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Contents

"The most serious mistakes are not being made as a result of wrong answers. The true dangerous thing is asking the wrong questions."

-Peter Drucker

Papers Published

***Jasola, S* and Sharma, R C (2009)**: "Satellite Based Distance Education in India", Online Journal of Space Communication, Issue 12.

(Dr. Sanjay Jasola is Professor and Dean at School of Information & Communication Technology. E-mail:sjasola@gbu.ac.in)

With the advent of Internet Protocol (IP) technology and the tremendous growth in data traffic, satellite communication has adapted to and embraced IP technologies. The advances in information and communication technology provide great opportunities for enhancing teaching and learning both on-campus and via distance education. However, EduSat can now be benefited by the modern facilities of communication. Advanced satellite technologies now can provide increased access to information sources and facilitate communication among researchers and teachers and assist in the building of networks of institutions and scholars. The paper represents a technical view on Indian educational satellite system that provides various sharing resources over internet.

Nirjar, A and *Kumar, Raj* (2009): "Affirmative Actions by Corporate Sector", *Effective Executive*, Vol. XII No. 12. pp. 56-59.

(Dr. Raj Kumar is an Assistant Professor at School of Management. E-mail: raj@gbu.ac.in)

A dialogue is on to consider whether the reservation for jobs in the private sector be introduced for the disadvantaged sections of the society. The government desires to come up with legislation to this effect. This article provides a way out of this situation for the companies by urging them to engage in affirmative action as a component of being socially responsible

Kumar, Ela (2009): "Development of Expert System Shell for Insurance Sector", Insurance Chronicle Magazine, Nov Issue, pp 48-53.

(Dr. Ela Kumar is an Associate Professor at School of Information & Communication Technology. E-mail: ela_kumar@gbu.ac.in)

This paper develops an expert system shell for insurance sector. It applies a knowledge engineering based techniques for the development of this expert system. To understand the basic functioning of insurance process in Insurance Industry, we have consulted the LIC authorities. Our work develops Intelligent Agent and Interaction Agent based knowledge base of Insurance Industry. This knowledge based insurance industry model thus developed will be useful in knowledge management and knowledge reuse. At user level it can be used for suggesting best policy to the user and at organizational level it can be used for drawing various conclusions for policy framing.

Kumar, Ela (2009): "Certainty Factor Based Analysis for Measuring Users Satisfaction With Search Engine", International Journal of Information Processing, Vol. 3, Issue 3, pp 39-44, Nov.

Measuring User Satisfaction had always been an area of research for most of the Search Engine developers. In this paper a heuristics based evaluation of user satisfaction with a search session has been done. It presents a certainty factor based analysis for measuring user faith in Search Engine. This work is based on the Interdependency model developed during previous study which highlights dependency between Search Engine, its Users and Online Advertiser /web publisher. Important factors impacting user faith in Search Engine

were also determined during the study. This paper reports the certainty factor values for various user satisfaction factors which can be used to determine user's satisfaction with Search Engine and can be applied for building interactive Search Engines. This work is the part of research being done to develop a model for evaluating user faith on Search Engine.

Kumar, Ela (2009): "Spam and Anti-Spam Measures: A Look at Impacts", International Journal of Computer Engineering and Information Technology, Vol. 3, pp 23-29, Dec.

In this paper we focus on impacts of spamming on business communication. This does not mean that spamming does not impact other areas. There are findings suggesting that impacts on consumer communication may be even stronger as consumers may prefer services free of charge over services they have to pay for. Due to their specific business models "free" services may tend to pay less attention to ensuring reliable mail delivery than services targeting business customers. From a business perspective spam sent to employees was regarded as something annoying but spam was rarely considered a serious problem that businesses need to address in a systematic way. A lack of investigations of the economical impacts of spam might have contributed to the underestimation of the looming spam problem.

Papers Presented in Conferences

***Garg, Gunjan* and Kataria, S K (2009):** "Phytoremediation Potential of Raphanus Sativus L., Brassica juncea L. and Triticum aestivum L. for copper contaminated soil", a paper presented at 53rd Annual Conference of International Society of System Sciences, University of Queensland, Brisbane, Australia, July 12-17.
(Dr. Gunjan Garg is an Asst. Professor at School of Biotechnology. E-mail: gunjan@gbu.ac.in)

The current remediation technique of heavy metal from contaminated soil-water are expensive, time consuming and environmentally destructive. Unlike organic compounds, metals cannot degrade, and therefore effective cleanup requires their immobilization to reduce or remove toxicity. Phytoremediation is an emerging technology for cleaning up contaminated sites, which is cost effective, and has aesthetic advantages and long term applicability. The present study aimed to screen and evaluates the effect of different concentrations of copper (25µM-100µM) on two varieties of wheat (T. aestivum L., var. UP 2338 and var. PBW 373), mustard (Brassica juncea L.) and radish (Raphanus sativus L.) plants. The study included an assessment of heavy metal accumulation in plant parts on growth parameters, photosynthetic pigments, bioaccumulation coefficient (BAC) and activity of catalase (CAT) and peroxidase (POD) antioxidative enzymes. Study demonstrated that plants extract metals from the soil up to some degree, beyond that when the concentration of metals increase, bioaccumulation coefficient (BAC) of plant was decreased. The results of this study suggest that radish and mustard plants of brassicaceae family may be considered as hyper accumulator plants and can be used to remove the copper from the polluted soil.

***Anand, Shweta* (2009)**: "Emerging Challenges for Indian Banking Industry in the Backdrop of Global Financial Crisis", a paper presented at 9th International Conference on Business and Economics held in Cambridge University, Cambridge, U K, October 16-17.

(Dr. Shweta Anand is an Associate Professor at School of Management. E-mail: shweta.anand@gbu.ac.in)

A spell of severe credit crunch, salary cuts, rehiring and a lot of news on loans going bad lead this paper to test the hypothesis that the Indian Banking Industry has been performing badly in contemporary times and was adversely impacted due to the continuing Global Financial Crisis. The methodology adopted to analyze the performance of all the Scheduled Commercial Banks of the Indian Banking Industry was to study the trend of the three most significant parameters/ratios applicable for Banking Industry. Among the parameters of performance, the most significant ones comprise Net Non Performing Assets as a percentage of Net Advances, Capital Adequacy Ratio and Return on Assets. A single composite weighted average of all Nationalized banks, Private sector banks and foreign banks in India has been considered to view the trend in the period 2005-06 to 2007-08. The analysis shows that the Indian Banking Industry is stable and still growing albeit at a slow pace. The conclusion has certain learnings for the US Banking Industry.

Jain, Madhu; *Sharma, Vidushi* and Priya Kirti (2009): "Optimal Channel Allocation in a Cellular Network with Directed Retry Scheme for Voice Calls", a paper presented at an International conference in Jaipur organized by Asia-Pacific Operations Research Society (APORS), during Dec 6-9.

(Dr. Vidushi Sharma is an Asst. Professor at School of Information & Communication Technology. E-mail: vidushi@gbu.ac.in)

The paper presents two optimal channel allocation algorithms by considering an assignment scheme where priority is given to handoff calls in an integrated traffic condition to maintain grade of service (GoS). The scheme developed introduces directed retry whereby subscriber can capitalize on the available frequency channels in the neighboring cells instead of getting the ongoing calls blocked so as to reduce the blocking probability of handoff calls. The scheme also uses the provisions of guard (reserved) channels, buffer and subrating to further reduce the blocking probability of handoff calls. Optimal channel allocation is determined by minimizing the reduced blocking probability due to directed retry in scheme 1. Scheme 2 facilitates the optimal number of channels by minimizing the total number of channels. The analytical results obtained are verified by numerical illustrations.

***Chaudhary, Bhupendra*; Lex Flagel, Joshua Udall and Jonathan F. Wendel (2009):** "Expression Evolution of Genes Duplicated by Polyploidy in Cotton (*Gossypium*)", a paper presented at an International Conference 'Genetics 2009' organized by German Genetics Society at University of Cologne, Cologne, Germany during September 16-17.

(Dr. Bhupendra Chaudhary is an Assistant Professor at School of Biotechnology. E-mail: bhupendra@gbu.ac.in)

Most eukaryotes have genomes that exhibit high levels of genetic redundancy, much of which seems to have arisen from one or more cycles of genome duplication. Polyploidy is an important force in the evolution and species diversification of flowering plants. It provides raw material for the evolution of novelty by relaxing purifying selection on duplicated genes and induce an extensive array of evolutionary responses. To scrutinize this assumption as in relevance to gene expression, a novel high-resolution, genome-specific, mass-spectrometry

technology was employed to measure relative transcription of 'homoeologs' (pairs of genes duplicated by polyploidy) in *Gossypium.* The genus *Gossypium* includes classic allopolyploids arising from a biological reunion of divergent diploids from different continents 1-2 MYA. Using a well-established phylogenetic framework, we measured the homoeolog-specific contribution to the transcriptome and observed that none of the two genomes was globally dominant including synthetic and natural *Gossypium* allopolyploids and reconstructed F1 hybrid. Furthermore, we have demonstrated that allopolyploidization entails significant homoeolog expression modulation that is temporally partitioned into alterations arising immediately as a consequence of first genomic merger (diploid hybridization) and secondly as a result of long-term (1-2 MY) co-evolution among retained duplicates (natural allopolyploid). Expression in some tissues shows transcriptional biases such that there is an overall unequal contribution of two genomes to the transcriptome. These results provide a novel temporal perspective on expression evolution of duplicate genomes and add to our understanding of the importance of polyploidy in plants.

***Shanwal, Vinod K*; Ghosh, S.K. and Mathur, S (2009): "**Does Culture Influence Emotional Intelligence?", a paper presented at 8th Biennial Conference of Asian Association of Social Psychology held in New Delhi during Dec 11-14.

(Dr. Vinod Shanwal is an Assistant Professor at School of Humanities and social sciences. E-mail: vk.shanwal@gbu.ac.in)

The emotional intelligence accounts for how people's emotions vary in their accuracy and how the mere understanding of emotions leads to better problem solving in their life. Culture is an integral part of human behavior and as such, people's emotions are shaped differently across cultures, sub-cultures, within societies or families. Most people adopt the traditions, rules, manners, and biases of their culture through enculturation. Studies have ascertained that these factors come from heredity and social environment. It is usual that an individual's personality is influenced by one's own culture. Thus, we may say that culture and emotional intelligence both play a crucial role in shaping personality of an individual. In other words, emotional intelligence is a learned ability that can be nurtured through enculturation. The more an individual learns from ones own experiences of life and the culture of one's community the more the person will be emotional intelligent and successful in life. The present paper is an attempt to explore how different cultures affect emotional intelligence differently.

***Agarwal, Vaishali* (2009)**: "Marketing Strategies during Recession", a paper presented (in absentia) at an International Seventh AIMS International Conference on Management at IIM Bangalore, December 20-23.

(Dr. Vaishali Agarwal is Faculty Associate at School of Management. E-mail: vaishali@gbu.ac.in)

The global economy has undergone the same tough times as witnessed during the recession of the 1930s. Today marketers are fighting for the share of customers' wallet. Past has observed the success stories of brands like 'Wal-Mart' emerging during the gloomy era. The onus of successful marketing here lies in reaching your customer, nurturing and retaining loyalty during recession/slowdown. This paper attempts to explore different strategies which marketers should adopt and conceptualizes a strategic framework to answer 'What a smart marketer should do in bad times?'

Research Grant

Department of Science and Technology, Government of India has sanctioned a research grant to Dr. Bhupendra Chaudhary, School of Biotechnology for a research project on **"Genetics of *In vitro* regeneration through somatic embryogenesis in cotton (*Gossypium hirsutum* L. cv. Coker 310)"** under Fast Track Scheme for Young Scientists. The amount sanctioned for the research project is Rs. 20.4 lacs.

Faculty Seminars

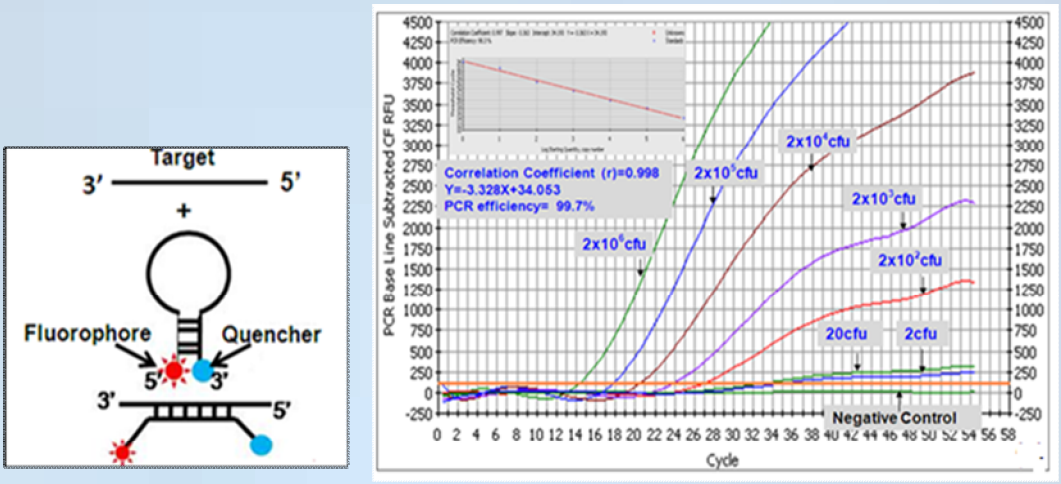
Date	Presenter	Remarks
11 Aug 2009	Dr. Sushil Kumar	Shared his academic and general experience of Europe Visit during Jul 27- Aug 6 2009
11 Aug 2009	Dr. Shweta Anand	Presentation on "Emerging Challenges for Indian Banking Industry in the Backdrop of Global Financial Crisis", before going for a paper presentation in the Global Conference organized by Cambridge University, Cambridge, U K. October 16-17, 2009.
11 Aug 2009	Dr. Gunjan Garg	Shared her academic and general experience of participation in the Global Conference held at University of Queensland, Brisbane, Australia.
11 Aug 2009	Dr. Dinesh Sharma	Presented his learning and experience of a Faculty Development Programme on 'Financial Markets' attended at Indian Institute of Technology Kharagpur in July 2009
31 Aug 2009	Dr. Bhupendra Chaudhary	Presentation on 'Expression Evolution of Genes Duplicated by Polyploidy in Cotton (*Gossypium*)' before going for a paper presentation in an International Conference 'Genetics 2009' organized by German Genetics Society at University of Cologne, Cologne, Germany, September 16-19th 2009.
15 Dec 2009	Dr. Vidhushi Sharma	Shared her academic and general experience of participation in an international conference held at Jaipuria Institute of Management, Jaipur December 6-9th 2009.
15 Dec 2009	Dr. Vaishali Aggrawal	Presentation on 'Marketing Strategies during Recession', before going for a paper presentation at an International Seventh AIMS International Conference on Management at IIM Bangalore, December 20-23th, 2009
15 Dec 2009	Dr. Shweta Anand	Shared her academic and general experience of participation in the Global Conference held at Cambridge University, Cambridge, U.K.

Real-Time qPCR: A Potential Tool for Nucleic Acid Quantitation

- Dr. Siya Ram, School of Biotechnology

Real-Time quantitative Polymerase Chain Reaction (RT-qPCR) is a powerful advancement of the basic Polymerase Chain Reaction (PCR) as it involves the use of fluorescent detection strategies for quantification of nucleic acid. Use of fluorescent detection strategies makes RT-qPCR more sensitive, specific and reproducible. The strategies do not require post-PCR analysis and minimizes the possibility of cross-contamination, while providing rapid, continuous data collection and decreased time requirements for results. The various RT-qPCR chemistries are widely used for monitoring of gene expression changes as a result of physiological and pathophysiological mechanisms. The power of RT-qPCR has been expanded into applications such as monitoring the efficacy of drug therapy, single-nucleotide polymorphism and genetically modified organisms. Additionally in clinical diagnostics, this method is used to measure viral or bacterial load or to assess cancer status.

In RT-qPCR, fluorescent reporter is used to monitor PCR reaction as it occurs. During the exponential phase in RT-qPCR experiments a fluorescence signal threshold is determined at which point all samples can be compared. This threshold is calculated as a function of the amount of background fluorescence and is plotted at a point in which the signal generated from a sample is significantly greater than background fluorescence. The fluorescent reporter used in RT-qPCR can be intercalating dyes such SYBR Green, Taqman Probe and Molecular Beacon. Among these Molecular beacon probe have an advantage over other conventional nucleic acid probes because they have a higher degree of specificity with better signal-to-noise ratios. Another advantage of Molecular beacon is better quantification, less dependence on optical geometry and less interference due to photo bleaching that could affect optical measurements. Molecular beacon is a short oligonucleotide (25 - 40 nucleotides) that forms a hairpin structure with a loop and stem. The loop is designed to hybridize specifically to a 15 - 25 nucleotide portion of the target DNA sequence, while 5 - 6 nucleotide long stem sequence are complementary to each other. A fluorescent reporter molecule is attached at the 5'- end of the Molecular beacon while a non-fluorescent quencher is attached at 3'- end. In RT-qPCR during annealing, binding of Molecular beacon to its target leads to increased fluorescence signal, due to separation of reporter and quencher. This fluorescence signal directly corresponds to accumulation of PCR product (Figure 1a and 1b). Hence, this methodology offers accurate and sensitive detection and quantitation of microbial pathogen in environmental samples.



*** cfu: colony-forming unit**

Figure 1
Schematic representation of a real-time PCR assay using Molecular beacon approach (a) Molecular beacon. (b) Sensitivity of Molecular beacon based real time PCR assay.

(**Source:** *Ram, S.;* Vajpayee, P.; Shanker, R. Rapid culture independent quantitative detection of enterotoxigenic *Escherichia coli* in surface waters by real - time PCR with Molecular beacon. *Environ. Sci. Technol.* 2008, *42,* 4577- 4582. PMID: 18605589**)**.

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