

Paradigm Shifts in Modern ICT Era and Future Trends

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Information and communication technologies (ICT) have become more mature after its development for more than half a century. We are in a new era in which ICT research has shifted its focus from technology development to novel applications. For example, digital technologies have been widely applied to speech, audio, video and graphics in various commercial applications today. Furthermore, the availability of the broadband wired/wireless Internet infrastructure and the cloud computing facilities has changed the way of web-based services. This lecture will address the following four major paradigm shifts in this modern IT era:

- From the analog implementation to the digital implementation
- From PC-centric to cloud/network-centric
- From one-way broadcasting to two-way interaction
- From HW/SW/infra-structure provision to contents and value-added services

Driven by the broadband network and cloud computing infrastructure, ICT-enabled web services have become a phenomenon. Examples of them include: YouTube, Google Map, Wikipedia, Facebook, etc. Several common features of the new web services will be discussed. These services provide a scalable platform that allows a large number of users to participate in content creation and interact with each other. Each site is essentially a large database as well as a community. The success of these services lies in a workable business model such as on-line advertisement. More and more advertisements from the traditional media such as newspaper and audio/video broadcast programs are moving to the web-based advertisement due to its efficiency. Finally, the lecture will provide an outlook to future business opportunities and R&D directions.