ICCASP-2016

CONFERENCE REPORT

December 26-27, 2016

ICCASP 2016 CONFERENCE REPORT

The two - day International Conference -2016 (ICCASP 2016) was organized in University by the **Department of Electronics and Telecommunication Engineering** on **26th and27th December 2016**.

The inaugural function held at10.00am in the Conference Hall of the University and was attended by Prof. V.G. Gaikar, Hon. Vice-Chancellor, Prof. Virendra Kumar Bhavsar Coordinator, Advanced Computational Research Lab. Faculty of Computer Science, University of New Brunswick, Fredericton, Canada,Dr. Mahesh Abegaonkar,Centre For Applied Research in Electronics, Indian Institute of Technology Delhi, Prof. R. R. Manthalkar Professor, Dept. of E & TC Engineering, SGGSIE&T, Nanded, Dr. S.B. Deosarkar, Professor, Dr. B.A.T.U. Lonere, Dr. S. L. Nalbalwar, Head, Department Electronics & Telecommunication, Dr. B.A.T.U. Lonere, Prof. Virendra Kumar Bhavsar from Canada delivered Key note address at inaugural function.

About 12 plenary talks and panel discussion of distinguished academicians, professionals, industrialists and management thinkers are also organized at this event in such a way that every delegate will have opportunity to attend each session.

During inauguration, in his welcome speech, Dr. S. L. Nalbalwar invited all the participants to express themselves and share their views and experience in this symposium. He was convinced that this conference would engage all the participants in information sharing, to promote intellectual interaction and provide food for thoughts.

Dr. V. G. Gaikargave his learned opinion on need for interdisciplinary collaboration to invent and innovate. He emphasized on the use of technology for betterment of society and nation. He assured all the help for new innovations to convert the academics into consumer technology.

Around 150 technical papers were received from various institutions and Industries all over India, including premier institutions like IITs, NITs. Out of these 58 papers were finalised for Oral Presentation and 8 papers for Poster presentation, after double blind review system through easychair submission. Papers broadly classified into three area i) Signal/Image processing, ii) Antenna Design and Microwave, iii)Internet of Things

Plenary Talk Details:

Keynote Lecture I

The University of New Brunswick
Fredericton / Saint John

Convergence of IoT, Big Data and High Performance Computing

Prof. Virendra Kumar Bhavsar

Coordinator, Advanced Computational Research Lab.

Faculty of Computer Science, University of New Brunswick, Fredericton, Canada

Abstract

Data growth and speed is occurring faster than ever, while – at the same time – data is becoming obsolete faster than ever. CIOs and their companies are faced with substantial hurdles to get a handle on their data, and fast.

The obvious challenge is how to effectively analyze your data quickly, to gain insight into the problems you face daily and thus better manage your business. This essential need to parse mountains of data is leading to an explosion in AI and machine learning related companies over the past two years. In just 3 quarters (between Q1 and Q3 2015), $47.2 billion was invested in AI and machine learning, with roughly 900 companies tackling problems in business intelligence, finance and security.

And while machine learning has captured a lot of attention, there's an equally important element to running predictive analytics, particularly when time-to-result is crucial to the business mission: high performance computing. The convergence of analytics, big data and HPC, or "data intensive computing," is essential when you need to compute, store and analyze enormous, complex data sets very quickly in a highly scalable environment.

Firms in manufacturing, financial services, weather forecasting, cyber-reconnaissance, life sciences & pharmaceuticals, energy exploration and more are all using the data intensive power of supercomputers to push the envelope for research and discovery, and to answer questions that are not practical to answer using any other means.

Keynote Lecture II

Photonic Crystals: Artificial Materials to Control Light

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In optical communication, a variety of devices are required to perform functions like, filtering, routing, multiplexing, polarization splitting, mode splitting, mirrors, logic operations etc. Photonic crystals are finding popularity in realizing these devices. Photonic crystal (PC) is an artificial material that has a periodic variation of the refractive index. The most important aspect of a PC is its photonic band gap. No energy can propagate inside a PC if the wavelength lies within the photonic band. Depending upon the periodicity (lattice constant) and the difference in the refractive index, one can control the band gap of a PC. The periodicity can be in one, two or three dimensions, making a 1D, 2D or 3D photonic crystal. The examples of 1D PC are fibre Bragg gratings (FBG) and photonic crystal fibres. Excellent devices using FBGs have been developed and deployed in modern communication systems. Photonic crystal fibres provide flexibility in realizing infinitely single mode operation, desired dispersion characteristics and low loss. 2D PCs play an important role in realizing planar photonic devices and circuits. To achieve various 2D PC devices, defects are created in a PC. If a row of a lattice is removed from a PC, a line defect is created in a 2D PC. A line defect can be used as a channel waveguide at optical frequencies. Due to photonic band effect the energy cannot propagate perpendicular to the channel and one gets guided waves along the line defect. Line defects can also be realized in the form of a sharp bends without much radiation loss. Additional point defects inside a channel

waveguide make the propagation of light wavelength dependent. Numerical tools are employed to investigate the characteristics of PC based devices. A systematic approach can be developed to get combination of point defects to realize desired functionality and spectral characteristics. The talk gives an over view of photonic crystals and discusses in detail 2D PCs and their devices using defects.

Invited Talk-I

Novel Planar Electromagnetic Bandgap (EBG) Structure

Dr. M. P. Abegaonkar

Centre For Applied Research in Electronics

Indian Institute of Technology Delhi

Abstract

The presentation focuses on a novel planar electromagnetic bandgap (EBG) structure, its characterization, applications and reconfigurability. Planar EBG is selected over mushroom

EBG, as the former is easy to fabricate because of absence of vias in the structure. A planar EBG structure is proposed using meander lines inductors and interdigital capacitors over a grounded dielectric substrate. One dimensional array (1×7) of proposed EBG is loaded on either side of transmission line resulted in a bandstop/notch filter due to the bandgap of the EBG. The measured 3-dB bandwidth of the bandstop filter is 4.95-5.37 GHz. The capacitance between the EBG and the transmission lines make the bandgap in this method to be lower than bandgap from dispersion diagram.

This notch filter using EBG is cascaded to Multiple-mode resonator (MMR) ultra-wideband (UWB) filter to achieve a band-notched UWB filter. Single band-notched UWB filter with a notch centred around 5.16 GHz with 4.32×4.32 mm^2 unit cells. Dual band-notched UWB filter with notches centred around 5.16 GHz and 8.24 GHz using 4.32×4.32 mm^2 and 3.65×3.65 mm^2. Along with filter band-notched UWB antenna is also developed.

Reconfigurability is achieved by connecting an additional section made of interdigitallines (capacitor) to the unit cell using switches, thereby the effective capacitance is changed, hence the resonance frequency changes. One dimensional array (1×7) of reconfigurable EBG unit cell is loaded on either sides of the microstrip line results in a reconfigurable notch filter Full-wave simulations are performed in CST Microwave Studio software and the reconfigurable filter with diode models are simulated in ADS software.

Invited Talk-II

Meditation based Learning Enhancement

Prof. R. R. Manthalkar

Professor, Dept. of E & TC Engineering, SGGSIE&T, Nanded.

Abstract

Improving the academic performance of students is a key issue in the present times. Approximately seventy percent engineering pass out students are found to be unemployable in many studies. Ancient eastern traditions of Yoga and Meditation can be used to improve learnability of students.

The concept of neuroplasticity is accepted fact today. The brain is highly malleable and is subject to continual change as a result of experience. New connections between neurons may be formed or new neurons generated helping to learn from the present experiences. The wiring in our brain is neither static nor fixed. Our brains are adaptable.

Spirituality and science are different but complimentary investigative approaches of seeking the truth. Eastern contemplative practices and western science arose for different reasons with different goals, though they share the overriding purpose: well-being of human beings. Earlier studies have shown that a brain afflicted with dyslexia can change into one that reads fluently merely by repeatedly changing the sensory input it receives.

The movement map of the motor cortex is essentially a drawing of the motor cortex, which runs in a strip roughly ear to ear across the top of the brain, in which each point is labeled with the part of the body it controls and may get reflected on the EEG electrodes on the motor cortex. Rather than receive signals that the big toe has been touched, as the somatosensory cortex does, the motor cortex transmits signals telling it to move. It is found in the studies of affective neuroscience that there is not a common movement map for monkeys. Each monkey's map was pretty unique. The learning style of each student is unique. By developing effective Yoga and meditation protocols we can help the student to optimize his/her own learning style for a good future.

Invited Talk-III

Short Run Economic Impact of Disruptive Technologies in Emerging Economies

Mr. SachinSadare

Founder, IndiaNutz, India

Abstract

The wave of digital technologies is spreading in emerging economies like India. Concepts like Smart Cities and Digital India are becoming popular buzzwords across the population. Through this euphoria of a new digital future, it is now recognized that such a change will be enabled by adopting the new digital technologies like Mobility, Cloud, Big Data, Analytics, Robotics and Internet of things, among others. Whenever new technological advances are adopted, the future after a couple of decades looks well settled but there is always short run economic fallout (impact) of such technology disruptions.

The key is to recognize the short run economics and be prepared with the right tools to tackle it. It is even more important for emerging economies to understand the short run economic fallouts as the consequences can otherwise be catastrophic. This paper highlights some of the short run economic fallouts due to digital technology disruption especially in emerging economies, using India as an example to substantiate the points expressed. It also suggests economic policies that can help tide the short run fallouts of such technology disruptions.

Invited Talk-IV

Applications of Partially Reflective Surfaces in Antenna Design

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Abstract

Ultra-wideband (UWB) antennas are gaining prominence and becoming very attractive in modern and future wireless communication systems, mainly due to high demand for the wireless transmission rate and UWB properties such as high data rate, low power consumption and low cost. One UWB antenna can be used to replace multi narrow-band antennas, which may effectively reduce the antenna number, but planar UWB antennas suffer from the poor gain. Enhancement of the gain of the planar antennas using Artificial Magnetic Conductors (AMC) based on fabryperot cavity (FPC) model, Frequency Selective Surface (FSS), Electromagnetic Band Gap (EBG) resonator have been reported. The above reported methods have limited frequency band. In this Project we have proposed technique of integration of Partially Reflecting Surface (PRS), which overcomes drawback of the above reported techniques.

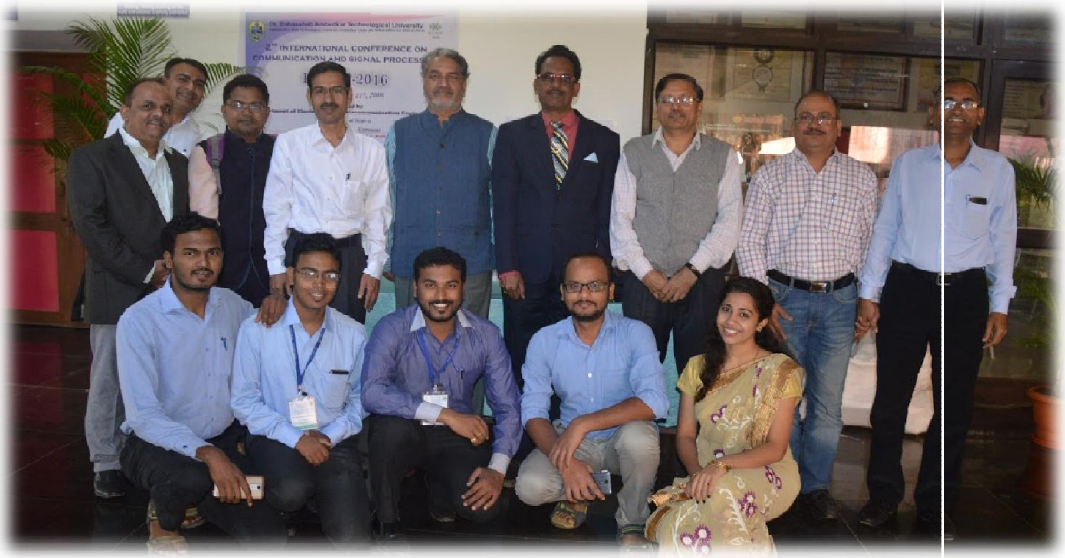
The dielectric layer is placed at approximately 0.5λabove a ground plane, which acts as a PRS. The gain of such an antenna depends on the reflection coefficient of PRS and radiation characteristics of feed element.PRS is placed above the feed patch, and the antenna structures are analyzed as an FPC consisting of a ground plane and PRS. Broadside directive radiation pattern is achieved when the distance between the ground plane and PRS is 0.5λ, which causes waves emanating from the PRS to be in phase in normal direction. The gain of the antenna depends on the number of square patches (SPs) and the spacing between SPs, and their dimensions as waves emanating from the PRS must be co-phasal.

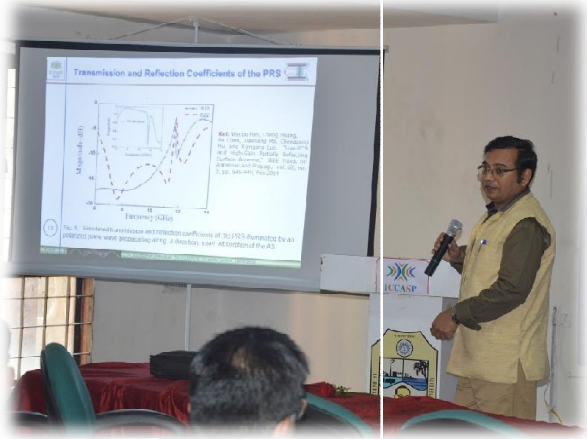
On 27th December 2016, which was the last day of conference, Dr. R. K. Shevgaonkar gave talk on "Photonic Crystals: Artificial Materials to Control Light".Dr. B. R. Iyer delivered his vote of thanks to all the dignitaries, organizers, sponsors, committee members and participants of the Conference. After that the conference was ended with National Anthem.

Felicitation..

INAUGURALSPEECHES…

TREE PLANTATION….





PRESENTATIONS…