

## Prashant P. Bartakke

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and

Associate Professor

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### EDUCATION

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- 1) **Ph.D.** in Electronics and Tele Communications Engineering, University of Pune – December 2011, Topic of Research: “**Stochastic Modeling of Textures for Analysis and Synthesis**”, under the supervision of Prof. (Dr.) Mukul Sutaone, Deputy Director, College of Engineering, Pune
- 2) Master of Engineering (M.E.) Electronics - University of Pune - October 1998 - First Class with Distinction.
- 3) Bachelor of Engineering (B.E.) Electronics - Shivaji University - June 1993 - First class with Distinction.
- 4) Stood Fifteenth in Merit list at the XII<sup>th</sup> (Higher Secondary School Certificate Examination) at Pune division.

### WORK EXPERIENCE

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- 1) Dean, School of Electrical and Communication Engineering, COEP Technological University, Pune – from April 2023 to the Date
- 2) Associate Professor in Electronics & Telecomm department - Govt. College of Engineering (COEP), Shivajinagar, Pune - from 7<sup>th</sup> Dec 2008 to the Date
- 3) Assistant Professor in Electronics & Telecomm department - Govt. College of Engineering (COEP), Shivajinagar, Pune - from 7<sup>th</sup> Dec 2005 to 6<sup>th</sup> Dec 2008.
- 4) Lecturer in Electronics & Telecomm department - Govt. College of Engineering (COEP), Shivajinagar, Pune - from 30<sup>th</sup> Nov 1993 to 6<sup>th</sup> Dec 2005.
- 5) Total teaching experience till date **29 years**.

### OBJECTIVES

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- To pursue result oriented and application driven research, using cutting edge technology tools, in the area of Image Analysis and Computer Vision, with contributions in terms of quality publications and prototype development.
- To self-evolve as acclaimed resource person and knowledge creator in the above field of research.

## **BRIEF DETAILS OF THE RESEARCH WORK**

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- PhD Thesis Title: “**Stochastic Modeling of Textures for Analysis and Synthesis**”
  - The work is focused on modeling two major classes of textures namely Stochastic and Structural. The linear models such as Simultaneous Auto-regressive (SAR), Rotation Invariant (RI)-SAR, Multi-resolution (MR)-RISAR, Multispectral (MS), Moving Average (MA) are studied and estimation methods such as least squares (LS) and Maximum Likelihood (ML) are used and implemented to extract the model parameters. These model parameters which characterize the underlying texture are then utilized to analyze, segmentation of multi-textured images and rotation invariant classification, and synthesize visibly similar textures.
  - The structural textures in which the repeating pattern called as ‘texton’ or ‘texel’ is identifiable require image based approach to characterize and synthesize them. A top-down approach is used to systematically extract the textons, underlying structure which then can be used to construct similar textures. The method is customized to generate homogeneous and weakly homogeneous textures – a challenging and still open task.
- Master’s Dissertation Title: “**Multi-Channel Filtering Technique for Texture Segmentation**”
  - Gabor filters are used to characterize multi-textured input image/s, which are adaptively tuned. The amplitude and phase envelopes of filtered images are used to localize the boundary between dissimilar textures. The phase envelopes are especially useful to identify the boundary between similar but spatially shifted textures. The steps in the segmentation process such as DFT, Gabor filter responses, Filtering, IDFT etc. are implemented in ‘C’ language.

## **RESEARCH GRANTS AND PROJECTS**

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<b>Sr. No.</b>	<b>Title of Project</b>	<b>Scheme</b>	<b>Year of Sanction</b>	<b>Sanction letter No. &amp; date</b>	<b>Amount ( Rs. in Lakhs)</b>
1	Modern Embedded Computing lab	Intel India Pvt. Ltd.	2011-12	10 <sup>th</sup> Nov 2011	1 Lakh and 15 Intel Atom Kits
2	Machine Vision System for Material Surface Inspection in Industrial Applications	AICTE – RPS	2012-13	Ref.No.20/AICTE/RIFD/RP S (POLIY-II)56/ 2012-13, Dated 23 <sup>rd</sup> January 2013	16 Lakhs

3	A day ahead output power estimation of solar photovoltaic plant using ML algorithms	Institute funded – Interdisciplinary minor research project	2020-22	No./COEP/R and D/IDMRP/12-14, Dated 29 <sup>th</sup> August 2020	5 Lakhs
4	Water Quality Parameters for Surface Water Bodies using Remote Sensing and Soft Computing	Institute funded – Interdisciplinary minor research project	2022-24	No. COEP/R&D/2022/IMRP/10 Dated 31 <sup>st</sup> May 2022	4.9 Lakhs
5	Online color measurement of clear juice using AI Techniques	Vasantdada Sugar Institute (VSI)	2022-24	Email Dated 31 <sup>st</sup> October 2022	11 Lakhs

## PUBLICATIONS

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Total publications to the date: 53

- Journal: 09
- Conferences: 44;                      International level: 31,                      National level: 13

### JOURNALS:

- [1] Sangram S. More, **P. P. Bartakke**, Monika Aggarwal, “Modeling and simulation of SWARA path loss model for underwater acoustic communication in multipath environment”, *Wireless Personal Communication* 129, 2861-2890, (March 2023) <https://doi.org/10.1007/s11277-023-10262-1>
- [2] M. V. Narkhede, **P. P. Bartakke**, P.P. & M. S. Sutaone, “A review on weight initialization strategies for neural networks”, *An International Science and Engineering Journal on Artificial Intelligence Review (2021)*, Springer, <https://doi.org/10.1007/s10462-021-10033-z>
- [3] Kirtimalini Chaudhari, M.S. Sutaone, **P. P. Bartakke**, “Comparative Analysis of Planar Acoustic MVDR Beamformer”, *International Journal of Circuits, Systems and Signal*

*Processing, North Atlantic University Union (NAUN), ISSN: 1998-4464, Vol. 13, Pages 732-738, 2019*

- [4] Vidya N. More, **P. P. Bartakke**, M.S. Sutaone, "Accelerating motion estimation by genetic algorithm approach in x265," *J. Electron. Imaging* **27**(6), 063023 (2018), doi: 10.1117/1.JEI.27.6.063023.
- [5] G.B. Munde, **P.P. Bartakke**, "Static Timing Analysis (STA) of SAS Expander on Virtex-7 FPGA by using Vivado" *International Journal of Innovative Science, Engineering & Technology (IJSET ISSN 2348-7968)* , Vol. 1 Issue 5, Pages 334-338, July 2014
- [6] **P. P. Bartakke**, S. R. Kinage, M.S. Sutaone, "Texture Classification using Compute Efficient Co-occurrence Matrix and its Features", *IETE National Journal of Innovation and Research (ISSN 2320-8961)*, Volume 1, Issue 1, Pages 84-88, June 2013, Published by IETE Pune Centre.
- [7] **P.P. Bartakke**, S.A. Vaidya, M.S. Sutaone, "Refining Structural Texture Synthesis Approach", *International Journal IET Image Processing*, Volume 5, Issue 2, Pages 184-189, April 2011
- [8] **P.P. Bartakke**, Sameer Mali, M.S. Sutaone, "Statistical Models for Texture Classification and Segmentation", Coimbatore Institute of Information Technology, *International Journal of Digital Signal Processing*, Volume 2, No. 5, Pages 173-179, May 2010.
- [9] M.S. Sutaone, **P.P. Bartakke**, Ms. A.R. Chitrav, "Texture Modeling by Markov Random Field", *IETE Journal on "Trends and Techniques in Information Technology*, 3-4 March 2001 at Gwalior PP 106-109.

## CONFERENCES:

- [1] B Sudarsan Patro and **P. P. Bartakke** , Different Methods For Imputing Missing Rainfall Data Utilizing Automatic Weather Station Data, Two Day National Seminar on Data-Driven Predictive Analytics & Modelling-2024 (DDPAM'2024) 19-20<sup>th</sup> March 2024, Sambalpur University, Abstract Volume pp. 25
- [2] B Sudarsan Patro and **P. P. Bartakke**, "Daily Rainfall Prediction Using Long Short-Term Memory Algorithm", International Conference on Climate Change and Agroecosystem: Threats, Opportunities and Solutions (INAGMET)'2024, Association of Agrometeorologists Banaras Hindu University India Meteorological Department South Asian Forum on Agricultural Meteorology, 8-10<sup>th</sup> February 2024.
- [3] B Sudarsan Patro and **P. P. Bartakke**, "Daily Rainfall Prediction Using Recurrent Neural Network", International Conference on Industrial Engineering & Analytics (ICONIEA'2024) 16-18<sup>th</sup> February 2024, IIT Kharagpur.
- [4] S. D. Patil, **P. P. Bartakke**, M. S. Sutaone and R. Chavan, "Accounting for Groundtruth Subjectivity in Comparing Face Detection Techniques," 2023 IEEE International Conference on Computer Vision and Machine Intelligence (CVMI), Gwalior, India, 2023, pp. 1-6, doi: 10.1109/CVMI59935.2023.10465112
- [5] S. Mane, P. Bartakke and T. Bastewad, "DetSSeg: A Selective On-Field Pomegranate Segmentation Approach," 2023 IEEE International Conference on Computer Vision and Machine Intelligence (CVMI), Gwalior, India, 2023, pp. 1-6, doi: 10.1109/CVMI59935.2023.10464563.

- [6] B Sudarsan Patro and P. P. Bartakke, "AI/ML Application for Weather Data Preprocessing, Visualization, and Extreme Rainfall Prediction", National Symposium on Tropical Meteorology, TROPMET 2023 , pp. 50 , Abstract Volume ISBN-978-93-6013-766-3.
- [7] S. M. Kamble and **P. P. Bartakke**, "Smart Refrigerator Management System Using Deep Learning, IEEE sponsored Global Conference on Information Technology and Communication, (GCITC 2023), Reva University Bangalore, 1-2<sup>nd</sup> December 2023.
- [8] P. S. Puri and **P. P. Bartakke**, "SSD Based Vehicle Number Plate Detection and Recognition," *2023 International Conference on Network, Multimedia and Information Technology (NMITCON)*, Bengaluru, India, 2023, pp. 1-6, doi: 10.1109/NMITCON58196.2023.10276329.
- [9] Saurabh Kumbhar and **P. P. Bartakke**, "Software Test Automation of Electronic Control Unit", International Conference on Recent Trends in Microelectronics, Automation, Computing and Communication Systems (**ICMACC**), IEEE Hyderabad Section, 28–30<sup>th</sup> December 2022
- [10] Pranay Junare, Mihir Deshmukh, Mihir Kulkarni, **P. P. Bartakke**, "Deep Learning based end-to-end Grasping Pipeline on a lowcost 5-DOF Robotic arm", 19<sup>th</sup> Indian Council International Conference (INDICON), 24-26<sup>th</sup> November 2022, Kochi, Kerala
- [11] Govind More, **P. P. Bartakke**, "Real-time Implementation of Indian License Plate Recognition System", International Conference on Advances and Applications of Artificial Intelligence and Machine Learning (ICAAAIML) 2022, Sharada University, Greater Noida, UP , 16-17<sup>th</sup> September 2022
- [12] Aparna Patil, **P. P. Bartakke**, "Real Time Fruit Detection And Recognition For Smart Refrigerator", International Conference on Advances and Applications of Artificial Intelligence and Machine Learning (ICAAAIML) 2022, Sharada University, Greater Noida, UP , 16-17<sup>th</sup> September 2022
- [13] Sangram More, **P. P. Bartakke**, Monika Agarwal, "SWARA: The Path Loss Model For Underwater Acoustic Communication", IEEE 13th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON 2022), Virtual Conference, Vancouver, Canada, 12-15<sup>th</sup> October 2022, pp. 219-224, IEEE Catalog Number: CFP2279Z-ART, ISBN: 978-1-6654-6316-4
- [14] Sangram More, **P. P. Bartakke**, Monika Agarwal, "Multipath Modeling under Tank Environment for Underwater Acoustic Communication", Advanced Communication Technologies and Signal Processing (ACTS), NIT Rourkela, December 2021 <https://doi.org/10.1109/ACTS53447.2021.9708257>
- [15] Ninad Awalgaonkar, **P. P. Bartakke**, Ravi Chougule, "Automatic License Plate Recognition System Using SSD", International Symposium of Asian Control Association on Intelligent Robotics and Industrial Automation, Goa, September 2021, <https://doi.org/10.1109/IRIA53009.2021.9588707>
- [16] Meenal Narkhede, Shubham Mane, P. P. Bartakke, M. S. Sutaone, "Empirical Study of Weight Initializations for COVID-19 Predictions in India", National Conference on Communication, IIT, Kanpur, July 2021, <https://doi.org/10.1109/NCC52529.2021.9530160>
- [17] Meenal Narkhede, **P. P. Bartakke**, M.S. Sutaone, "Delving into Feature Maps: An Exploratory Analysis to Evaluate Weight Initialization", *12<sup>th</sup> International Conference on*

*Soft Computing and Pattern Recognition, (SoCPaR 2020)*, Machine Intelligence Research Labs, 15-18 December 2020.

- [18] Pratibha Gawali, Ritika Latke, Anant Shinde, **P. P. Bartakke**, “Deep Learning Based Lens for Mitigating Hospital Acquired Infections”, *5<sup>th</sup> IAPR International Conference on Computer Vision & Image Processing (CVIP 2020)*, IIT Allahabad, India, 16-18, October 2020
- [19] Girish Desai, **P. P. Bartakke**, “Real-time Implementation of Indian License Plate Recognition System”, *International Conference on Data Science and Analytics, 1st IEEE PuneCon*, Symbiosis Institute of Technology, Pune, 1-2<sup>nd</sup> December 2018, DOI: 10.1109/PUNECON.2018.8745419
- [20] Amol S. Udanshiv, Sushma D. Shelke and **P. P. Bartakke**, “RISC Controller with Multiport RAM”, *International Conference on Advances in Communication and Computing Technology (ICACCT 2018)*, Amrutvahini COE Sangamner, 8-9<sup>th</sup> February 2018, PP 571-574.
- [21] Akshay A. Gattawar, **P. P. Bartakke**, Swati S. Patil, “Multipath Cancellation and Correction in ToF Sensors Via Coded Pulse Technique”, *International Conference on Advancements in Automation, Robotics and Sensing (ICAARS 2016)*, PSG College of Technology, Coimbatore, 23-24<sup>th</sup> June 2016, PP 66-69.
- [22] Aparajita Burman, Vediya Raghuvanshi, **P. P. Bartakke** and Satish Deshpande, “PCB Solder Pad Inspection Mechanism using Gerber File”, *5th IEEE International Conference on Communication and Signal Processing (ICCSP'2016)*, Melmaruvathur, Tamilnadu, 6-8<sup>th</sup> April 2016
- [23] Rahul Varma and **P. P. Bartakke**, “IP for Maximum Power Point Tracker Charger”, *5th IEEE International Conference on Communication and Signal Processing (ICCSP'2016)*, Melmaruvathur, Tamilnadu, 6-8<sup>th</sup> April 2016
- [24] Apoorva N. Patil, **P. P. Bartakke**, “Verification Flow and Test Pattern Generation for IP Centric SoC Validation and Tesing using Multiplexer based TAM”, *International Conference on Electrical, Electronics and Communication Engineering (ICEECE)*, Organized by IRAJ Research Forum, Pune, Paper ID - EECEPUN-06034-029, 13<sup>th</sup> April 2014. PP 48 – 51, ISBN: 978-93-84209-04-9
- [25] Viraj Ghorpade, Urmila Airsang, Srividya Tirunellai, **P. P. Bartakke**, “Acute Myelogenous Leukemia Detection in Bone Marrow Aspiration Images”, *National Conference - MedImage 2012*, IITB, Mumbai, 16<sup>th</sup> December 2012
- [26] M.S. Sutaone, **P.P. Bartakke**, S. M. Kakade, “Multispectral Random Field Model Based Color Image Analysis and Synthesis”, *National Conference on Machine Vision and Image Processing MVIP jointly organized by COE, Pune and BARC, Mumbai*, 7-9<sup>th</sup> December 2011, Invited Paper.
- [27] Gopinath Mahale, **P.P. Bartakke**, “Eigen values and vectors computations on Virtex-5 FPGA platform Cyclic Jacobi’s algorithm using systolic array architecture”, *International Conference on Advances in Recent Technologies in Communication and Computing 2011*
- [28] **P.P. Bartakke**, S.M. Kakde, M.S. Sutaone, “Non-Causal Simultaneous Autoregression Model Based Texture Synthesis”, *IEEE Sponsored International Conference in Electronic Design and Signal Processing Organized by MIT Manipal*, 10-12 December 2009

- [29] **P. P. Bartakke**, A. Ravikiran, S. A. Vaidya, M. S. Sutaone, “Hybrid Approach for Structural Texture Synthesis”, *TENCON 2009*, IEEE ID #15622, sponsored by IEEE Region 10 and organized by IEEE Singapore Section, 23-26 November 2009
- [30] **P.P. Bartakke**, S.M. Kakde, M.S. Sutaone, “Automatic Neighborhood Selection for SAR models applied to Gray Textures”, *TENCON 2009*, IEEE ID #15622, sponsored by IEEE Region 10 and organized by IEEE Singapore Section, 23-26 November 2009
- [31] **P. P. Bartakke**, Mrs. R.A. Bhagwat, M.S. Sutaone, “Texture Realization using 2D-MA Random Field Model”, *National Conference on Signal and Image Processing Applications*, Organised by IET Mumbai Network and COE, Pune, 19-20 September 2009
- [32] **P.P. Bartakke**, S.M. Kakade, “Handwriting and Signature Recognition”, *National Conference on Signal and Image Processing Applications*, Organised by IET Mumbai Network and COE, Pune, 19-20 September 2009
- [33] **P. P. Bartakke**, Mrs. R.A. Bhagwat, M.S. Sutaone, “Texture Synthesis using 2D MA Model International conference on Signal and Image Processing”, *ICSIP 2009*, Organized by Vidya Vikas Institute of Engineering and Technology, Mysore, 12-14 August 2009
- [34] **P. P. Bartakke**, Mrs. Mangala S. Joshi, M.S. Sutaone, “Texture representation using Autoregressive models”, *IEEE sponsored International Conference on Advances in Computational Tools for Engineering Applications, ACTEA 2009*, Norte Dame University, Lebanon, 15 -17 July 2009, for Interactive Poster Presentation.
- [35] **P.P. Bartakke**, N.P. Kulkarni, “Implementing an MPEG-2 Video Decoder on TMS320 6713 DSP Processor”, *National conference on Signal Processing and Automation, NCSPA '07*, 7-8<sup>th</sup> September 2007 at DYP, Pimpri, Pune – 18 MS PP 1-5
- [36] Bhairavi Sawant, Rahul Desai, **P.P. Bartakke**, “Deployment of RTLinux on various Platforms”, *National conference on Signal Processing and Automation, NCSPA '07*, 7-8<sup>th</sup> September 2007 at DYP, Pimpri, Pune – 18 MS PP 227-231
- [37] **P.P. Bartakke**, L.N.Narkhede, “Texture discrimination using Gabor functions”, *National Conference on “Trends in Telecom Transmission: Copper to Fiber”*, 17-18 March 2006 at K.J. Somaiya COE, Mumbai 77 MS
- [38] Mrs. S.K. Bhosale, **P.P. Bartakke**, P.B. Mane, M.H. Patil, “Pulse Oxi-meter Using Microcontroller - 89c51”, *National conference on Hi-Tech Trends in Emerging Computational Technologies*, 10-11 September 2004 at SIT, Kariapatti, TN PP 134-140
- [39] M.S. Sutaone, **P.P. Bartakke**, “Texture Classification using Tree-structured Wavelet Transform”, *National Conference organized by IEEE Bombay Section*, 14-16 December 2003 at Pune
- [40] M.S. Sutaone, **P.P. Bartakke**, Mrs. V.S. Vyas, N.B. Pasalkar, “Rotation and Scale Invariant Feature Extractors”, *IEEE TENCON'2003, Convergent Technology for Asia-Pacific*, 14-17 October 2003 at Bangalore PP 235-238
- [41] M.S. Sutaone, **P.P. Bartakke**, A.M. Sapkal, “Speech Enhancement using a Soft Decision Noise Suppression Filter”, *International Conference on Advanced Computing and Communication*, 16-19 December 2001 at Bhubaneswar PP. Poster section 283
- [42] M.S. Sutaone, **P.P. Bartakke**, V.A. Kolgaonkar, “Multi-Channel Gabor Filter – An Application with Reconfigurable Logic”, *National Conference on recent trends on VLSI Techniques*, 29-30 August 2001 at Roorkee PP 80-84

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- [44] M.S. Sutaone, **P.P. Bartakke**, A.A. Sawant, “Texture Segmentation using Multi-Channel Filtering approach”, *International Conference on Advanced Computing and Communication*, 20-22 December 1999 at Roorkee PP 116-120

## **PATENTS**

- Applied for Indian patent on “System and Method for implementation of Advanced Encryption Standard Algorithm Using Systolic Architecture”, Jointly with P. V. S. Shastry, M.S. Sutaone, **P. P. Bartakke**, Application No. 3137/MUM/2014 dated 01/10/2014

## **R & D Projects at Centre of Excellence in Signal And Image Processing (COE In S & IP) at COE, Pune**

<b>Sr. No.</b>	<b>Title of Project</b>	<b>Commencement Year</b>	<b>Sponsoring Industry</b>
1	License Plate Detection and Recognition	July 2016	Eklakshya Consultants, Pune
2	Audio Beam formation and Steering	July 2015	Tensilica - Cadence Design Systems, Pune
3	Video Stabilization using ADSP Blackfin platform	July 2014	Wavelet Group, Pune

## **STRENGTHS IN TERMS OF KNOWLEDGE AND SKILLS**

- PhD in Image processing and Analysis and fairly good knowledge of algorithms with sufficient analytical background in the domain.
- Expertise in C, Python and assembly (ARM and Intel architecture)
- Around 16 years of Experience in the field of Signal Processing field, in general.
- Guiding 03 Ph.D. students in the domain of Image processing, Machine learning.
- Guided around 74 Masters dissertations in the field of Image Processing and Embedded Systems and number of Bachelor level projects
- Experience in managing and mentoring students in classrooms and laboratories

## **TALKS AND EXPERT LECTURES**



<b>Sr. No.</b>	<b>Name of Program</b>	<b>Topic</b>	<b>Venue</b>
1	Image processing	Image File Formats.	2 <sup>nd</sup> Aug – 23 <sup>rd</sup> Aug 2003 at GCOE, Pune.
2	ISTE-STTP on Advanced DSP	Fast Fourier Transform Techniques.	22 <sup>nd</sup> – 31 <sup>st</sup> March 2004 at PIET, Pune.
3	ISTE-STTP on Still Image and Video Processing	Image File Formats, Computational Approach to 2-D DCT, 2-D FFT.	14 <sup>th</sup> – 25 <sup>th</sup> June 2004 at PIET, Pune
4	TEQIP Workshop on Embedded Technology with Hands-on-Training	Embedded Software Architectures and Introduction to RTOS	5 <sup>th</sup> -6 <sup>th</sup> December 2006 at Department of Electrical Engg., COE, Pune
5	Workshop on Embedded Systems	--do--	12-16 <sup>th</sup> February, 2007 at Department of Electronics, GP, Pune
6	ISTE STTP on Digital Signal Processing and its applications in Electrical Engg.	DFT and FFT Techniques	22 <sup>nd</sup> May 2007 at PVG College of Engg. Pune.
7	Workshop on Microcontrollers and Its applications	Microcontroller 8051 – Programmers model	29 <sup>th</sup> Oct 2007 at BVJNIOT, Pune.
8	Short term course on “Embedded Systems”	SPI and I <sup>2</sup> C Serial Communication protocols	October 2008 at VIT, Pune
9	National workshop on “Embedded Sytem Development with Hands on Training using ARM Processor”	ARM Programmer’s Model	20 <sup>th</sup> October 2008 at Dept. of Electronic Science, Modern College of Arts, Science and Commerce, Pune
10	National Conference on “Recent Technologies”, i-CORT 2012	Chairman – Session on papers pertaining to Image Processing	11 <sup>th</sup> February, 2012, IOK COE, Shirur, Pune
10	National level seminar on “Recent Advancements and Innovations in Image Processing”	Text file compression using LZW technique	24 <sup>th</sup> February, 2012 at Pratibha College of Commerce and Computer Studies, Chinchwad, Pune.
11	Expert Lecture for undergraduate students	I. WWW and HTTP II. ARM Embedded system	I. 29 <sup>th</sup> March 2012, For Final Year B.E. (E &TC), AISSMS, Pune II. 3 <sup>rd</sup> April 2012, For T.Y. B.E.(Computer), AISSMS Pune
12	Expert Lecture for Professionals	Embedded Software Architectures and Introduction to RTOS	11 <sup>th</sup> August, 2012 at IETE Pune

13	Expert Lecture for undergraduate students	Parallel Processing Concepts – A CASE study – ARM Architecture	6 <sup>th</sup> March 2013, For T.Y. B.E.(E & TC), AISSMS Pune
14	Expert Lecture for undergraduate students	8051 – Port Structure, Timers – Configuration, Interrupt Handling	16 <sup>th</sup> March 2013, For T.Y. B.E.(E & TC), Sinhadgad COE, Solapur
15	One Week STTP on “Recent Trends in Design, Development and Applications in Digital Signal Processing”	Frequency Domain Representation of Discrete Time Signals	16 <sup>th</sup> July 2013 at DY Patil, COE & T, Kasaba Bawada, Kolhapur – 416006.
16	Expert Lecture for undergraduate students	ARM Embedded system	24 <sup>th</sup> March 2014, For T.Y. B.E.(E & TC), AISSMS Pune
18	Expert Lecture for undergraduate students	Queuing Models	3 <sup>rd</sup> March 2015, for Final Year B.E. (E & TC), MIT, Pune
18	AICTE-STTP on “Select Topics in Signal Processing and Machine Intelligence with Hands on”	Audio Beam Formation and Steering	3 <sup>rd</sup> June 2016, Mini-auditorium, CoE, Pune
19	STTP on “Current Trends in Architectures of Processors”	ARM Architecture	26 <sup>th</sup> May 2016, CoE, Pune
20	TEQIP-FDP on “Embedded Product Design	<ul style="list-style-type: none"> <li>Asynchronous Communication, RS232C standard</li> <li>Synchronous Communication with I2C bus</li> </ul>	<ul style="list-style-type: none"> <li>5<sup>th</sup> July 2016, EE Dept. CoE, Pune</li> <li>12<sup>th</sup> July 2016, EE Dept. CoE, Pune</li> </ul>
21	STTP on “Image Processing and Computer Vision”	Text file compression using LZW technique	12-16 <sup>th</sup> December 2016, E & TC Dept. CoE, Pune
22	AICTE sponsored one day seminar on “Medical Image and Signal Processing”	SVD and Applications	23 <sup>rd</sup> December 2017 RS COE, Tathwade, Pune
23	IEEE and Mathworks sponsored FDP on “Image Processing – Advances and Research Challenges”	SVD and Applications	11-15 <sup>th</sup> December 2017 SCOE, Pune
24	CoEP Internship Program	Python Programming	1-30 <sup>th</sup> June 2018, CoE, Pune
25	One day workshop on “NBA - OBE Criteria 1 to 10”	Assessment of attainment of COs/POs	27 <sup>th</sup> December 2018, JJM CoE, Jaysingpur.

26	IETE and ISTE sponsored STTP on “Emerging Trends in Signal Processing”	Principal Component Analysis	9 <sup>th</sup> January 2019, KIT, CoE, Kolhapur
27	Expert Lecture for T.Y. (E& TC) Diploma students	Embedded Systems with RTOS	12 <sup>th</sup> March 2019, CWIT, Pune - 01
28	TEQIP sponsored workshop on “Outcome Based Education and Accreditation of Engineering Programmes”	Students’ Performance and Assessment of attainment of COs/POs	3 and 4 <sup>th</sup> May 2019 at SGSITS, Indore
29	AICTE-FDP on “Outcome Based Education for Engineering”	Assessment of attainment of COs/POs	18 <sup>th</sup> November 2019, PVPIT, Budhgaon, Sangli
30	Workshop on “Applications of AI and IoT in Electrical Systems”	Neural Networks and Applications	24-25 <sup>th</sup> January 2020, KJ CoE and MR, Pune
31	FDP on Signal, Image and Video Processing: A Practical Approach	PCA and Applications	26-30 <sup>th</sup> May 2020, GCOE, Karad
32	TEQIP-III sponsored FDP on “ Algorithms and Techniques for Signal Processing”	Object Detection with YOLO	14-18 <sup>th</sup> July 2020, COE, Pune - 5
33	AICTE-STTP on “Academic Innovations in Industry 4.0”	Panel Discussion	7 <sup>th</sup> November 2020 VIT, Pune
34	AICTE-FDP on “Artificial intelligence and its applications in Biomedical Engineering”	1) PCA and Applications 2) SVM classifiers	1) 25 <sup>th</sup> November 2020 2) 15 <sup>th</sup> December 2020 RS CoE, Tathawade, Pune
35	FDP on “Research and Application Perspectives of Artificial Intelligence”	SVM classifiers – Hard and Soft Margin Classifiers	22 <sup>nd</sup> December 2020, VIIT, Pune
36	4th International Conference on Communication and Information & Computing Technology (ICCICT - 2021), Plenary talk	Unleashing GPU servers for deep learning research	27 <sup>th</sup> June 2021, Bhartiya Vidya Bhavans Sardar Patel Institute of Technology
37	MDP on “OBE & A: Recapitulation and Review on Philosophy and Process”	Assessment of attainment of COs/Pos: Direct and Indirect Assessment Tools, Rubrics/Formats, Excel Based Computations	16 <sup>th</sup> October 2021, PCCoE, Pune

38	FDP on “Data Analytics using Python”	Regression Algorithms	23 <sup>rd</sup> December 2021, CoE, Pune
39	STTP on “Machine Learning”	Classification Techniques	28 <sup>th</sup> January 2022, JJM CoE, Jaysingpur
40	FDP on “Artificial Intelligence and Machine Learning”	Decision Tree Classifier	8 <sup>th</sup> March 2022, GCoE&R, Avasari
41	ISTE-STTP on “Data Analysis and Machine Learning for Engineering Research using Python and MATLAB”	Classification Techniques – Decision Tree Induction and Bayesian classifiers	11 <sup>th</sup> August 2022, KJ CoE MR, Pune
42	Workshop on NEP 2020	Restructuring UG and PG education in Colleges and Universities	29 <sup>th</sup> March 2023, JJM CoE, Jaysingpur
43	FDP on “Advancements in Deep Learning and its Engineering applications”	Introduction to Neural Networks – Forward and Back propagation techniques	Govt. COE and Research Avasari.
44	Training program titled “Data Engineering: Tools and Techniques”	Optimization Technique – Artificial Neural Networks	4 <sup>th</sup> March 2024, ISRO ISRACT Bangalore organized byIIIT, Alahabad

## WORKSHOPS AND EVENTS ORGANISED/CONDUCTED

Sr. No.	Name of the Program	Duration	Participants details	Remarks
1	Workshop on “Start innovating with Intel® Atom™ Innovation Kit, Community”	3rd March 2012 (1 Day)	36 participants from PG and UG class of the department	In association with Intel, Bangalore
2	TEQIP-FDP on “Embedded Linux”	4th – 8th February 2013 (1 week)	21 participants (17 outside + 4 from COEP)	In association with SPJ Embedded Technologies, Ltd. Pune.
3	AICTE-STTP on “Select Topics in Signal Processing and Machine Intelligence with Hands on”	23 <sup>rd</sup> May – 3 <sup>rd</sup> June 2016	60 Participants	Co-coordinator of the programme
4	“Project Symposium 2016”	29 <sup>th</sup> June 2016	165 from COEP and 60 from Other Institution	Exhibition of PG dissertation work of students from all FOUR Specializations
5	TEQIP-FDP on “Embedded Product Design”	4-15 <sup>th</sup> July 2016	45 Participants	In association with Eklakshya VLSI R

				& D Centre Pvt. Ltd. Pune
6	Research Conclave – 2017	24-25 <sup>th</sup> March 2017	300 Participants	Jointly organized by COE in S & IP and SRES, CoE, Pune.
7	Self supported STTP on Image Processing using Matlab	12-16 <sup>th</sup> June 2017	23 Participants	Organized by Dept. of E & TC, COE, Pune
8	2 Days course on “TRIZ Innovation for Problem Solving and Opportunity Creation”	15-16 <sup>th</sup> December 2017	15 Participants	Organized by CoE in S & IP, COE, Pune
9	PhD Forum track of prestigious 31 <sup>st</sup> International Conference on VLSI Design and 17 <sup>th</sup> International Conference on Embedded System	6-10 <sup>th</sup> January 2018	6 Thesis Presentation and 9 Poster Presentation out of 50 Submissions	IEEE and VSI Sponsored International Conference, Pune

## PROFESSIONAL SERVICES

### Reviewer, Session Chair:

Sr. No.	Conference/Centre	Month and Year	Nature of the Honour
1	Neural Processing Letters – Journal published by Springer with impact factor 2.565(2021)	April 2022 onward	Reviewer; reviewed 06 papers as of now
2	Journal of The Institution of Engineers (India): Series B	August 2020	Paper Reviewer
3	IETE Journal of Education	July 2020	Paper Reviewer
4	International Conference on Power Systems (ICPS 2017)	September 2017	Paper Reviewer
5	National Conference on Interdisciplinary Trends in Engineering and Technology (NCITET 2017) – DoT, Shivaji University, Kolhapur	January 2017	Paper Reviewer
6	International Conference on Transformations in Engineering Education – COE, Pune	January 2016	Paper Reviewer
7	SGGS, IE & T, Nanded – Research Symposium	July 2015	Domain Expert

8	International Conference on Industrial Instrumentation and Control 2015 – COE, Pune	May 2015	Session Chair and Paper Reviewer
9	REBEL 2012 – SVPM CoE, Malegaon, Baramati	March 2012	Member – Project Evaluation Committee
10	International Conference on Recent Technologies – IoK CoE Pune	February 2012	Session Chair
11	National Conference on Pervasive Computing – SCoE, Pune	April 2010	Session Chair
12	International Conference on Green-IT and Open Source	February 2010	Session Chair

### **Services to University/Institutes:**

- Recognized PG/PhD Guide, Savitribai Phule Pune University
- Nominated as Member, Board of Studies, Mechatronics Engg., Savitribai Phule Pune University
- Nominated as member of E & TC, Board of Studies, Govt. COE, Karad
- Nominated as member of Electronics Board of Studies, WCE, Sangli
- Nominated as member on E & TC department Advisory board at SVERI's CoE, Pandharpur
- Member, Doctoral Review Committee, Electronics Dept, GH Rasoni, COE & M, Wagholi, Pune
- Worked as expert for Gap analysis process of the department of E & TC, JJM Coe, Jaysinghpur
- Member on Interview Committee for selection of Project Engineers at CDAC, 2013, 2014
- Member on the Interview Committee for selection of faculty in Electronics Engg. at WCE, Sangli, 2012, 2013
- Expert for technical evaluation of tenders for Online Application Systems at MPSC, Mumbai, 2010.
- Member for development of Software support for automation of FE Admission process for the academic year 2007-08.

### **Administrative Positions:**

- Dean, School of Electrical and Communication Engg, March 2023 onward
- Program Coordinator, PG Diploma in IoT, A.Y. 2021-22
- Coordinator/Faculty advisor for both F.Y and S.Y. M. Tech. (Electronics – VLSI and ES) students 2009-2018
- Department Procurement Coordinator 2015-2021
- Secretary, COEP Students' Cooperative Stores 2019-22
- Lab In-charge – PG Lab and Computer Networks Lab
- FDP – co-coordinator for the world bank TEQIP-II project at Institute level 2012-16

### **Professional Society Membership:**

- Honored as Fellow of Institution of Electronics and Telecommunication Engineers (FIETE) since July 2013.

• **Faculty Development Programs (FDPs)/ Instruction Enhancement Programs (IEPs) attended at higher learning centers:**

<b>Sr. No.</b>	<b>Name of FDP/IEP</b>	<b>Duration</b>	<b>Resource Center</b>
1	Software Engineering	8 <sup>th</sup> January – 17 <sup>th</sup> February 1996 (6 weeks)	Jadavpur University, Calcutta
2	System Installation and Administration on an Intranet	15 <sup>th</sup> – 26 <sup>th</sup> February 1999 (2 weeks)	IIT, Mumbai
3	SQL and VB	10 <sup>th</sup> – 21 <sup>st</sup> December 2001 (2 weeks)	NTTF, Bangalore
4	AICTE sponsored course on Managerial Training	23 <sup>rd</sup> – 27 <sup>th</sup> September 2003 (1 week)	Indian Heritage Academy at PIET, Pune
5	ISTE – STTP on Embedded System Design	1 <sup>st</sup> – 13 <sup>th</sup> December 2003 (2 weeks)	BATU, Lonere
6	ISTE-STTP on Advanced Digital Signal Processing	22 <sup>nd</sup> – 31 <sup>st</sup> March 2004 (2 weeks)	COE, Pune
7	ISTE-STTP on Still Image and Video Processing	14 <sup>th</sup> – 25 <sup>th</sup> June 2004 (2 weeks)	COE, Pune
8	Short Term Training on “Wireless Communication and Networks” under TEQIP	15 <sup>th</sup> – 20 <sup>th</sup> May 2006 (1 week)	GSSST, IIT – Kharagpur
9	Short Term Training on “DSP Tools and Practice” under TEQIP	12 <sup>th</sup> – 17 <sup>th</sup> June 2006 (1 week)	GSSST, IIT – Kharagpur
10	TEQIP-FDP Programme on “Trends in Communication and Networking Technologies”	9 <sup>th</sup> – 13 <sup>th</sup> December, 2006 (1 week)	Department of E & TC, COE, Pune
11	Short Term Training on “VLSI in Signal Processing”	23 <sup>rd</sup> – 29 <sup>th</sup> December, 2006 (1 week)	IIT, Kharagpur
12	Short Term Training on “20 Sim”	25 <sup>th</sup> November – 3 <sup>rd</sup> December, 2007 (1 Week)	Ni2 Design, Asia Pacific Distributors, Bangkok, Thailand
13	Workshop on “LaTeX”	5 <sup>th</sup> – 7 <sup>th</sup> April, 2008 (3 days)	Dept. of Instrumentation and Control, COE, Pune
14	IUCEE course on “Computer Networks”	9 <sup>th</sup> – 13 <sup>th</sup> June 2008 (1 week)	GEC, Infosys Technologies, Mysore
15	STTP on “Advance Topics in Wavelet Transforms: Theory and Applications”	6 <sup>th</sup> to 11 <sup>th</sup> July 2009 (1 week)	Chemical Engg. Dept., IIT Madras
16	STTP on “Time Series Modeling and Spectral Analysis”	12 <sup>th</sup> to 17 <sup>th</sup> July 2010 (1 week)	Chemical Engg. Dept., IIT Madras

17	MDP on “Multivariate Data Analysis”	4 <sup>th</sup> – 9 <sup>th</sup> July 2011 (1 week)	Vinod Gupta School of Management, IIT, Kharagpur
18	Workshop on “Embedded Linux”	5 <sup>th</sup> – 6 <sup>th</sup> August 2011 (2 days)	Dhole Patil COE, Wagholi Pune
19	Graphical Programmable Language LabView and Its Industrial Applications	7 <sup>th</sup> – 11 <sup>th</sup> May 2012 (1 week)	Department of Electrical Engg., COE, Pune – 5.
20	Advanced Faculty Training on “Hardware and Firmware Design for ARM based Embedded Systems”	18 <sup>th</sup> – 29 <sup>th</sup> June 2012 (2 weeks)	JNTU Hyderabad and HRD Division, Dept. of Electronics and IT, Govt. of India at C-DAC Hyderabad
21	Participated in Eighth Indian Conference on Vision, Graphics and Image Processing ICVGIP 2012	16 <sup>th</sup> – 19 <sup>th</sup> December 2012 (4 days)	IITB, Mumbai
22	Participation in 26 <sup>th</sup> International Conference on VLSI Design and 12 <sup>th</sup> International Conference on Embedded Systems	5 <sup>th</sup> – 9 <sup>th</sup> January 2013 (1 week)	Supported by VLSI Society of India and Technical Co-sponsors IEEE, CAS, CEDA, SiG da, at Pune, India
23	Workshop of Embedded Controls and Software	13 <sup>th</sup> - 15 <sup>th</sup> May 2013 (3 days)	ATDC, IIT, Kharagpur
24	TEQIP-FDP on “Wavelets”	31 <sup>st</sup> July - 4 <sup>th</sup> August 2013 (1 week)	Conducted for BATU Lonere at IIT Bombay
25	Signal Processing For Embedded Systems with Five Continuing Education Units	January to April 2014	Purdue Next Program of Purdue University; Facilitated by Wiley, India Credit Course; Certificate Issued on 1 <sup>st</sup> September 2014
26	Joint ICTP-TWAS School on “Coherent State Transforms, Time-Frequency and Time-Scale Analysis, Applications”	2 <sup>nd</sup> – 20 <sup>th</sup> June 2014 (3 Weeks)	ICTP, Trieste, Italy
27	Intel India Innovation Conclave – Faculty Colloquium on IoT	9-10 <sup>th</sup> December 2014 (2 days)	Bangalore
28	Virtualization and Cloud Solutions for Education	18-19 <sup>th</sup> December 2014 (2 days)	COEP and Vintech Electronics Systems Pvt. Ltd. at COEP
29	Workshop on “Biomedical Image Processing”	3-4 <sup>th</sup> March 2015 (2 days)	Conducted by Dr. Mark Niedre (Professor , North Eastern University , USA) at COE, Pune
30	Industrial training on “Benchmark Imaging System”	14-16 <sup>th</sup> March 2015 (3 days)	Benchmark Electronics Systems Pvt. Ltd., Chennai



31	MHRD-TEQIP-KITE Workshop on “Teaching Applied Mathematics to Post Graduate Students in Engineering”	13-15 <sup>th</sup> May 2015 (3 days)	CDEEP - IIT, Bombay
32	“IoT Hands-on” workshop as part of CXC Program 2015	27-28 <sup>th</sup> June 2015 (2 days)	Organized by IISc Bangalore and Intel at IISc Bangalore
33	MOOC on “Education Technology”	7 <sup>th</sup> January to 7 <sup>th</sup> March 2016 (8 Weeks)	Conducted by IITB, Mumbai.
34	International Conference on Signal and Information Processing IConSIP 2016	6-8 <sup>th</sup> October 2016 (3 days)	Organized by COE-S & IP – SGGs Nanded, COE, Pune and SVUCE, Tirupati Held at SGGs, Nanded.
35	GIAN Course on “VLSI Architectures for Signal Processing and Machine Learning”	19-30 <sup>th</sup> December 2017 (2 Weeks)	IIT, Kharagpur
36	TEQIP -MDP on “Management Capacity Enhancement Programme”	13-17 <sup>th</sup> February 2017 (1 Week)	IIM, Udaypur
37	TEQIP FDP on “IoT – Based on Advanced Tool from TI”	10-14 <sup>th</sup> July 2017 (1 Week)	Dept. of Instrumentation and Control, CoE, Pune
38	TEQIP FDP on “Optimization and Optimal Control”	4-8 <sup>th</sup> December 2017 (1 Week)	Dept. of Instrumentation and Control, CoE, Pune
39	TEQIP FDP on “Outcome based Education and Accreditation”	2-6 <sup>th</sup> July 2018 (1 Week)	CoE, Pune
40	NPTEL Online Certification on “Deep Learning”	Jul-Oct 2018 (12 Weeks)	Online Course Delivered by Prof. Mitesh Khapra, IITM, Chennai
41	TEQIP FDP on “Optimization and Optimal Control – a Data based approach”	3-7 <sup>th</sup> December 2018 (1 Week)	Dept. of Instrumentation and Control, CoE, Pune
42	NPTEL Online Certification on “Deep Learning Part - II”	Feb-Apr 2019 (8 Weeks)	Online Course Delivered by Prof. Mitesh Khapra, IITM, Chennai
43	Parallel Computing Summer School (PCSS- 2019)	27 – 31 <sup>st</sup> May 2019 (1 Week)	CoE, Pune in Association with National Supercomputing Mission
44	Practical Machine Learning with Tensorflow 2.0	Aug-Oct 2019 (8 Weeks)	Online Course Delivered by Prof. Ashish Tendulkar, IITM, Chennai
45	Scientific Computing with Python	16-20 <sup>th</sup> December 2019 (1 week)	IIT, Mumbai

46	Linear Algebra	2-6 <sup>th</sup> January 2020 (1 week)	IIT, Mumbai
47	Introduction to Machine Learning	Jan-Apr 2020 (12 weeks)	Online Course Delivered by Prof. Ravindran Balaraman, IITM, Chennai
48	Programming, Data Structures and Algorithms using Python	Jan-March 2020 (8 weeks)	Online Course Delivered by Prof. Madhavan Mukund, Chennai Mathematical Institute
49	Signal, Image and Video Processing: A Practical Approach	26-30 <sup>th</sup> May 2020 (1 week, online mode)	GCOE, Karad
50	Digital Teaching Techniques	27th July -1 <sup>st</sup> Aug 2020 (1 week, online mode)	ICT Academy
51	Applied Linear Algebra for Signal Processing, Data Analytics and Machine Learning	Jan-Apr 2021 (12 weeks)	Online Course Delivered by Prof. Aditya Jagannathm, IIT, Kanpur
52	Embedded Systems – an Application Driven Approach	25-27 <sup>th</sup> August 2021	AICTE, ST Microelectronics and ARM
53	GPU Architecture and Programming	Jan – Apr 2022 (12 Weeks)	Online Course Delivered by Prof. Soumyajit Dey, IIT Kharagpur
54	Designing and Modeling IoT, AI and ML Systems	1-5 <sup>th</sup> August 2022 (1 week, online mode)	AICTE, ST Microelectronics and ARM
55	Evolve – Faculty Engagement Program	13-14 <sup>th</sup> October 2022 (online mode)	Samsung PRISM
56	Cloud Computing	Jul – Oct 2022 (12 Weeks)	Online Course Delivered by Prof. Soumya Kanti Ghosh, IIT Kharagpur
57	Academic Leadership and Alignment Program on NEP Implementation Pathways Services	3-4 <sup>th</sup> February 2023	Bhartiya Shikshan Mandal and COEP Technological University, Pune
57	Foundation of Cloud IoT Edge ML	Feb – April 2023 (8 Weeks)	Online Course Delivered by Prof. Rajiv Misra, IIT Patna
58	Reinforcement Learning	Jul-Oct 2023 (12 Weeks)	Online Course Delivered by Prof. Ravindran Balaraman, IITM, Chennai

59	Introduction to Industry 4.0 and Industrial Internet of Things	Jan – Apr 2024 (12 Weeks)	Online Course Delivered by Prof. Sudip Misra, IIT Kharagpur
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**Other Activities:**

- **At the Institute-**
  - Developed software package for Centralized FIRST YEAR Engg. Admission for Pune and North Maharashtra University on behalf of Directorate of Technical Education for the years 1995-2002.
  - Participated in development of Website of the Institute.
  
- **At State Level-**
  - Participated in tender scrutiny of technical equipments and software at Directorate of Technical Education, Maharashtra State.
  - Member of various committees related to Computerization of Centralized First Year Engineering Admissions in the state.
  - Participated in testing of Computer Hardware on behalf of Govt. of Maharashtra.
  - Consultancy team member for software development of admission process of first year of various courses under DTE, Maharashtra state for academic year 2007-08.

**Prashant Bartakke**