

# Arun A. Balakrishnan



ASSISTANT PROFESSOR  
Department of Electronics  
Cochin University of Science  
and Technology

## Curriculum Vitae

### Experience

UG College Level 1 years

PG Level 3 years

Teaching

### Projects Done

UG 2

PG 2

Co PI 1

Projects Done

### Professional Training

Seminar 2

Workshops 7

FDPs 6

STTPs 5

Training Experience

### Conferences

Attended 9

Organised 5

Conferences

### Project Guidance

UG 3

PG 13

Projects Guided

### Achievements

Best Paper Award 1

Rank 2

Gate Score 3

Achievements

### Publications

National Conference 1

International Conference 12

International Journal 2

Publications

## Curriculum Vitae of Arun A. Balakrishnan

1. **Name:** Arun A. Balakrishnan
2. **Address:** Assistant Professor, Department of Electronics,  
Cochin University of Science & Technology  
Kochi - 682 022, Kerala, India.
3. **Date of Birth:** 31 - 01 - 1988
4. **Academic Qualifications:**

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Course	Board or University	Year of Passing	Specialisation	% or CGPA	Class or Rank
X <sup>th</sup>	SSLC	2003	-	92.83	Distinction
XII <sup>th</sup>	HSE	2005	Computer Science	95	Distinction
B. Tech.	Calicut University	2009	Electronics & Communication	81.46	Fourth
M. Tech.	Kerala University	2011	Signal Processing	9.53	First

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### 5. Professional Experience:

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Designation	Institution	Period
Guest Lecturer	College of Engineering, Trivandrum	01/06/2010 - 31/05/2011
Assistant Professor	PRS College of Engineering & Technology, Trivandrum	03/08/2011 - 27/01/2012
Assistant Professor	Rajagiri School of Engineering & Technology, Cochin	31/01/2012 - 30/07/2015
Assistant Professor	Cochin University of Science & Technology, Cochin	31/07/2015 - Till date

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### **6. Organisational Positions Held:**

- \* AEI NBA Coordinator, Rajagiri School of Engineering & Technology, Cochin
- \* IQAC Committee member, Rajagiri School of Engineering & Technology, Cochin
- \* IQAC Sub Committee member, Cochin University of Science & Technology, Cochin
- \* M. Tech. Syllabus Revision Committee member, M. G. University & Kerala Technological University (KTU)
- \* M. Sc. Syllabus Revision Committee member, Cochin University of Science & Technology, Cochin
- \* Member, Passing Board (M. Tech. & M. Sc.), Department of Electronics, Cochin University of Science & Technology, Cochin
- \* Member, Anti Ragging Committee, Department of Electronics, Cochin University of Science & Technology, Cochin

### **7. Scholarships:**

- \* GATE Scholarship for a period of two years (2009 - 2011) during M. Tech

### **8. Fields of Research & Teaching:**

- \* Digital Signal & Image Processing
- \* Signals & Systems
- \* Solid State Devices & VLSI

### **9. Projects Done/Undertaken:**

Sl. No.	Title	Level	Institution	Amount	Duration
1	PC Based Digital IC Tester	UG	GEC, Thrissur	–	6 months
2	Sniffer Robot	UG	GEC, Thrissur	–	1 year
3	16 bit RISC Processor in VHDL	PG	CET, Trivandrum	–	6 months
4	Analog FFT Using Current Mirrors	PG	CET, Trivandrum	–	1 year
5	TMS320 based Medical Image Processing System	Co PI	RSET, Cochin	3 Lakhs	5 year

**10. Professional Training Experience:**

Sl. No.	Title	Institution	Duration
1	Seminar on “Advanced Networking”	RSET	5 <sup>th</sup> March 2012
2	FDP on “Modern trends in Industrial Automation”	RSET	23 <sup>rd</sup> to 27 <sup>th</sup> April 2012
3	International Workshop on “Recent trends in Engineering & Technology”	RSET	31 <sup>st</sup> October 2012
4	“LABVIEW training programme”	Trident Tech.	5 <sup>th</sup> to 7 <sup>th</sup> November 2012
5	FDP on “Applications of Mathematics”	RSET	3 <sup>rd</sup> to 15 <sup>th</sup> December 2012
6	State level Electronics System Design & Manufacturing (ESDM) workshop	Kerala Govt.	30 <sup>th</sup> April 2013
7	STTP on “Research Frontiers in Networking, Clustering & Cloud computing”	RSET	3 <sup>rd</sup> May to 10 <sup>th</sup> May 2013
8	FDP on “Industrial Pollution Control”	RSET	25 <sup>th</sup> to 29 <sup>th</sup> Nov. 2013
9	FDP on “Enhanced Teaching Methods Using Moodle”	RSET	10 <sup>th</sup> , 16 <sup>th</sup> December 2013
10	FDP on “Honeywell Experion DCS”	RSET	23 <sup>rd</sup> to 26 <sup>th</sup> April 2014
11	International Workshop on “Solar Energy Applications”	RSET	29 <sup>th</sup> October 2014
12	Seminar on “Recent Trends in Cloud Computing ”	RSET	5 <sup>th</sup> December 2014
13	Training on “C6748 OMAP LCDK DSP Kit”	Starcom	26 <sup>th</sup> , 27 <sup>th</sup> February 2015
14	Training on “Speech/ Image/ ECG Databases”	RSET	13 <sup>th</sup> March 2015

Sl. No.	Title	Institution	Duration
15	Coordinator of Short Term Training Programme on “Keysight ADS & EM-Pro ”	DoE, CUSAT	28 <sup>th</sup> to 30 <sup>th</sup> October 2015
16	Resource person of one day workshop on “Technical Documentation Using Latex & Beamer”	DCA, CUSAT	3 <sup>rd</sup> Dec. 2015
17	Coordinator of IEEE APS Workshop on “Computational Electromagnetics”	DoE, CUSAT	7 <sup>th</sup> to 9 <sup>th</sup> December 2015
18	Workshop on “Facilitating Innovation and Patent Filing”	CUSAT	16 <sup>th</sup> Dec. 2015
19	One Day International Workshop on “Dynamic Analysis of Programs”	SoE, CUSAT	13 <sup>th</sup> Jan. 2016
20	Two day “Induction programme for newly recruited teachers”	CUSAT	15 <sup>th</sup> to 16 <sup>th</sup> February 2016
21	Coordinator of KSCSTE sponsored Workshop on “Advances in Technologies for Sustainable Development”	DoE, CUSAT	11 <sup>th</sup> May 2016

### 11. Conferences & Workshops Attended:

- \* “10<sup>th</sup> National Conference on Technological Trends (NCTT 2009)” held at College of Engineering, Trivandrum during 6<sup>th</sup> and 7<sup>th</sup> November 2009.
- \* “12<sup>th</sup> National Conference on Technological Trends (NCTT 2011)” held at College of Engineering, Trivandrum during 19<sup>th</sup> and 20<sup>th</sup> August 2011.
- \* “IEEE International Conference on Circuit, Power & Computing Technologies (ICCPCT 2013)” held at Noorul Islam University, Kumaracoil during 21<sup>st</sup> and 22<sup>nd</sup> March 2013.
- \* “IEEE Third International Conference on Advances in Computing and Communications (ICACC 2013)” held at Rajagiri School of Engineering & Technology, Kochi during 29<sup>th</sup> to 31<sup>st</sup> August 2013.
- \* “International Conference and Workshop on Fractals & Wavelets (ICFW 2013)” held at Rajagiri School of Engineering & Technology, Kochi during 9<sup>th</sup> to 16<sup>th</sup> November 2013.
- \* “International Conference on Advanced Computing & Communication Systems (ICACCS 2013)” held at Sri Eshwar College of Engineering, Coimbatore during 19<sup>th</sup> to 21<sup>st</sup> December 2013.

- \* “**79<sup>th</sup> Annual Conference of Indian Mathematical Society**” held at Rajagiri School of Engineering & Technology, Kochi during 28<sup>th</sup> to 31<sup>st</sup> December 2013.
- \* “**Fourth International Conference on Advances in Computing and Communications (ICACC 2014)**” held at Rajagiri School of Engineering & Technology, Kochi during 27<sup>th</sup> to 29<sup>th</sup> August 2014.
- \* “**Thirteenth Biennial Symposium on Ocean Electronics (SYMPOL 2015)**” held at Cochin University of Science & Technology, Kochi during 18<sup>th</sup> to 20<sup>th</sup> November 2015.

### 12. Conferences & Symposiums Organised:

- \* Member of Executive Committee, “**IEEE INDICON**” held at Rajagiri School of Engineering & Technology, Kochi during 7<sup>th</sup> to 9<sup>th</sup> December 2012.
- \* Member of Core Organising Committee, “**Third International Conference on Advances in Computing and Communications (ICACC 2013)**” held at Rajagiri School of Engineering & Technology, Kochi during 29<sup>th</sup> to 31<sup>st</sup> August 2013.
- \* Member of Core Organising Committee, “**Fourth International Conference on Advances in Computing and Communications (ICACC 2014)**” held at Rajagiri School of Engineering & Technology, Kochi during 27<sup>th</sup> to 29<sup>th</sup> August 2014.
- \* Member of Core Organising Committee, “**Fifth International Conference on Advances in Computing and Communications (ICACC 2015)**” held at Rajagiri School of Engineering & Technology, Kochi during 3<sup>rd</sup> to 4<sup>th</sup> September 2015.
- \* Member of Core Organising Committee, “**Thirteenth Biennial Symposium on Ocean Electronics (SYMPOL 2015)**” held at Cochin University of Science & Technology, Kochi during 18<sup>th</sup> to 20<sup>th</sup> November 2015.

### 13. Projects Guided:

Sl. No.	Title	Level	Period
1	A novel approach to detect and localize texts in natural scene images	PG	2012
2	A comparative study of denoised MRI images using contourlet transform, wavelet transform & block DCT	PG	2012
3	Reconstruction of beat signal in radar altimeter	PG	2012
4	Application of compressive sampling in sparse channel estimation of OFDM	PG	2012
5	Tool identification by feature extraction & pattern recognition	UG	2013

Sl. No.	Title	Level	Period
6	Comparison of histogram based image enhancement techniques and its applications in medical images	PG	2013
7	Contrast enhancement based denoising method in DTI	PG	2013
8	Extreme machine learning using sparse signal recovery	PG	2013
9	Comparison of image segmentation algorithms and their applications in medical imaging	UG	2014
10	Glaucoma detection using optic disc and optic cup segmentation from digital retinal fundus images	PG	2014
11	Driver Drowsiness detection using physiological and image processing method	PG	2014
12	Diagnosing of the lung status using respiratory signal derived from PPG	PG	2014
13	Comparative study of image inpainting techniques	UG	2015
14	A real world application of dermoscopic image segmentation using wavelet networks	PG	2015
15	Comparison of enhanced medical images using Bayesian asymmetric model	PG	2015
16	Prostate segmentation in MR images using discriminant boundary features	PG	2015

#### 14. Awards & Achievements:

- \* Won Best Paper Award for the paper “**Analog CMOS Implementation of Fast Fourier Transform Using Current Mirror Circuits**” in **12<sup>th</sup> National Conference on Technological Trends (NCTT 2011)** held at College of Engineering, Trivandrum during 19<sup>th</sup> and 20<sup>th</sup> August 2011.
- \* **1<sup>st</sup> rank** in Kerala University for M.Tech Signal Processing with highest **CGPA 9.53**
- \* **4<sup>th</sup> rank** in Calicut University for B.Tech Electronics & Communication Engineering
- \* Qualified GATE in 2009, 2014, 2015 with maximum score as 542

## 15. Publications:

1. **Arun A. Balakrishnan**, V. Suresh Babu, M. R. Baiju, "Analog CMOS Implementation of Fast Fourier Transform Using Current Mirror Circuits" *National Conference on Technological Trends (NCTT) 2011* held at College of Engineering, Trivandrum on 19/08/2011.
2. **Arun A. Balakrishnan**, V. Suresh Babu, M. R. Baiju, "Implementation of radix-2 and split-radix Fast Fourier Transform Algorithm Using Current Mirrors," *International Conference on Circuits, Power and Computing Technologies (ICCPCT 2013)*, DOI:10.1109/ICCPCT.2013.6528883, Mar. 2013, pp. 730 – 735.
3. Ajith V. Pillai, **Arun A. Balakrishnan**, Rina Anna Simon, Renoh C. Johnson Padmagireesan S. J., "Detection and Localization of Texts from Natural Scene Images Using Scale Space and Morphological Operations," *International Conference on Circuits, Power and Computing Technologies (ICCPCT 2013)*, DOI: 10.1109/ICCPCT.2013.6528865, Mar. 2013, pp. 880 – 885.
4. Prasanth K., Baby Paul, **Arun A. Balakrishnan**, "Fetal ECG Extraction Using Adaptive Filters," *International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering*, Vol. 2, Issue 4, April 2013.
5. Adithya Job, Anooj Rohit, B. Suryanarayanan, Prasanth Joseph Panangadan, **Arun A. Balakrishnan**, "An Efficient Tool Identification System Using Principal Component Analysis," *International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering*, Vol. 2, Issue 6, June 2013.
6. Vijitha Rajan, **Arun A. Balakrishnan**, Nissar K. E., "OFDM Channel Estimation Using Compressed sensing  $l_1$  regularized least square problem solver" *IEEE Third International Conference on Advances in Computing and Communications (ICACC 2013)*, DOI: 10.1109/ICACC.2013.24, Aug. 2013, pp. 94 – 97.
7. Geomol George, **Arun A. Balakrishnan**, Apren T. J., "Reconstruction of Beat Signal in Radar Altimeter Using Signal Processing" *IEEE Third International Conference on Advances in Computing and Communications (ICACC 2013)*, DOI: 10.1109/ICACC.2013.38, Aug. 2013, pp. 161 – 164.
8. Padmagireesan S. J., Renoh C. Johnson, **Arun A. Balakrishnan**, Veena Paul, Abdul Raheem A, Ajith V. Pillai, "Performance Analysis of Magnetic Resonance Image Denoising Using Contourlet Transform," *IEEE Third International Conference on Advances in Computing and Communications (ICACC 2013)*, DOI: 10.1109/ICACC.2013.84, Aug. 2013, pp. 396 – 399.
9. Solwin Johnson, **Arun A. Balakrishnan**, "Contrast Enhancement Based Denoising Method in Diffusion Tensor Imaging," *IEEE INDICON 2013, IIT Bombay*, DOI: 10.1109/INDCON.2013.6726089, Dec. 2013, pp. 1 – 4.
10. Solwin Johnson, **Arun A. Balakrishnan**, "Comparison of Denoising Methods in Diffusion Tensor Imaging," *IEEE INDICON 2013, IIT Bombay*, Dec. 2013, pp. 1 – 4.



11. Vijeesh Govind, **Arun A. Balakrishnan**, Dominic Mathew, “A Novel Approach for Contrast Enhancement and Noise Removal of Medical Images,” *2013 International Conference on Control, Communication and Computing (ICCC 2013)*, College of Engineering, Trivandrum, Dec. 2013, pp. 153 – 156.
12. Vijeesh Govind, **Arun A. Balakrishnan** “Medical Image Enhancement by Applying Averaging Method in Clusters,” *International Conference on Advanced Computing & Communication Systems (ICACCS 2013)*, Sri Eshwar College of Engineering, Coimbatore, 19 – 21 December 2013.
13. Deepu Kurian, Johnson Joseph, Krishnaja Radhakrishnan, **Arun A. Balakrishnan**, “Drowsiness detection using Photoplethysmography Signal,” accepted in **IEEE Fourth International Conference on Advances in Computing and Communications (ICACC 2014)**, 27–29 August 2014.
14. Asha Merin Jose, **Arun A. Balakrishnan**, “A Novel Method for Glaucoma Detection Using Optic Disc and Cup Segmentation in Digital Retinal Fundus Images,” in **The International Conference on Circuit, Power and Computing Technologies (ICCPCT 2015)**, Mar. 2015.
15. Lijo Baby Jacob, **Arun A. Balakrishnan**, “Dermoscopic Image Segmentation Using Multi mother Wavelet Networks,” in **International Conference on Emerging Trends in Engineering & Technology (ICET 2015)**, Aug. 2015, pp. 48 – 52.



# Curriculum Vitae

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