Curriculam Vitae

Dr. Rashmi Sinha
Associate Professor
Department of ECE
   &
Head,
Department of Computer Science Engineering
National Institute of Technology Jamshedpur
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Orcid Id: **0000-0002-8130-6129**
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Research Interest: **Soft Computing, Signal Processing,**
                      Antenna Design and Metamaterials

1. Experience:

A. Teaching

- **Best paper award** on "Quantum Behaved Particle Swarm Optimization Technique applied to FIR based Linear and Non-linear Channel Equalizer" in 2nd International Conference on Computer, Communication and Computational Sciences (IC4S 2017), Springer, October 11-12, Phuket,**Thailand**

- **Best paper award** on "Wind Driven Optimization Technique for Equalization of Non-minimum Phase Channel'' in International Conference on Sciences, Technology, Engineering & Management (ICSELM 2017), January 06-07, 2017, Kuala Lumpur, **Malaysia**

B. Administrative & Academic Experiences:

- Head, Department of Electronics & Communication Engg., NIT Jamshedpur

- Chairman, Board of Studies, Department of Electronics & Communication Engg., National Institute of Technology, Jamshedpur

- Chairman, Board of Studies, Department of Electronics & Communication Engg., Indian Institute of Information Technology, Ranchi

- Warden, NIT Jamshedpur

2. Professional Affiliation:

- Member, Institute of Electrical and Electronics Engineers (IEEE),USA

- Fellow Member of Institute of   Engineers (FIE), India

- Life Member of Indian Society for Technical Education (LISTE),India

- Reviewer   of   two   Digital Signal Processing Books   Published   by Tata McGraw HILL

3. Teaching Experiences: UG &PG level – 22 years

- Head, Dept. of Computer Science Engg., NIT, Jamshedpur from May 2020 to till date

- Head, Dept. of Electronics & Communication Engg., NIT, Jamshedpur from May 2016 to May 2019

- Head, Dept. of Electronics & Communication Engg., IIIT Ranchi at NIT, Jamshedpur from May 2017 to May 2019

- Associate Professor, Department of Electronics& Communication Engg., NIT Jamshedpur, from February 2010 till date

- Lecturer Senior Grade, Electronics & Communication Engg., NIT Jamshedpur, from February 2007 to February 2010.

- Lecturer, Electronics & Communication Engg., NIT Jamshedpur, from February 1997 to February 2007.

4. Academic Qualification:

a) **Doctor of Philosophy (Ph.D) in** Electronics Communication Engineering NIT Jamshedpur,

   Thesis Title "Soft Computing approach to Design a Novel and Efficient Adaptive Equalizer for Linear & Nonlinear Channels"

b) **Master of Science (MSc. Engg.) in Power Electronics, Dept.** Electrical Engg., NIT Jamshedpur,

   Thesis Title "Design of Coordinated feed forward control method (CFCM) Controller for a Separately Excited Armature Controlled DC Motor"

c) **B.Sc**. (Engg.) in Electrical Engg., NIT Jamshedpur,

d) **A**.I.S.S.C.E, DAV Jawahar Vidya Mandir, CBSE Board, Ranchi, 1990

e) **A**.I.S.E, CBSE Board, Ranchi, 1988

5. Research Experience:

(a)Ph D Guidance: 4 Pursuing

Sl. No	Students Name/Roll No.	Topic Of Thesis	Remarks
1.	ChetanBarde 2017RSEC004	Metamaterial based structure for Zeroth order resonator antenna and absorbers in microwave applications	Thesis submission
2.	Ranjeet Kumar 2018RSEC001	Synthesis of Spline line structures for antenna applications	Advance Stage

Sl. No.		Title of Dissertation/Project	Department/Institute		Name of student[s]	Year
3.		Design & Analysis of Filtenna			Pravesh Pal 2018RSEC007	In Progress
4.		Design & Analysis of MIMO Antenna Geometry			Praveen Kumar 2018RSEC005	In Progress

(b)M. Tech. Thesis Supervised: 16 Nos.

Sl. No.	Title of Dissertation/Project	Department/Institute		Name of student[s]	Year
1.	Deployment of Memory Scrubbing in Safety Systems and Estimation of PFH Using Markov Analysis	Electronics and Comm. Engineering	NIT Jamshedpur	AMIT KUMAR 2018PGECEM09	2020
2.	Efficient Image Denoising using Noble Discriminative Convolutional Neural Network Approach	Electronics and Comm. Engineering	NIT Jamshedpur	DEEPAK KUJUR 2018PGECEM11	2020
3.	Battery Management Unit based on CAN bus for Electric Vehicle Application	Electronics and Comm. Engineering	NIT Jamshedpur	Kumar Ashutosh (2017PGECCC006)	2019
4.	Sensor for Real-Time Coating Thickness Measurement in Steel Wires: Simulation and Experiementation	Electronics and Comm. Engineering	NIT Jamshedpur	Randhir Kumar Sah (2017PGECEM007)	2019
1.	RTL Integration of ADPLL in Subsystem	Electronics and Comm. Engineering	NIT Jamshedpur	Durgesh Kumar Singh (2017PGECEM002)	2019
2.	Wide Band SIW Antenna	Electronics and Comm. Engineering	NIT Jamshedpur	Rohit Choudhary (2016PGECC002)	2018
3.	Reconfigurable Antenna using SIW Technique	Electronics and Comm. Engineering	NIT Jamshedpur	Chandrakant Behra (2016PGECCO12)	2018
4.	VLSI Implementation of Artificial Intelligence Embedded in Continuous Non-invasive Blood Glucose Monitoring System	Electronics and Comm. Engineering	NIT Jamshedpur	Anamika 2016PGECEM02	2018
5.	FPGA implementation of optimized reversible vedic multiplier	Electronics and Comm. Engineering	NIT Jamshedpur	Srishti Sinha (2015PGECEM05)	2017
6.	A novel barcode handheld data transmission approach based on DPSK	Electronics and Comm. Engineering	NIT Jamshedpur	HeenaTandan (2015PGEC	2017

	OFDM			CO08)	
7.	Performance analysis of LMS, NLMS, LMS_PSO and NLMS_PSO adaptive algorithm in system identification	Electronics and Comm. Engineering	NIT Jamshedpur	Shashikala Singh (2015PGEC EM06)	2017
8.	Highly scalable and configurable OVM based subsystem verification environment	Electronics and Comm. Engineering	NIT Jamshedpur	Reyaj Ahmed (2014PGEC VE010)	2016
9.	Design of high speed and low power CMOS comparator in UDSM technology	Electronics and Comm. Engineering	NIT Jamshedpur	Anil Kumar Rohit (2014PGEC VE001)	2016
10.	Adaptive filter implementation using soft computing algorithm	Electronics and Comm. Engineering	NIT Jamshedpur	Aparna Shivangi (2013PGEC VE001)	2015
11.	Design and simulation of prefiltered adaptive channel equalizer using various optimization algorithm	Electronics and Comm. Engineering	NIT Jamshedpur	V. B. Pranava Chary (2013PGEC VE016)	2015
12.	Efficient design of conventional and digital QPSK modulator with Verilog/VHDL	Electronics and Comm. Engineering	NIT Jamshedpur	Santosh Kumar (EL412008)	2014
13.	A novel Hamming Code based design of fault tolerant and area efficient FIR filter against single event upset (SEUs)	Electronics and Comm. Engineering	NIT Jamshedpur	Brajesh Kumar Gupta (EL411025)	2013
14.	Implementation of Viterbi decoder architecture for convolution encoder using Verilog HDL	Electronics and Comm. Engineering	NIT Jamshedpur	Kurakula Ramesh (EL411017)	2013

(c) B. Tech. Project Supervised: More than 50 projects

6. Participated Professional Practical Training:

- National Workshop on "VLSI and Embedded System based Designs" from 6th -8th March 2009, Dept. of Electronics and Communication Engg., NIT Jamshedpur

- National Workshop on "Motivational Analysis & Statistical Inference" under TEQIP by Dept. of Mathematics from 22nd -26th December 2008, Dept. of Electronics and Communication Engg., NIT Jamshedpur

- TEQIP Sponsored workshop on " Human Resources Training: Challenges and Opportunities", Dept. of Humanities, NIT, Jamshedpur, February 9-10, 2008.

- Short term course on " Interpersonal Effectiveness (Level II) offered by Indian Institute of Technology Kharagapur (Continuing Education Program", July 10-14, 2006.

- Short term training programme on "Industrial Productivity Improvement through Innovative Techniques" (ISTE Sponsored), Mechanical Engineering Dept., NIT Jamshedpur, June 17-30, 2002

- AICTE-ISTE short term training programme on "Application of CAD/CAM & Robotics in Industries", by Dept. of Production Engineering, NIT Jamshedpur, June 3-15, 2002

- ISTE Sponsored short term training programme on "Some aspects of Modelling & Simulation of Electrical Systems" Dept. of Electrical Engg., NIT Jamshedpur, December 24th - January 6th 2002

7. Seminar / Conference/ Workshop Organized: (as Coordinator)

- National workshop organized on "Hands on Introduction of HFSS in Microwave Application" in Dept. Dept. of Electronics and Communication Engg., NIT Jamshedpur, from 29th -2nd November, 2018.

- National Workshop On "Applications of NI LabVIEW in Electronics & Communication Engineering (ANECE-2019)", (Under TEQIP-III), 7th -12th June, 2019

8. Contribution to Teaching:

(a) Theory :

Caurses taught: Basic Electronics, Analog Electronics, Power Electronics, Instrumentation, Difgital Electronics, VLSI Design, Digital Signal Processing, & Soft Computing.

(b) Laboratory

S.N		Details
1	Modeling & Simulation Lab	New Lab was set up under my supervision. Software purchased & installed in 10 PC's under this Lab.
2	Digital Signal Processing	DSP Lab was updated under my headship. Lab View and its interfacing modules amounting Rs. 33.65 lakhs was procured.
3	Microwave & Antenna Design Lab	Antenna Design Software Ansys Academic HFSS (5 Teaching + 1 Research Task) amounting to Rs. 10 Lakh was procured ti initiate the setting up of this lab & proposal of 1.05 Crore has been approved to modify this lab.

9. Research Publications:

Book Published	Book Chapters	International Journals	International Conferences
02	04	14	10

(a) Book Published: 02

1. **A. Choubey,** R. Sinha, and S. K. Mahto, "Soft Computing Algorithms for Synthesis of Array Antennas" Lambert Academic Publishing, 2018, ISBN: 978-613-9-95417-9

2. R. Sinha, S. K. Mahto and **A. Choubey** "Soft Computing Approach to Design Adaptive Channel Equalizer" Lambert Academic Publishing, 2018, ISBN: 978-613-9-91223-0

(b) Book Chapter : 04

1. **Rashmi Sinha**, Arvind Choubey, S. K. Mahto, and P. Ranjan, "Quantum Behaved Particle Swarm Optimization Technique applied to FIR based Linear and Non-linear Channel Equalizer" Advances in Computer Communication and Computational Sciences. Springer, Singapore, 37-50, 2019.

2. S. K. Mahto, Arvind Choubey, **Rashmi Sinha** and P. Ranjan, ''Sidelobe minimization of Uniform Linear Array by Position and Amplitude-Only Control Using Wind Driven Optimization Technique'', Advances in Computer Communication and Computational Sciences. Springer, Singapore, 309-321, 2019.

3. Prakash Ranjan, Arvind Choubey, Santosh Kumar Mahto, **Rashmi Sinha** and ChetanBarde. "A novel ultrathin wideband metamaterial absorber for X-band applications",Advances in Intelligent Systems and Computing, Springer, August 2018.

4. ChetanBarde, Arvind Choubey, **Rashmi Sinha**, Santosh Kumar Mahto and Prakash Ranjan. "A Novel ZOR Inspired Patch Antenna For Vehicle Mounting Application",Advances in Intelligent Systems and Computing, Springer, August 2018.

(c) International Journals (SCI/SCOPUS): 14

1. A. Kumar, S. K. Mahto, **Rashmi Sinha** & A. Choubey "Dual circular slot ring triple-band MIMO antenna for 5G applications", *Frequenz* (published online ahead of print 2020), 000010151520200138. doi: https://doi.org/10.1515/freq-2020-0138.

2. Ranjeet Kumar, **Rashmi Sinha**, Arvind Choubey & Santosh Kumar Mahto "An ultrawide band monopole antenna using hexagonal-square shaped fractal geometry" Journal of Electromagnetic Waves and Applications, Taylor & Francis, pp.1-12, 2020.

3. Barde Chetan, Arvind Choubey, **Rashmi Sinha,** Santosh Kumar Mahto & Prakash Ranjan "A compact wideband metamaterial absorber for Ku band applications" J Mater Sci: Mater Electron 31, 16898–16906 (2020).

4. Prakash Ranjan, Chetan Barde, A. Choubey, **Rashmi Sinha**, Santosh Kumar mahto "Wide band polarization insensitive metamaterial absorber using lumped resistors", *SN Appl. Sci.* Vol.**2,** 1061 (2020).

5. Barde Chetan, Arvind Choubey, and **Rashmi Sinha**, "Wide band metamaterial absorber for Ku and K band applications" Journal of Applied Physics, Vol. 126 (17), 175104 (2019).

6. Barde Chetan, Arvind Choubey, and **Rashmi Sinha,** "A set square design metamaterial absorber for X-band applications" Journal of Electromagnetic Waves and Applications, Taylor & Francis, Vol. 14, pp. 0920-5071, 2019.

7. Prakash Ranjan, Santosh Kumar Mahto, Arvind Choubey, **Rashmi Sinha** "A Novel ultrathin wideband metamaterial absorber for X-band applications" Journal of Electromagnetic Wave and applications, Taylor & Francis, Vol. 33(7), 2341-2353, 2019.

8. Prakash Ranjan, Santosh Kumar Mahto, Arvind Choubey, **Rashmi Sinha** "A six-band ultra-thin polarization-insensitive pixelated metamaterial absorber using a novel binary wind driven optimization algorithm" Journal of Electromagnetic Wave and applications, Taylor & Francis, vol. 32 (18), pp. 2367-5071, July 2018

9. Prakash Ranjan, Arvind Choubey, Santosh Kumar Mahto and **Rashmi Sinha** "An Ultrathin Five-band Polarization Insensitive Metamaterial Absorber Having Hexagonal Array of 2D-Bravais-Lattice", Progress In Electromagnetics Research C, vol. 87, pp. 13-23, July 2018.

10. **Rashmi Sinha**, Arvind Choubey, "Soft Computing Techniques to Estimate FIR Filter Weights in an Adaptive Channel Equalizer: A Comparative Study" International Journal of Applied Engineering Research (IJAER) Vol. 13, pp. 3988-3995, 2017.

11. **Rashmi Sinha**, Arvind Choubey, and Santosh Kumar Mahto, "Wind Driven Optimization Technique for Equalization of Non-minimum Phase Channel." Indian Journal of Science and Technology, vol. 10(16), pp. 1-11, 2017.

12. **Rashmi Sinha**, Arvind Choubey, and Santosh Kumar Mahto, "An Efficient Adaptive System Identification Technique based on Wind Driven Optimization Method", Indian Journal of Science and Technology, vol. 9, issue 38, pp. 1-6, 2016.

13. **Rashmi Sinha**, and Arvind Choubey "Design of a Discrete Adaptive Equalizer for Noisy Channel using Quantum Behaved Particle Swarm Optimization Technique", Indian Journal of Science and Technology, vol. 9, issue 41, pp. 1-8, 2016.

14. Jyoti Athiya, **Rashmi Sinha**, and Arvind Choubey "An Improved ECG Signal Acquisition System through CMOS Technology" International Journal of Engineering Science and Technology, Vol. 4, No.03, pp.1088-1094, 2012.

(d) International Conferences: 10

1. A. Kumar, S. K. Mahto and **Rashmi Sinha**, "Y-Shaped Antenna for 5G Enabled Gadgets and its MIMO for Smartphone Applications," 2020 URSI Regional Conference on Radio Science (URSI-RCRS), Varanasi, India, 2020, pp. 1-4, doi: 10.23919/URSIRCRS49211.2020.9113521.

2. Chetan Barde, Arvind Choubey , Rajnish Kumar , **Rashmi Sinha** , Santosh Kumar Mahto , Prakash Ranjan "A Novel Circular Shape ZOR Antenna for X-Band Application" International Conference on "Advances in Electronics, Electrical & Computational Intelligence", IIIT Allahabad India, 31st May – 1 st June, 2019 IIIT Allahabad, UP.

3. **Rashmi Sinha** , Arvind Choubey , Chetan Barde , Santosh Kumar Mahto , Prakash Ranjan "A Compact Wideband Metamaterial Absorber for various application of Ku Band" International Conference on "Advances in Electronics, Electrical & Computational Intelligence", IIIT Allahabad India, 31st May – 1 st June, 2019 IIIT Allahabad, UP.

4. C. Barde, A. Choubey, **Rashmi Sinha**, S. K. Mahto and P. Ranjan, "A Low Profile Pentagonal Shape Zeroth Order Resonator Antenna for Ka Band Applications," 2019 PhotonIcs & Electromagnetics Research Symposium - Spring (PIERS-Spring), Rome, Italy, 2019, pp. 3614-3618, doi: 10.1109/PIERS-Spring46901.2019.9017731.

5. **Rashmi Sinha**, A. Choubey, S. K. Mahto, P. Ranjan and C. Barde, "Synthesis of Linear Array Antenna using Hybrid IWO/WDO Algorithm," 2019 PhotonIcs & Electromagnetics Research Symposium - Spring (PIERS-Spring), Rome, Italy, 2019, pp. 4144-4151, doi: 10.1109/PIERS-Spring46901.2019.9017409.

6. Prakash Ranjan, Arvind Choubey, Santosh Kumar Mahto, **Rashmi Sinha** and ChetanBarde. "A Novel Ultrathin Pixelated Wideband Metamaterial Absorber using Wind Driven Optimization Algorithm", IEEE International Conference on Recent Innovations in Electrical, Electronics & Communication Engineering - (ICRIEECE) at Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar, India, July. 27-28, 2018.

7. **Rashmi Sinha,** and Arvind Choubey, "Adaptive Filtering Via Wind Driven Optimization Technique." IEEE International Conference On Computational Intelligence & Communication Technology (CICT-2017), Ghaziabad, 11-12, February 2017.

8. **Rashmi Sinha,** Arvind Choubey, and Santosh Kumar Mahto, "A Novel and Efficient Hybrid Least Mean Square (HLMS) Adaptive Algorithm for System Identification", IEEE Technically Co-Sponsored Science and Information (SAI) Intelligent System Conference 2015, London, UK, Nov. 10-11, 2015, pp. 894 - 897.

9. Santosh Kumar Mahto, Arvind Choubey, S. Suman, & **Rashmi Sinha** " Synthesizing Broad Null in Linear Array by Amplitude-only Control using wind driven optimization Technique", IEEE Technically Co-Sponsored Science and Information (SAI) Intelligent System Conference 2015, London, UK, Nov. 10-11, pp. 68-71, 2015.

10. **Rashmi Sinha**, Arvind Choubey, and Santosh Kumar Mahto, "A Novel and Efficient Hybrid Least Mean Square (HLMS) Adaptive Algorithm for System Identification", IEEE Technically Co-Sponsored Science and Information (SAI) Intelligent System Conference 2015, London, UK, Nov. 10-11, pp. 894 - 897, 2015.

(e) Patent

1. Arvind Choubey, Prakash Ranjan, Chetan Barde, Santosh Kumar Mahto, and **Rashmi Sinha**. "Zeroth Order Resonator (ZOR) Antenna using slotted Metamaterial structure", Ref. NO. 202031026590, App. Number TEMP/E-1/29503/2020-KOL. **(Patent)**

10. Familiarity with Software Packages:

- MatLab with Fuzzy, Neural Network and Simulink Tools
- HFSS
- MathCad, Pspice, Window XP, Ms-Office etc.

11. Personal:

Father's Name : **Er. K. P. Sinha**

Husband's Name & Occupation : **Mr. Bipin Prasad**

General Manager,
ONGC Ltd.

Date of Birth : 2nd July **1972**

Sex : **Female**

Languages Spoken : **Eglish, Hindi**

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