Curriculum Vitae

Prof. Rajeev Kumar Ranjan
(Associate Professor)
Department of Electronics Engineering
Indian Institute of Technology (ISM), Dhanbad 826004, Jharkhand, India
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Positions held (in chronological order)

Employer	Post	Period of Employment	
		From	To
Indian Institute of Technology, ISM Dhanbad	Associate Professor	22.03.2023	Continuing
Indian Institute of Technology, ISM Dhanbad	Assistant Professor	30.11.2010	21.03.2023
Sant Longowal Institute of Engineering and Technology, Longowal, Punjab, India (MHRD Funded Deemed University)	Assistant Professor	Aug, 2007	Nov, 2010
North Eastern Regional Institute of Technology, Itanagar, Arunachal Pradesh, India (MHRD Funded Deemed University)	Assistant Professor	April, 2007	July, 2007
Central Electronics Engineering Research Institute, Pilani, Rajasthan, India.	Project Scientist	July, 2004	Aug, 2005

Academic Qualifications (Bachelor's degree onwards)

Degree /Diploma	Subject	University/Institution	Year
B. Tech.	Electronics & Communication Engineering	Sant Longowal Institute of Engineering and Technology, Longowal, Punjab, India (MHRD Funded Deemed University)	(July 2000 - June 2003)
M. Tech.	Electronics Design and Technology	Central University, Tezpur (Assam), India	(July 2005 - June 2007)
Ph.D.	Microelectronics and VLSI Design	Indian Institute of Technology (ISM), Dhanbad India	(Oct. 2011 - Nov. 2016)

Technical Research Area of Interest:

1. Emerging Neural Circuits and Systems: Memristive systems, Crossbar arrays, Hardware implementation of deep learning systems using mem-element device.
2. Bio-Sensor Design: Mem-element systems, Bio-sensors, MOS-based memristors emulators as a sensor.
3. Analog and mixed VLSI design: Analog Filter, Oscillator, PID Controllers, Driver System for Satellite Torquer System
4. Smart Auto-Irrigation and Soil Monitoring System: Soil sensor, Irrigation system, Transmitter and Receiver system.
5. CMOS based digital design and different types of challenges. TSMC 180 nm PDK, 180 nm SCL PDK, UMC 180 nm, 65 nm, 28 nm etc.

Sponsored Projects Handled:

S. No.	Title of Project	Authority	Funding Agency & Project No.	Amount of Grant (In Rs.)	Starting Date/ Duration	Status
1.	Ultra-Low Power Neuromorphic Spiking Architecture for Assistive Smart Glasses	Principal Investigator	MEITY, New Delhi	97 L	1/7/2023 (60 Months)	Ongoing
2.	Memristor based Multilayer Neural Networks (MNN) and its application in Neuromorphic System	Principal Investigator	CSIR	38 L	1/4/2023 (36 Months)	Ongoing
3.	Design and Implementation of a Light-to-digital Converter for Photoplethysmogram (PPG) Sensor Application.	Team Member	CSIR-CEERI	17 L	16/6/2021 (36 Months)	Ongoing
4.	Memristor Based Biosensor Design for COVID-19	Principal Investigator	MHRD(SICRG)/2020-2021/740/ECE	10 L	9/11/2020 (37 Months)	Completed
5.	Auto irrigation and soil monitoring system for COVID-19 migrants Engagement.	Principal Investigator	IEEE/2020-2021/718/ECE	7 L	23/6/2020 (24 Months)	Completed

6.	FIST-2019 Project of Department of Electronics Engineering	Member of project (VLSI implementation group)	Department of Science and Technology (DST), Government of India & TPN-31665	190 L	7/1/2020 (60 Months)	Ongoing
7.	Determination of 120W street light parameters.	Principal Investigator	Dhanbad Municipal Corporation & TEST/5013/2018-2019	84,746.00	2018-2019	Completed
8.	Determination of 90W street light parameters.	Principal Investigator	Dhanbad Municipal Corporation & TEST/5014/2018-2019	59,322.00	2018-2019	Completed
9.	Quotation for testing of LED Street Light	Principal Investigator	Office of the Dy. Commissioner of Customs, Banskop & CONS/3508/2017-2018	17,400.00	2017-2018	Completed
10.	Design of new low power low voltage and high bandwidth Current Mode Building Block (CMBB) and its application in analog signal processing and signal generating circuits.	Principal Investigator	Minor Research Project, TEQIP-II	2L	20-01-2017	Completed

Outreach Programme:

S. No.	Title of Course	Authority	Department	Amount of Grant (in INR)	Month/ Year of Starting	Status
1.	Advanced Analog Signal processing and Generating Circuits.	Co-Consultant	Department of Electronics and Communication IIT(ISM) Dhanbad	0.48 L	2014	Completed
2.	Current mode Analog Circuits	Co-Consultant	Department of Electronics and	0.70 L	2013	Completed

			Communication IIT(ISM) Dhanbad			
3.	Advance Analog Circuits using Current Mode Building Blocks	Co-Consultant	Department of Electronics and Communication IIT(ISM) Dhanbad	1 L	2015	Completed
4.	DST (SERB) KARYASHALA	Coordinator	Department of Electronics and Communication IIT(ISM) Dhanbad	5L	2022	Completed
5.	AICTE Margdarshan Scheme Training program	Coordinator	Department of Electronics and Communication IIT(ISM) Dhanbad	18 L	2024	Ongoing

Reviewed International Journal

Year 2024

1.Pankaj Kumar, Aasif Mohammad Bhat, Pankaj Kumar Sharma, Rajeev Kumar Ranjan,"A novel and compact MOSFET-C only based grounded meminductor emulator and its application"in AEU - International Journal of Electronics and Communications, Volume 183, 2024, 155378, ISSN 1434-8411 https://doi.org/10.1016/j.aeue.2024.155378.

2. P. Kumar, R. K. Ranjan and S. -M. Kang, "A Memristor Emulation in 180-nm CMOS Process for Spiking Signal Generation and Chaos Application," in *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 71, no. 4, pp. 1757-1770, April 2024, doi: 10.1109/TCSI.2023.3348695.

3. Tasneem, S.; Ranjan, R.K.; Paul, S.K.; Herencsar, N. Power-Efficient Electronically Tunable Fractional-Order Filter. *Fractal Fract.* **2024**, *8*, 31. https://doi.org/10.3390/fractalfract8010031

4. P. Srivastava, R. K. Sharma, R. K. Gupta, F. Kacar and R. K. Ranjan, "New DTMOS Based High Frequency Memristor Emulator and Its Nonlinear Applications," in *IEEE Access*, vol. 12, pp. 9195-9205, 2024, doi: 10.1109/ACCESS.2023.3344311.

5. Surendra Prasad, S., Dutta, S., Choubey, C. K., Dubey, S. K., Priyadarshini, B., & Ranjan, R. K. (2023). Tunable floating and grounded memristor emulator model. *International Journal of Electronics*, 1–18. https://doi.org/10.1080/00207217.2023.2267218

6. Niranjan Raj, Rajeev Kumar Ranjan,"Emulation of novel floating and tunable Multimem-Elements circuit and its application"AEU - International Journal of Electronics and

Communications, Volume 177, 2024, 155215, ISSN 1434-8411, https://doi.org/10.1016/j.aeue.2024.155215.

7. Pankaj Kumar sharma, Rajeev Kumar Ranjan, Sung-Mo Kang A Compact Electronically Tunable Meminductor Emulator Model and Its Application IEEE Circuits & Systems Magazine IEEE 6.9 2024

8. Sagar, Jagveer Singh Verma, Manoj Joshi, Rajeev Kumar Ranjan, Sung-Mo Kang,
A compact memristor emulator for novel IC applications: Its design and experimental validation,Chaos, Solitons & Fractals,Volume 183, 2024, 114824, ISSN 0960-0779, https://doi.org/10.1016/j.chaos.2024.114824.

Year 2023

9. P. K. Sharma, S. Tasneem and R. K. Ranjan, "A New Electronic Tunable High-Frequency Meminductor Emulator Based on a Single VDTA," in *IEEE Canadian Journal of Electrical and Computer Engineering*, vol. 46, no. 2, pp. 179-184, Spring 2023, doi: 10.1109/ICJECE.2023.3261886.

10. Tasneem, S., Ranjan, R.K. and Paul, S.K., 2024. Low-Frequency Electronically Tunable Fractional Filter and its Implementation as Neural Network. *Journal of Circuits, Systems & Computers*, *33*(2).

11. F. Khateb, M. Kumngern, T. Kulej and R. K. Ranjan, "0.5 V Multiple-Input Multiple-Output Differential Difference Transconductance Amplifier and Its Applications to Shadow Filter and Oscillator," in *IEEE Access*, vol. 11, pp. 31212-31227, 2023, doi: 10.1109/ACCESS.2023.3260146.

12. Sagar, R. K. Ranjan and S. -M. Kang, "Resistorless Floating/Grounded Memristor Emulator Model With Electronic Tunability," in *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 70, no. 7, pp. 2340-2344, July 2023, doi: 10.1109/TCSII.2023.3242301.

13. Tasneem, S.; Kumar Sharma, P.; Kumar Ranjan, R.; Khateb, F. Electronically Tunable Memristor Emulator Implemented Using a Single Active Element and Its Application in Adaptive Learning. *Sensors* 2023, *23*, 1620. https://doi.org/10.3390/s23031620

14. Prashant Kumar, Brajesh Kumar Kaushik, Rajeev Kumar Ranjan, A novel second generation current conveyor (CCII)-based high frequency memristor model, Microelectronic Engineering, Volumes 271 272, 2023, 111938, ISSN 0167-9317, https://doi.org/10.1016/j.mee.2023.111938.

15. P. Kumar, P. Srivastava, R. K. Ranjan and M. Kumngern, "New Zero Power Memristor Emulator Model and Its Application in Memristive Neural Computation," in *IEEE Access*, vol. 11, pp. 5609-5616, 2023, doi: 10.1109/ACCESS.2023.3236424.

16. Dutta, S., Kumar, P., Ranjan, R.K. *et al.* An Improved DDCCTA Toward its Application in Different Wave-Function and PWM Generation. *Arab J Sci Eng* 48, 14313–14332 (2023). https://doi.org/10.1007/s13369-022-07559-x

17. Pankaj Kumar Sharma, Sagar Surendra Prasad, Sadaf Tasneem, Bindu Priyadarshini, Rajeev Kumar Ranjan,"Resistive tunable memristor emulator model and its application, AEU" - International Journal of Electronics and Communications, Volume 160, 2023, 154500, ISSN 1434-8411, https://doi.org/10.1016/j.aeue.2022.154500.

Year 2022

18. Sagar Surendra Prasad, Prashant Kumar, Niranjan Raj, Pankaj Kumar Sharma, Bindu Priyadarshini, Rajeev Kumar Ranjan, Pipat Prommee,"A compact floating and grounded memristor model using single active element", AEU - International Journal of Electronics and Communications, Volume 157, 2022, 154426, ISSN 1434-8411, https://doi.org/10.1016/j.aeue.2022.154426.

19. Sagar, N. Raj, V. K. Verma and R. K. Ranjan, "Electronically Tunable Flux-Controlled Resistorless Memristor Emulator," in *IEEE Canadian Journal of Electrical and Computer Engineering*, vol. 45, no. 3, pp. 311-317, Summer 2022, doi: 10.1109/ICJECE.2022.3182711.

20. N. Raj, R. K. Ranjan and A. James, "Chua's Oscillator With OTA Based Memcapacitor Emulator," in *IEEE Transactions on Nanotechnology*, vol. 21, pp. 213-218, 2022, doi: 10.1109/TNANO.2022.3168154.

21. Srivastava, P., Sharma, R.K. & Ranjan, R.K. On the Realization of Current-Mode Four-Quadrant CMOS Fractional Power and Cube-Root Converter. *Arab J Sci Eng* **47**, 13837–13855 (2022). https://doi.org/10.1007/s13369-021-06488-5

Year 2021

22. S. Tasneem, R. K. Ranjan and S. K.Paul, "Performance Enhancement of Current Follower Transconductance Amplifier (CFTA) and its Application as Filter" *Journal of Circuits, Systems, and ComputersISSN 1350-2409,* World Scientific, Singapore, 2021.

23. Raj, N.; Sagar; Ranjan, R.K.; Priyadarshini, B.; Bizon, N. Electronically Tunable Full Wave Precision Rectifier Using DVCCTAs. *Electronics* **2021**, *10*, 1262. https://doi.org/10.3390/electronics10111262

24. V. K. Verma and R. K. Ranjan, "Design of Active PWM Control Driver Circuit for Torquer System Using CCII," in *IEEE Access*, vol. 9, pp. 75426-75434, 2021, doi: 10.1109/ACCESS.2021.3081581.

25. N. Raj, R. K. Ranjan, F. Khateb and M. Kumngern, "Mem-Elements Emulator Design With Experimental Validation and Its Application," in *IEEE Access*, vol. 9, pp. 69860-69875, 2021, doi: 10.1109/ACCESS.2021.3078189.

26. Verma, V.K.; Ranjan, R.K.; Prince, P.; Appasani, B.; Bizon, N.; Thounthong, P. A New Active Control Driver Circuit for Satellite's Torquer System Using Second Generation Current Conveyor. *Electronics* **2021**, *10*, 911. https://doi.org/10.3390/electronics10080911

27. S. S. Prasad, P. Kumar and R. K. Ranjan, "Resistorless Memristor Emulator Using CFTA and Its Experimental Verification," in *IEEE Access*, vol. 9, pp. 64065-64075, 2021, doi: 10.1109/ACCESS.2021.3075341.

28. Montree Kumngern, Tomasz Kulej, Fabian Khateb, Viera Stopjakova, Rajeev K. Ranjan,"Nanopower multiple-input DTMOS OTA and its applications to high-order filters for biomedical systems", AEU - International Journal of Electronics and Communications, Volume 130, 2021, 153576, ISSN 1434-8411, https://doi.org/10.1016/j.aeue.2020.153576.

Year 2020

29. W. Jaikla, F. Khateb, M. Kumngern, T. Kulej, R. K. Ranjan and P. Suwanjan, "0.5 V Fully Differential Universal Filter Based on Multiple Input OTAs," in *IEEE Access*, vol. 8, pp. 187832-187839, 2020, doi: 10.1109/ACCESS.2020.3030239.

30. P. K. Sharma, R. K. Ranjan, F. Khateb and M. Kumngern, "Charged Controlled Mem-Element Emulator and Its Application in a Chaotic System," in *IEEE Access*, vol. 8, pp. 171397-171407, 2020, doi: 10.1109/ACCESS.2020.3024769.

31. Srivastava, P., Gupta, R.K., Sharma, R.K. *et al.* MOS-Only Memristor Emulator. *Circuits Syst Signal Process* **39**, 5848–5861 (2020). https://doi.org/10.1007/s00034-020-01421-x

32. N. Raj, R. K. Ranjan and F. Khateb, "Flux-Controlled Memristor Emulator and Its Experimental Results," in *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, vol. 28, no. 4, pp. 1050-1061, April 2020, doi: 10.1109/TVLSI.2020.2966292.

33. Verma, V.K., Ranjan, R.K., Lekshmi, V. *et al.* A second generation current conveyor based PID controller optimized using a crossover improved genetic algorithm. *Microsyst Technol* **26**, 1449–1454 (2020). https://doi.org/10.1007/s00542-019-04677-9

Year 2019

34. Fabian Khateb, Tomasz Kulej, Montree Kumngern, Winai Jaikla, Rajeev Kumar Ranjan, "Comparative performance study of multiple-input bulk-driven and multiple-input bulk-driven quasi-floating-gate DDCCs", AEU - International Journal of Electronics and Communications, Volume 108, 2019, Pages 19-28, ISSN 1434-8411, https://doi.org/10.1016/j.aeue.2019.06.003.

35. Ranjan, R.K., Sagar, S., Roushan, S., Kumari, B., Rani, N. and Khateb, F. (2019), High-frequency floating memristor emulator and its experimental results. IET Circuits Devices Syst., 13: 292-302. https://doi.org/10.1049/iet-cds.2018.5191

36. Rajeev Kumar Ranjan, Pankaj Kumar Sharma, Sagar, Niranjan Raj, Bharti Kumari and Fabian Khateb, "Memristor Emulator Circuit Using Multiple-Output OTA and Its Experimental

Results", ISSN: 0218-1266 , Journal of Circuits, Systems and Computers Vol. 28, No. 10, 1950166 (2019)**. https://doi.org/10.1142/S0218126619501664**

37. Appasani, B., Prince, P., Ranjan, R.K. *et al.* A Simple Multi-band Metamaterial Absorber with Combined Polarization Sensitive and Polarization Insensitive Characteristics for Terahertz Applications. *Plasmonics* **14**, 737–742 (2019). https://doi.org/10.1007/s11468-018-0852-x

38. Shrivastava, P., Surendra, S., Ranjan, R.K. *et al.* PI, PD and PID Controllers Using Single DVCCTA. *Iran J Sci Technol Trans Electr Eng* **43**, 673–685 (2019). https://doi.org/10.1007/s40998-019-00180-z

39. Gupta, P., Verma, V.K., Ranjan, R.K. *et al.* A series expansion method aided design of current mode second generation current conveyor based active control circuit. *Microsyst Technol* **25**, 2323–2330 (2019). https://doi.org/10.1007/s00542-018-4117-6

40. Srivastava, P., Sharma, R.K. & Ranjan, R.K. On the realisation of current-mode four-quadrant CMOS cuber. *Analog Integr Circ Sig Process* **99**, 47–61 (2019). https://doi.org/10.1007/s10470-018-1291-5

Year 2018

41. Verma, V.K., Ranjan, R.K., Gupta, P. *et al.* A series expansion method aided design of CCII controller for a TITO system. *Microsyst Technol* **24**, 3843–3849 (2018). https://doi.org/10.1007/s00542-018-3869-3

42. Ranjan, R.K., Paul, S.K. Self generating square/triangular wave and pulse width modulator using a single MO-CCCDTA. *Analog Integr Circ Sig Process* **94**, 177–193 (2018). https://doi.org/10.1007/s10470-017-1089-x

43. Ranjan, R.K., Sinha, A. & Paul, S.K. A New Operational Transconductance Amplifier Based Pulse Width Modulator. *Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci.* **89**, 51–55 (2019). https://doi.org/10.1007/s40010-017-0390-5

Year 2017

44. Rajeev Kumar Ranjan, Niranjan Raj, Nidhi Bhuwal, Fabian Khateb, "Single DVCCTA based high frequency incremental/decremental memristor emulator and its application" ,AEU - International Journal of Electronics and Communications, Volume 82, 2017,Pages 177-190, ISSN 1434-8411, https://doi.org/10.1016/j.aeue.2017.07.039.

45. Ranjan, R.K., Mazumdar, K., Pal, R. *et al.* Generation of square and triangular wave with independently controllable frequency and amplitude using OTAs only and its application in PWM. *Analog Integr Circ Sig Process* **92**, 15–27 (2017). https://doi.org/10.1007/s10470-017-0971-x

46. Kaushik Mazumdar, Rajeev Kumar Ranjan, Ravi Shankar, Bindu Priyadarshini, Aniruddha Ghosal,"Modern comparative approach for carrier transport in InAlN/AlN superlattice device with characteristics and modelling using nitride (14N,15N) isotopes",Superlattices and Microstructures, Volume 103, 2017, Pages 190-194, ISSN 0749-6036, https://doi.org/10.1016/j.spmi.2017.01.008.

47. Rajeev Kumar Ranjan, Nishtha Rani, Ratnadeep Pal, Sajal K. Paul, Gaurav Kanyal, Single CCTA based high frequency floating and grounded type of incremental/decremental memristor emulator and its application, Microelectronics Journal, Volume 60, 2017, Pages 119-128, ISSN 1879-2391, https://doi.org/10.1016/j.mejo.2016.12.004.

48. Rajeev Kumar Ranjan, Chandan Kumar Choubey, Bal Chander Nagar, and Sajal K. Paul Comb Filter for Elimination of Unwanted Power Line Interference in Biomedical Signal Journal of Circuits, Systems, and Computers ISSN: 0218-1266

Year 2016

49. Kaushik Mazumdar, Rajeev Kumar Ranjan, Ravi Shankar, Ahna Sharan, Bindu Priyadarshini, Mainak Kundu, Aniruddha Ghosal,"Analysis of electron transport in AlGaN/GaN superlattice HEMTs for isotopes 14N and 15N" , Superlattices and Microstructures, Volume 100, 2016, Pages 983-987, ISSN 0749-6036, https://doi.org/10.1016/j.spmi.2016.10.065.

50. Rajeev Kumar Ranjan, Kundan Kumar, Nishtha Rani, Sajal K. Paul, and Shyam Akashe, "A Power Line Filter Circuit Design for Biomedical Applications" Journal of Computational and Theoretical Nanoscience, ISSN 1546-1963, American Scientific Publishers, United States

Year 2014

51. Ranjan, Rajeev Kumar, Yalla, Surya Prasanna, Sorya, Shubham, Paul, Sajal K., Active Comb Filter Using Operational Transconductance Amplifier, *Active and Passive Electronic Components*, 2014, 587932, 6 pages, 2014. https://doi.org/10.1155/2014/587932

Year 2013

52. Ghosh, Mourina, Paul, Sajal K., Ranjan, Rajiv Kumar, Ranjan, Ashish, Third Order Universal Filter Using Single Operational Transresistance Amplifier, *Journal of Engineering*, 2013, 317296, 6 pages, 2013. https://doi.org/10.1155/2013/317296

International/National Conferences:

1. Somenath Dutta, Rajeev Kumar Ranjan, Dharmendra Kumar Singh, "Designing Tuneable Circuits Using the DDCC2TA for Square, Triangular Wave Generation and Pulse Width Modulation". Accepted for publication in Second International Conference on Electrical, Electronics, Information and Communication Technologies (ICEEICT 2023)
2. Pankaj Kumar Sharma, Prashant Kumar, and Rajeev Kumar Ranjan, "A High- Frequency Flux Controlled Grounded Memristor Emulator Model," 2022 14th International Conference on Information Technology and Electrical Engineering (ICITEE-2022), Indonesia, pp. 64-67, doi: 10.1109/ICITEE56407.2022.9954099.
3. Pankaj Kumar Sharma, Sagar, Sadaf Tasneem, and Rajeev Kumar Ranjan, "A new Grounded MemristorEmulator using DVCC and OTA," in 19th international conference on electrical engineering/electronics, computer, telecommunications and information technology (ECTI-CON), May 24-27, 2022, Huahin, Thailand, DOI: 10.1109/ECTI-CON54298.2022.9795412.
4. Sagar, Niranjan Raj, Pankaj Kumar Sharma, and Rajeev Kumar Ranjan, "Grounded Memristor EmulatorUsing Single-Active Block," in *19th international conference on electrical engineering/electronics, computer, telecommunications and information technology (ECTI-CON),* May 24-27, 2022, Huahin, Thailand, DOI: 10.1109/ECTI-CON54298.2022.9795587
5. Prasad, Sagar Surendra, Sadaf Tasneem, Bindu Priyadarshini, and Rajeev Kumar Ranjan. "Electronic Tunable Bi-Quad Filter Using MO-CCCDTA." In *Fourth International Conference on Electrical, Computer and Communication Technologies (ICECCT)*, pp. 1-6, Sep. 15 2021, DOI:10.1109/ICECCT52121.2021.9616870.
6. N. Raj, S. Chandra, B. Priyadarshani, and Rajeev Kumar Ranjan, "Multiple output current-controlled current conveyor transconductance amplifier using BiCMOS for analog signal processing," in 4th International Conference on Recent Advances in Information Technology (RAIT), 15-17 March 2018 Dhanbad, India, DOI: https://doi.org/10.1109/RAIT.2018.8388989.
7. Swati Kumari, Pallav Prince, Vijay Kumar Verma, Bhargav Appasani, and Rajeev Kumar Ranjan, "GA Based Design of Current Conveyor PLD Controller for the Speed Control of BLDC Motor," in 4th International Conference on Computational Intelligence & Communication Technology (CICT-2018), 9-10 Feb. 2018, Ghaziabad, India, **DOI:** https://doi.org/10.1109/CIACT.2018.8480149.
8. Sheetal Tewary, Vijay Kumar Verma, Bhargav Appasani, Pooja Guptal, and Rajeev Kumar Ranjan, "Design of CCII PID Controller for the Control of Glucose Blood Level Using GA" in 4th International Conference on Computational Intelligence & Communication Technology (CICT-2018), 9-10 Feb. 2018, Ghaziabad, India, **DOI:** https://doi.org/10.1109/CIACT.2018.8480402.
9. Vijay Kumar Verma, Bhargav Appasani, Pooja Gupta, and Rajeev Kumar Ranjan, "GA based design of CCII PID controller for an inverted pendulum system," in IEEE

International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI-2017), 21-22 Sept. 2017, Chennai, India, DOI: 10.1109/ICPCSI.2017.8392212.

10. Pooja Gupta, Bhargav Appasani, Vijay Verma, and Rajeev Kumar Ranjan, "PSO Based CCII PID Controller for a Continuous Stirred Tank Reactor System," in IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI-2017), 21-22 Sept. 2017 Chennai, India, DOI: https://doi.org/10.1109/ICPCSI.2017.8392227.
11. Nishtha Rani, Rajeev Kumar Ranjan, Ratnadeep Pal, and Sajal K. Paul, "Programmable and Electronically Tunable Voltage-Mode Universal Biquadratic Filter Based On Simple CMOS OTA," in Proceeding of IEEE International Conference on Devices, Circuits and Systems (ICDCS-2016), 3-5 March 2016, Coimbatore, India, DOI: https://doi.org/10.1109/ICDCSyst.2016.7570623.
12. Rajeev Kumar Ranjan, Y. S. Prasanna Kumar, S. Sorya, Sajal K. Paul, and M. Ghosh, "Efficient Active Filter for filtering of harmonics in biomedical signal," in International Conference. BEATS-2014, UIET, Chandigarh (India), February, 14-15.
13. Mourina Ghosh, Rajeev Kumar Ranjan, and Sajal K. Paul, "Third Order Universal filter using OTRA," in Proceeding of IEEE, International Conference CODEC- 2012, December 17-19, Kolkata, India, DOI: https://doi.org/10.1109/CODEC.2012.6509217.

Ph.D. Student Supervision (Awarded):

1.	Name & Adm. No.	PUSHKAR SRIVASTAVA (17DP000209)
	Date of Registration & Status	2017, Awarded
	Proposed Thesis Title	An Investigation into Selected Class of Non-Linear Analog Signal Processing Circuits
2.	Name & Adm. No.	VIJAY KUMAR VERMA (17DP000215)
	Date of Registration & Status	2016**,** Awarded
	Proposed Thesis Title	Realization Of Active Control Circuits Using Current Mode Building Blocks
3.	Name & Adm. No.	SOMENATH DUTTA (17DP000255)
	Date of Registration & Status	2016, Awarded
	Proposed Thesis Title	Design of Analog Signal Processing Circuits Using Analog Building Blocks
4.	Name & Adm. No.	NIRANJAN RAJ (17DR000367)
	Date of Registration & Status	2017, Awarded
	Proposed Thesis Title	Study And Implementation of Novel Mem-Elements Emulator Circuit and Applications
5.	Name & Adm. No.	SAGAR (17DR000477)
	Date of Registration & Status	2017, Awarded
	Proposed Thesis Title	Design And Performance Analysis of Memristor Emulator Circuit And Its Applications.
6.	Name & Adm. No.	PANKAJ KUMAR SHARMA (17DR000641)
	Date of Registration & Status	2017, Awarded
	Proposed Thesis Title	Study And Design of Mem-Element Emulators and Their Applications

7.	Name & Adm. No.	SADAF TASNEEM (18DR0119)
	Date of Registration & Status	2018, Awarded
	Proposed Thesis Title	Design And Performance Analysis of Fractional-Order Filters Using Current Mode Building Blocks
8.	Name & Adm. No.	PRASHANT KUMAR (19DR0108)
	Date of Registration & Status	2019, Awarded
	Proposed Thesis Title	Design Of Memristor Emulator Circuits and Its Applications

Ph.D. Student Supervision (Ongoing):

1.	Name & Adm. No.	JAGVEER SINGH VERMA (18DP0002)
	Date of Registration & Status	2018, Ongoing
	Proposed Thesis Title	Low Power Analog Integrated Circuits Design.
2.	Name & Adm. No.	RAHUL RANJAN (23DR0123)
	Date of Registration & Status	2023, Ongoing
	Proposed Thesis Title	Low Power Memristor Design and Its Application In Neuromorphic Computing.
3.	Name & Adm. No.	RAVI JAISWAL (23DP0030)
	Date of Registration & Status	2023, Ongoing
	Proposed Thesis Title	
4.	Name & Adm. No.	BASIT SHAFAT MAKHDOOMI (23DR0212)
	Date of Registration & Status	2023, Ongoing
	Proposed Thesis Title	
5.	Name & Adm. No.	SHWETA KUMARI (23DR0317)
	Date of Registration & Status	2023, Ongoing
	Proposed Thesis Title	
6.	Name & Adm. No.	NIRAJ KUMAR (24DP0098)
	Date of Registration & Status	2024, Ongoing
	Proposed Thesis Title	
7.	Name & Adm. No.	SOURAV MAJI (24DR0186)
	Date of Registration & Status	2024, Ongoing
	Proposed Thesis Title	
8.	Name & Adm. No.	NITIN SINGHAL (24DR0239)
	Date of Registration & Status	2024, Ongoing
	Proposed Thesis Title	

M. Tech Student Supervision:

Sl. No.	Name of Scholar	Regd. No.	Title of the Thesis	Month and Year of Submission
1.	Shivam Singh	21MT0392	Electronically controllable multifunction fractional order filter	May 2023
2	Ankush Gupta	20MT0070	Memristor emulator using single DDCCTA	May 2022
3.	Kushagra Pandey	17MT001814	Analysis of 8 transistor SRAM cell	May 2019

4.	Ravi Prakash	15KT000075	10T SRAM Cell Design	May 2019
5.	Rajesh Kumar Jena	17MT001605	Designing of Incremental and decremental Memristor Emulator Using MOSFET	May 2019
6.	Abhishek Shrivastav	16MT01161	Design of instrumentation amplifier and temperature sensor using current mode circuits	May 2018
7.	Subrato Roushan	16MT000879	Design of full wave rectifier circuits and instrumentation amplifier using current mode building block	May 2018
8.	Prakhar Shrivastava	16MT000851	GT power engine model calibration of 4 cylinder gasoline direct injection SI engine	May 2018
9.	Bharti Kumari	15MT000162	Design of memristor emulator circuits using current mode building block	May 2017
10.	Nidhee Bhuwal	15MT000316	Study and Design of Emulator Circuit of Memristor, Memcapacitor and its application using Current mode building block	May 2017
11.	Nishtha Rani	14MT000299	Study and design of memristor and analog filter using current mode building blocks	May 2016
12.	Kundan Kumar	14MT000270	Study and design of current controlled current conveyor transconductance amplifier (CCCCTA) and its application	May 2016
13.	Ravi Jaiswal	2013MT0275	Analog signal processing and generating circuits	May 2015
14.	Satish Chandra	2013MT0152	Analog Signal Processing Circuits	May 2015
15.	Ankita Sinha	2012MT0008	Design of Analog Signal and Generating Circuits	May 2015
16.	Kripa Sindhu Sharma	2010MT0139	De-Noising and detection of ECG Signal using Daubechies Wavelet	May 2012
17.	Chandan Kumar Chaubey	2011MT0007	Study and Design of Analog and comb Filter using Current Mode Building Blocks	May 2013

Facilities Available:

Sl. No.	Software/ Equipment's	Details
1.	Cadence Virtuoso Software	✓ Provides the functionality to drive simulation and LVS-clean layout of ICs and packages from schematic. ✓ TSMC 180 nm and SCL 180nm library files are available.

2.	OrCAD Software	✓ Create electronic schematics, perform mixed-signal simulation and electronic prints for manufacturing printed circuit boards. ✓ TSMC 180nm library available.
3.	DSO 2 channel	✓ Stores and analyses the input signal digitally, Provide advanced trigger, storage, display and measurement features
4.	Function Generator	✓ Produces a desired signal of specified frequency, shape and amplitude
5.	Multiple Power Supply	✓ Provide different level of DC voltage and current with constant DC current or voltage.

Major Awards:

1. 2% scientist award by Stanford University among world (2023).
2. Shastri Institutional Collaborative Research Grant (SICRG) (2020).

Served as a Reviewer:

- Microelectronics Journal, Elsevier
- Microsystem Technologies
- Analog Integrated Circuits and Signal Processing
- AEÜ - International Journal of Electronics and Communications
- Circuits, Systems, and Signal Processing
- IET Circuits, Devices & Systems
- Journal of Circuits, Systems and Computers
- Iranian Journal of Science and Technology, Transactions of Electrical Engineering
- IEEE Transactions on Very Large-Scale Integration (VLSI) Systems
- AEÜ - International Journal of Electronics and Communications

Membership of Professional Bodies:

- Senior Member IEEE: 94456889

Administrative Responsibilities at IIT(ISM) Dhanbad:

- IR Duty assigned for JEE advance Examination.
- Member of DFSC of Electrical Engineering, IIT(ISM), (Jan. 2019 – Jan 2020).
- Faculty Advisor of B. Tech ECE, IIT(ISM) Dhanbad (Aug. 2019 - Till Date).
- Member of the review selection Interview Board of IIT(ISM) JRF (Phase - I, 2017-18) of Electrical Engineering Department.
- Member of Centre of Societal Mission (CSM) (May 2017 - Till date).
- Warden. (2017 – Till Date).
- Member of the Selection Interview Board of IIT(ISM) JRF (Phase - I, 2018-19) of Electronics Engineering Department.
- Member of the Selection Interview Board of IIT(ISM) JRF (Phase - I, 2017-18) of Electrical Engineering Department.

- ❖ Member of the Selection Interview Board of IIT(ISM) JRF (Phase - II, 2016-17) of Electronics Engineering Department.
- ❖ Member of the Selection Interview Board of IIT(ISM) JRF (Phase - I, 2016-17) of Electronics Engineering Department.
- ❖ Paper Setter for ISM EE (Entrance Exam) 2016 of M.Tech. for Electronics and Communication Engineering Programme.
- ❖ Tabulator of the Semester Examination for 2017-18 session.
- ❖ FIC Departmental time-table for 2016-17 session.

Short Term Courses/Workshops/Conferences/Meetings Organized:

- ❖ Currently serving as a Mentor of IEEE HAC projects.
- ❖ Member of Organizing Committee: International Conference of Microwave and Photonics (ICMAP) - 2015.
- ❖ Member of Organizing Committee: International Conference of Microwave and Photonics (ICMAP) - 2013.
- ❖ Served as a subject expert for the Board of Course Studies (BOCS) meeting of B. Tech Programme held at BIT Sindri. [24-06-2019].
- ❖ External examiner for the viva-voce of "VLSI Lab & GP" of B. Tech in Department of Electronics and Communication at BIT Sindri. [22-12-2018].

Conferences/Seminar Attended:

1. 4th International Conference on Recent Advances in Information Technology (RAIT), March 15-17, 2018, Dhanbad, India.
2. 4th International Conference on Computational Intelligence & Communication Technology (CICT-2018), 9-10 Feb. 2018, Ghaziabad, India.
3. IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI-2017), 21-22 Sept. 2017, Chennai, India.
4. IEEE International Conference on Devices, Circuits and Systems (ICDCS-2016), 3-5 March 2016, Coimbatore, India.
5. International Conference BEATS-2014, February 14-15, 2014, UIET, Chandigarh (India).
6. IEEE, International Conference CODEC- 2012, December 17-19, Kolkata, India.
7. 1st International Conference on Recent Advances in Information Technology (RAIT), March 15-17, 2012, Dhanbad, India.
8. National Seminar on "Renewable Energy Technology: Issues & Prospects" NIRJULI, Itanagar, India during September 24-25, 2010.

Workshop / Tutorials/STC Attended:

1. Workshop on "Advance in Device, Communication and IT" organized by the Department of electronics and Communication Engineering, NERIST, Nirjuli (Itanagar), India. [July 16-18, 2007]
2. Short term course on "Winter School on VLSI Design" at BIT Mesra, Ranchi India. [December 26-30, 2011]
3. Short term training program on "Wireless and Wi-Max Issues: Present Scenario" organized by the Department of Computer Science & Engineering, SLIET, Longowal, Punjab, India. [July 5-16, 2010]

4. Staff Development Programme on “Managerial and Communicative sills in the Era of Globalization” organized by Department of EDP, SLIET, Longowal, Punjab, India. [July 21-31, 2009]
5. Workshop on “Application of Simulators in Photonics, Electronics and Communication Technology (ASPECT 2013)” at Institute of Radio Physics & Electronics, University of Calcutta, Kolkata, India. [March 11-15, 2013].
6. Workshop on “Internet of Things” organized by Department of Electronics and Communication Engineering, BIT Sindri. [October 14-18, 2019].