sturdy-MASH-Loop-Delay Compensated Cross-Coupled Modulator", Proceedings of 29th International Conference on VLSI Design and15th International Conference on Embedded Systems,Kolkata,Jan 2016.DOI:10.1109/VLSID.2016.59, Pages 246 – 251.

42) Rijo Sebastian,Jos Prakash, **Babita R Jose**, Shahana T.K, "A Multi-mode MASH ΣΔ Modulator for Low Power Wideband Applications", Proc. of 6th Int'l Symp. on Embedded computing & system Design (ISED 2016) held at IIT Patna during 15-17 Dec 2016.

43) Jaison Jacob, **Babita R Jose**, "Spectrum Occupancy Measurement and Analysis in Kochi-India from a Cognitive Radio Perspective", 6th Int'l Symp. on Embedded computing & system Design (ISED 2016) held at IIT Patna during 15-17 Dec 2016.

44) Paul Ansel V., M A Aboothahir, Smritilakshmi A S, **Babita Roslind Jose**, "Secure Opportunistic Large Array for Internet of Things", 6th Int'l Symp. on Embedded computing & system Design (ISED 2016) held at IIT Patna during 15-17 Dec 2016.

45) Sabarinath G, **Babita Roslind Jose,** "Compressed Sense Sigma Delta Modulators for Bio-Medical Image Acquisition", 6th Int'l Symp. on Embedded computing & system Design (ISED 2016) held at IIT Patna during 15-17 Dec 2016.

46) Athira Sudarsanan V., Michael George, **Babita Roslind Jose**, Jimson Mathew, "A Global Image Descriptor Based Navigation System for Indoor Environment", 7th International Conference on Advances in Computing & Communications, Procedia Computer Science, Volume 115, 2017, Pages 466-473.

47) Michael George, **Babita Roslind Jose**, Jimson Mathew, "Performance Evaluation of KCF based Trackers using VOT Dataset", The 6th International Conference on Smart Computing and Communications, Proceedings in Procedia Computer Science, Elsevier, Volume 125, 2018, Pages 560-567.

48) Chitra Liz Paulson, **Babita Roslind Jose**, J. Mathew, Marco Ottavi, "Memristor based adaptive impedance and frequency tuning network" 13th International Conference on Design & Technology of Integrated systems in Nanoscale Era, DTIS 2018, Doi:10.1109/DTIS.2018.8368553 **[Paper presented]**

49) Kala S.,Nalesh S, Babita R Jose, Jimson Mathew,: "Two Dimensional FFT Architecture based on Radix-$4^3$ Algorithm with Efficient Output Reordering", Proceedings of **IEEE Design and Test of Integrated Systems in Nanoscale Era" (DTIS),** April 2018, Italy. DOI:10.1109/DTIS.2018.8368562.

50) Kala S., Babita R Jose, Debdeep Paul, Jimson Mathew : "A Hardware Accelerator for Convolutional Neural Network using Fast Fourier Transform", Proceedings of *19th International Symposium on VLSI Design And Test 2018 (VDAT 2018)*, June 2018, pp.28-36.

51) Michael George, Bijitha C V, Babita R Jose, "Crowd Panic detection Using Autoencoder with Non-uniform Feature Extraction", 8th International IEEE Symposium on Embedded Computing and System Design (ISED 2018), 13-15 December 2018.

52) Kala S, Debeep Paul, Babita R Jose, Nalesh S "Design Space Exploration of Convolution Algorithms to Accelerate CNNs on FPGA", 8$^{th}$ International IEEE Symposium on Embedded Computing and System Design (ISED 2018), 13-15 December 2018.

53) Kala S., Jimson Mathew, Babita R Jose, Nalesh S: "UniWiG: Unified Winograd-GEMM Architecture for Accelerating CNN on FPGA", *In Proceedings of 31$^{st}$ International Conference on VLSI Design (VLSID 2019), Jan 2019.*

54) Rijo Sebastian, Jos Prakash, Babita R Jose, Shahana T K, Jimson Mathew, "Low-pass MASH DQEFM for 4G Wireless Receivers", Proceedings of *7$^{th}$ International Conference on Smart Computing & Communications (ICSCC 2019),* Curtin University, Malaysia, June 2019, pp.315-319.

55) Kala S., **Babita R Jose**, Jimson Mathew, Nalesh S,  "Efficient hardware acceleration of convolutional neural networks, in **32$^{nd}$ IEEE International System-On-Chip Conference (SOCC)** 2019, Singapore, pp. 191-192, September 3-6, 2019

56) Preenu Paul, Babita R Jose, Shahana T K, Chikku Abraham, Jimson Mathew, "Isolated Switched boost DC-DC Converter with Coupled Inductor and Transformer", **TENCON 2019 IEEE Region** 10 Conference at Grand Hyatt Kochi, Bolgatti, Kerala, India, October 2019.

57) Chithra Liz Palson, Deepti Das Krishna, and Babita Roslind Jose, "A Varactor Based Impedance Tuner Circuit Operating at ISM Frequency Band Centered at 2.45 GHz", 10th International Symposium on Embedded Computing and System Design (ISED), DIAT, Gandhi Nagar, Gujarat, 16 – 18 July 2021. (will appear in Springer journal)

58) Mehbooba P Shareef, Babita R Jose, "Recommendation Systems : A comparative analysis of Deep learning and classical approaches" 8th International Conference on Smart computing and Communications, organised by MITS, DOI:10.1109/ICSCC51209.2021.9528193, SCOPUS indexed. Available in IEEE EXPLORE, 02-Jul-2021.

59) Chithra Liz Palson, Sreelal K Deepti Das Krishna, and Babita Roslind Jose, "Memristor based Tunable Negative Group Delay Circuit", International Conference on Advances in Computing and Communications 2021 (ICACC-2021) on October 21-23, 2021 at Cochin.

60) Lekshmi R, Rakesh Kumar Sanodiya, Babita R Jose, J. Mathew, "Kernelized transfer feature learning on manifolds", accepted for 28th International Conference on Neural Information Processing (ICONIP 2021), Dec 8-12, 2021, Bali, Indonesia.

61) Seema Safar, Babita Jose and Santhanakrishnan T. "An Improved Recommendation System with Aspect-Based Sentiment Analysis" accepted for publication in 2021 International Conference on Data Science and Engineering (ICDSE 2021).

62) Devika Asha Kadavath, Dr.Rakesh Kumar Sanodiya and Dr.Babita Roslind Jose, "Kernelized Transfer Joint Matching for Unsupervised Domain Adaptation" accepted for publication in 2021 International Conference on Data Science and Engineering (ICDSE 2021)