

## *Preface*

### *Application of ICT and Rural Communications*

In this third issue of the African Journal of Information and Communication Technology, steady progress has been made. The Issue offers technologies that have direct emphasis on rural communications (Li, Chan and Agbinya) and a study of ICT in Tanzania (Vesisenaho, Kemppainen, Islas, Tedre and Sutinen). The papers by Li et al propose network models for rural environments with specific applications drawn from South African Kwazulu Natal Province. The first paper provides software tools written in Scilab (Scilab is proprietary to INRIA and is available as freeware for research). The tools are available from the authors for further development and use. The paper examines the importance and the many benefits of rural area network development, which is possible both technologically and economically but has long been neglected. With numerous technological options, it suggests to first analyze the requirements as guidelines to the research and development efforts. The excellent paper by Vesisenaho et al is a model usage of ICT in the Tanzanian education system that is also applicable to other developing countries. It is indeed the very first paper in any of the Issues of the AJICT that has complete focus on an issue of pure African developmental interest.

The adaptive power and bit allocation algorithm proposed by Uthansakul et al in the third paper has short executive time. It has potential use in the design of multiple user multiple input multiple output (MIMO) systems using orthogonal frequency division multiplexing (OFDM) with space division multiple access (SDMA) and operating in a frequency selective fading channel.

Ljiljana Simic and Stevan Berber introduced a novel use of chaos-based multiuser detection technique and had received the best student's paper award in March at the 1st International Conference on Wireless Broadband and Ultra Wideband Communications held in Sydney (Australia). A prototype implementation of the technique is described in this paper.

Wang et al have applied ultra wideband methods for the detection of breast tumor. UWB provides very high resolution which makes detection of tumor in biological tissues highly probable and could form the basis for imaging of tumor in biological tissues. The performance of UWB networks and MANET can be significantly improved if optimal synchronisation techniques can be found. The paper by Rauschert et al is an attempt at this current area of interest in broadband and ultra wideband communications. These seven papers form the core of this Issue of the AJICT and have been made available through the untiring work of our international pool of peer reviewers which has fuelled the rapid growth of the AJICT.

The growth of the AJICT within the last nine months has been phenomenal. This is enhanced by the outstanding support it is receiving from international pool of reviewers who have stamped it with high quality reviews. Only a small percentage of all papers submitted to the AJICT get close to being published by the Journal. This small acceptance ratio is to be expected to ensure that only original research papers of high international quality find their way into the Journal. As a result recent comparison of the AJICT to more than 50 other Journals, places it as the highest ranked young Journal in the list. All of those ranking ahead of the AJICT have existed before it, some for many years. During this period, it has enjoyed the enviable position of being the most read and visited young Journal and 8<sup>th</sup> in the list of Open Source Journals surveyed by Deakin University (<http://lamp.infosys.deakin.edu.au/journals/index.php?page=popularity>). AJICT's online readership and reviewer pool has equally jumped to a very high level with a large pool of reviewers' database and qualified experts to review submissions. This pool of reviewers runs to several hundreds registered in our database. Similarly, the pool of online registered professional readers which stood at a few scores after the first issue was published in September 2005 now runs into hundreds and grows daily. This phenomenal growth means the AJICT can start to implement some of its ideas. Consequently, a Guest Editorship Issue is planned for early 2007 on a hot topic of interest to the international ICT community with interest in wireless Internet and next generation networks (NGN). We commend this Issue to you.

### **Editorial Team (Issue 3)**

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**Johnson I Agbinya** received his PhD in Electronic Engineering at La Trobe University in 1994 and subsequently joined Australia's premier research institute, Commonwealth Scientific and Industrial Research Organisation (CSIRO) as a Senior Research Scientist where he undertook research in biometrics, pattern recognition and signal processing. At CSIRO he developed patented speech recognition and face recognition systems. He joined Vodafone Australia in 2000 as a Principal Engineer responsible for its industrial research administration on mobile and wireless communication where he served as its sole representative in several international standard bodies and the Australian Telecommunication CRC Executive Committee. He also contributed to Vodafone Australia's preliminary design of 3G radio access network in the Emerging Technologies Group. He also represented Vodafone Australia in the Vodafone Research Group from where he was spotted and appointed as Adjunct Professor in 2002 at the Department of Computer Science, University of the Western Cape (UWC). He is a key member of the Telkom / Cisco Centre of Excellence in Internet Computing at UWC. Prof. Agbinya is currently a Faculty member in Information and Communication Group at the University of Technology, Sydney. His research interests are in wireless communications, sensor networks, digital identity management systems, networks on mobile platforms and in uncovered areas.

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**H Anthony Chan** received his PhD in physics at University of Maryland, College Park in 1982 and then continued post-doctoral research there in basic science. After joining the former AT&T Bell Labs in 1986, his work moved to industry-oriented research in areas of interconnection, electronic packaging, reliability, and assembly in manufacturing, and then moved again to network management, network architecture and standards for both wireless and wireline networks. He had designed the Wireless section of the year 2000 state-of-the-art Network Operation Center in AT&T. He was the AT&T delegate in several standards work groups under 3rd generation partnership program (3GPP). During 2001-2003, he was visiting Endowed Pinson Chair Professor in Networking at San Jose State University. In 2004, he joined University of Cape Town as professor in the Department of Electrical Engineering. Prof. Chan is Administrative Vice President of IEEE CPMT Society and had chaired or served numerous technical committees and conferences. He is distinguished speaker of IEEE CPMT Society and is in the speaker list of IEEE Reliability Society since 1997.

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