

December 2005, HCC Management Workshops Update

Wednesday, December 7, 2005	
First Day	
Time	Abstracts
11:30	<p>12:00 Salah Zugail Assistant Dean for Administrative Affairs</p> <hr/>
12:35	<p>13:05 Sam Al-Shazly Assistant Dean for Strategic Planning and Development AMIS faculty member</p> <hr/> <p>Knowledge Organizations in the 21st Century: The Gate to the Future!</p> <p>The term "Knowledge Organization" is not chosen lightly- it is clear that knowledge transfer in educational institutions is in a period of substantial change. This Change is driven by many factors, not at least of which are research, technology, and human capital. Knowledge Management in its inherited form is known from longtime, for hundred of years business owners have passed their commercial wisdom on to their children and Master of Arts have taught their secrets to their followers. Knowledge Organization of the 21st century has taken a new form, in this new age of change where innovation is the only pass for sustainable development, knowledge management has emerged as the new gate for the future of innovation and creativity, where opportunities are unlimited and where human capital is the main element in the competition formula. In this paper we are offering a new model for knowledge organization in the 21st century, through exploring of different work and research in the area of knowledge management, and by linking knowledge management to the factors influence the change process within organization, we have been able to develop a new and unique model for knowledge organization in this century, where intangible assets and interdisciplinary approach are two main components of the new model. We have also linked the new model of knowledge organizations to our continuous work on developing the only innovation system of this new age.</p>
114:05	<p>14:35 Faycal Ben Ada Math/Sciences Chairman</p> <hr/> <p>Quantum Measurement Theory Toward a Realistic Description of Space-Time In Quantum Mechanics</p> <p>We have built a new kind of manifolds which lead to an alternative new Space-Time compatible for elementary particles. A new theory has then risen up and seems to be a natural candidate for the unification of general relativity and</p>

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		<p>quantum field theories. For this, we study the nowhere differentiable functions via a family of mean functions and we found out a new characterization of this category of functions. We have built a fluctuant manifold with an appearance of a new structure on it at every scale, and we have imbedded into it an internal structure to transform its fluctuant geometry to a new fixed geometry. This approach leads us to what we call a scale manifold. The elements of this kind of manifold appear locally as tiny double strings, with an appearance of a new structure at every scale. We have obtained a double five dimensional space which is neither a continuum nor a discrete but a mixture of both. Space time acquires a variable geometry, it becomes explicitly dependent on the resolution, and the geometry on it assumed to be characterized not only by curvature, but also by the appearance of new structure at each resolution. A new geometry appears promising towards our perception of the geometrical description of the universe.</p>
<p>14:40</p>	<p>15:10</p>	<p>Zayed Huneitti AEE Chairman</p> <hr/> <p>3G Mobile Health System</p> <p>Telehealth, or telemedicine, is a medical field which provides healthcare and other medical services remotely via modern communications networks. Telehealth permits both medical personnel and patients to access vital medical information while roaming freely. Some of the advantages of using telehealth services are saving lives, reducing treatment costs, providing individuals with equal access to health-related information and expert medical advice, and saving the time of both doctors and patients by eliminating travelling. Telehealth is already being employed to transmit patients' medical records among healthcare professionals via telecommunications or internet. In recent years, there have been several attempts to implement telehealth services using mobile networks. That is because of the capability of the mobile telemedicine to provide an access to medical facilities and experts when and where needed and its prospective impact on the healthcare service and its delivery systems. The bandwidth limitation of the conventional GSM (Global System for Mobile communications) in term of bit rates (10kbps which is insufficient for handling and transmitting heavy medical data) has delayed the development and restricted the implementation of the telemedicine services. With the recent deployment of the UMTS (Universal Mobile Telecommunications System) in many countries, there are greater opportunities for mobile telehealth to become a reality. The system (UMTS) supports a wireless broadband of bandwidth up to 384kbps at pedestrians' speed. This could provide the required bandwidth to transmit heavy medical data at a faster rate without degrading quality. This paper presents an outline of a communication system that can be used to transmit medical data between medical centres and consultants at a distant location. The system used high speed Internet connection over the UMTS mobile network to send medical data back and forth between health centres or healthcare personnel. The patient's medical record is uploaded to the medical centre's server from which doctors and/or medical staff, with a mobile unit - PDA or laptop, can access the information remotely via the UMTS system. Doctors can then reply through the same system with the appropriate course of action or clinical decision.</p>

<p>15:45</p>	<p>16:15</p>	<p>Winston Morison ELC Director</p> <hr/> <p>An Overview of Second Language Teaching Methodologies</p> <p>This presentation examines some of the most important methodologies which have been utilized in second language teaching, assess their validity and indicate which changes in current ESL/EFL pedagogy might best benefit students of English in the Hail region.</p> <p>The teaching of a second language, like most academic endeavors, has a set of underlying principles on which it is based. However, since these are not rigidly quantifiable as in the natural sciences, we are often obliged, as in some areas of the social sciences, to rely on subjectivity in order to accurately formulate their principles.</p> <p>Some of the most well known methodologies include The Grammar Translation Method, The Cognitive Approach, The Audio Lingual Method, The Direct Method, The Natural/Communicative Approach, The Total Physical Response, The Silent Way, Suggestopedia, Community Language Learning, and The Total Immersion Technique.</p> <p>All techniques in second language teaching have their strengths and weaknesses. Rigid adherence to one type to the exclusion of all others sometimes has more to do with ideology than pedagogy.</p> <p>English language teaching at the Elementary level in the Hail region reflects patterns which are to be found in many parts of Saudi Arabia. Too often what is emphasized is a rote learning approach without much emphasis on the oral dimensions of the language. This practice is often maintained in the High School system. When students like these come to an institution like Hail Community College, there is an immediate clash between the requirements of teachers and the expectations of students. It seems that further revision of the programs used to teach English in the public school system in KSA is required.</p> <p>Of course, it is a truism to state that the motivation of students and the quality of the teachers themselves are important variables in any assessment of the students' levels of language acquisition.</p>
<p>16:20</p>	<p>16:50</p>	<p>Abdel Karim Amer AMIS Chairman</p> <hr/> <p>World Trade Organization: Opportunities and Challenges</p> <p>The World Trade Organization (WTO) was established in 1995 by the Uruguay Round negotiations as a successor of the General Agreement on Tariffs and Trade (GATT) that was initially created after the Second World War. The main goal of the WTO is to promote the welfare of the peoples of the member countries through a multi lateral trading system that guarantees smooth, free, fair, and predictable trade flow. The functions of the WTO include administering trade agreements, acting as a forum for trade negotiations, settling trade disputes, reviewing national trade policies, providing technical assistance, and cooperating with other international organizations.</p> <p>The number of member countries in WTO has reached 149 as of the end of 2005 accounting for over 97% of world trade, with other 30 countries are negotiating membership. The decision making in all trade</p>

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		<p>agreements is based on consensus of all members ratified by their parliaments. The top level decision making in WTO is the Ministerial Conference, then the General Council, then the Goods Council, Services Council, and Intellectual Property Council.</p> <p>The opportunities open to member countries can be summarized as follows:</p> <ul style="list-style-type: none"> · promoting free trade and reducing cost of living · stimulating trade oriented economic growth · increasing employment and incomes · enhancing efficiency, transparency, and good governance · handling trade disputes constructively, effectively, and peacefully · providing peoples with more choices of products and qualities <p>The challenges facing member countries could be formulated as follows :</p> <ul style="list-style-type: none"> · maximizing benefits and minimizing costs · effective negotiations and successful lobbying for country's interests · observing domestic social, economic, and political balances · maintaining state sovereignty with global integration · preserving environment · preserving identity, culture, and traditions <p>The success of any WTO member country centers in benefiting most from the opportunities open to it and bringing negative consequences into a minimal.</p>
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<p>Thursday, December 8, 2005 Second day</p>		
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<p>10:00</p>	<p>10:30</p>	<p>Abdel Fattah Sharkawi CSSE Chairman</p> <hr/> <p>Applications of Soft Computing</p> <p>Soft computing (SC) introduced by Lotfi Zadeh [5] is an innovative approach to introduce an integration between different adaptive intelligent constructs consisting of artificial Neural Networks (NN), Fuzzy Logic (FL), Simulated Annealing (SA), and Genetic Algorithms (GA). Since the stand-alone architectures of the named techniques suffer from different drawback, hybrids of such system arose to the scene. Considering modern trends in the area, this paper gives a presentation for three topics. First it introduces taxonomy of the hybridization introduced to overcome the lacks of stand alone models. And finally it presents real applications in differently fields that formally the soft computing approach as a framework.</p>
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10:35	11:05	<p>Habib Kaddour Djebbar AEE faculty member</p> <hr/> <p style="text-align: center;">Transfer of Nuclear Technology</p> <p>Knowledge and technology transfer in the 21st Century poses a formidable challenge to institutions of higher education. Due to the incessant advances in technology and the increasing demands for specialized training skills, institutions of higher education can no longer continue to use conventional methods to meet these stringent needs of the industry. Efficient, cost effective, competitive, state-of-the-art and up-to-date techniques must be developed and implemented to meet these technology transfer challenges. Three essential conditions must be met for a successful transfer of knowledge/technology:</p> <ul style="list-style-type: none"> (i) Unrestricted access to the sources of information and technology. (ii) Availability of the appropriate logistical means and expertise to use them. (iii) Proficient teaching and training skills and pedagogical talents. <p>The first hurdle is the most difficult to overcome as countries and/or companies would jealously protect their technologies and technical know-how to preserve their competitive edge (e.g. military supremacy, economic dominance, market advantage, etc).</p> <p>The logistical means used to convey knowledge have gradually evolved throughout history starting from primitive tools such as parchment to modern electronic and audio-visual, equipment and sophisticated simulation labs.</p> <p>Research in pedagogy has improved teaching and training methods by introducing more efficient delivery techniques. In this presentation, I will illustrate the interactive approach, which is based on an active participation from the students.</p> <p>Perhaps some day, not far distant in the future, knowledge may be processed in the form of brain waves by some generator and directly inculcated into the human brain. Until that day we will have to rely on conventional methods and continue to use our natural receptors: eye, ear, touch, smell, feel etc.</p> <p>Nuclear Technology will be used in this presentation as an example to illustrate the above-mentioned issues in the transfer of technology. After introducing its fundamental concepts and most important applications, I will demonstrate the needs and legitimate rights of every country to pursue peaceful uses of this technology. This presentation is not a research paper requiring prior nuclear background but is intended for general audiences with minimal science background.</p>

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11:25	11:55	<p>Emmanuel Chikoto Director of Coop, ELC faculty member</p> <hr/> <p>Using Internships to Internationalize Our Campus</p> <p>The purpose of this presentation is to depict how internships in countries outside Saudi Arabia can allow HCC students, in a variety of majors, to garner the type of knowledge and experience needed, not only to give them a competitive advantage in their future job search, but also to enable them to take leading roles in the development of this region and the country as a whole as it braces itself for tough competition on the world arena, especially now that Saudi Arabia has gained accession into the World Trade Organization (WTO).</p> <p>The presentation starts by exploring the humble beginnings of the program, its progress over the years, problems encountered, their causes and solution avenues. It continues by discussing current practices, comparing them to the best at international level in terms of peculiarities and similarities as well as originality. It then concludes by exploring the Coop Departments vision for the future.</p>
12:00	12:30	<p>Ahmed Maatallah Director of Students Affairs, MIS faculty member</p> <hr/> <p>The student affairs at HCC, hopes and challenges</p> <p>As HCC has gone through an important change process, we as student affairs body want to be at the heart of the action, not just part of it. Any change process in any educational organization cannot have the desired success without student's active involvement. Up to now student affairs department has accomplished a great job, it still faces many other challenges and has many more avenues to explore.</p> <p>As a director of student affairs, I am aware of the difficulties and challenges we face in the accomplishment of our task. Therefore, my presentation will address these many important issues. I will outline our vision, our mission, our objectives, the values and the student affairs organization.</p> <p>We realize the hopes and aspirations of our students, faculty and community; with the resources available and the support of HCC administration, we will do our best to fulfill our mission and to respond to your expectations.</p>
13.15	13.45	<p>Saifut Tarek Khan CSSE faculty member</p> <hr/> <p>Performance characteristics of parallel implementation of SOM on an HPCC</p> <p>This paper discusses a parallel implementation of the SOM or Self Organizing Feature Map on a High Performance Computing Cluster. SOM is a type of Neural Network Model developed by Kohonen; it is a</p>

		<p>type of classifier that is typically used in unsupervised classification or Cluster formation of input. The input is usually expressed as an n-Dimensional input vector, \mathbf{X}_i, $i=1,2,3..k$, \mathbf{X}_i (s) are the number of input vectors each of dimension n. The SOM is modeled as a 2D plane with MxN neurons, each neuron has a weight vector, \mathbf{W}, with same number of dimensions as the input vector, in this sense, SOM produces a mapping from $\mathbf{R}^n \rightarrow \mathbf{R}^d$. The SOM algorithm associates each input with a set of neuron(s), which can be viewed as a cluster representing similar inputs.</p> <p>The process of cluster formation is a highly iterative process that lends itself to parallel computations. Large number of dimensions, size of the MxN neuron grid and number of input vectors, have a great impact on a sequential implementation. Time complexity of a sequential implementation is: $\Theta(N^4)$ or more precisely $\Theta(MNKD)$, where M and N are as described above, K is the number of input vectors and D are the number of dimensions. The paper discusses various ways of achieving parallelism by reducing or eliminating one or some combinations of the parameters in $\Theta(MNKD)$.</p> <p>Most parallel implementations tend to measure only speed-up. This paper implements a parallel version of SOM and measures various performance characteristics of the algorithm, such as, speed-up, Memory and Cache performance, Network performance to indicate areas of benefit from the parallelism introduced. Furthermore, the performance characterization is done on three different configurations: High Performance Cluster, Cluster of Workstations and Desktops1</p>
<p>13.50</p>	<p>14.20</p>	<p>Syed Misbahuddin, CSSE faculty member</p> <hr/> <p style="text-align: center;">ASIC Design of Maximum Likelihood Decoder for Variable Length Coding</p> <p>Variable length codes such as Huffman codes have minimum average length per source symbol for a given probability distribution. They are used to increase digital data transfer rates and for data compression. An inherent limitation associated with variable length coding is the loss of synchronization of decoding circuitry due to single or multiple bit inversions during the data transmission through a Binary Symmetric Channel (BSC). In this paper a synchronizing scheme has been presented to limit the error propagation to the bit inversion through BSC. This algorithm works on Maximum likelihood principles in a group of n variable length codes is inserted between two synchronizing signals to limit the error propagation. The Application Specific IC (ASIC) design is presented to implement the Maximum Likelihood Decoder using a hardware description language. The functional level simulation of the ASIC is discussed to test the proposed algorithm.</p>

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14.25	14.55	<p>Ahmed Abu Ouf AEE faculty member</p> <hr/> <p>Technology-Based Competition for Students and Graduates of HCC</p> <p>We propose to organize a competition for technology-based inventions by the students and graduates of HCC. There will be monetary prizes of the three winners of the competition. A special fund will be raised for this competition from the local and national companies who would gain from the media attention of such an event. This competition will encourage creativeness and academic excellence of the students of HCC. Students will be encouraged to use the labs and library as well seeking advice from the faculty of HCC.</p>