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Architectures of next generation wireless networks

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Emerging Internet Quality of Service (QoS) mechanisms are expected to enable wide spread use of real time services such as VoIP and videoconferencing. The best effort internet delivery cannot be used for the new multimedia applications. New technologies and new standards are necessary to offer Quality of Service (QoS) for these multimedia applications. Therefore, new communication architectures integrate mechanisms allowing guaranteed QoS services as well as high rate communications. The service level agreement with a mobile internet user is hard to satisfy, since there may not be enough resources available in some parts of the network the mobile user is moving into. The emerging internet QoS architectures, differentiated services and integrated services, do not consider user mobility. QoS mechanisms enforce a differentiated sharing of bandwidth among services and users. Thus, there must be mechanisms available to identify traffic flows with different QoS parameters, and to make it possible to charge the users based on requested quality. The integration of fixed and mobile wireless access into IP networks presents a cost effective and efficient way to provide seamless end-to-end connectivity and ubiquitous access in a market where the demand for mobile internet services has grown rapidly and predicted to generate billions of dollars in revenue. It covers to the issues of QoS provisioning in heterogeneous networks and internet access over future wireless networks. It discusses the characteristics of the internet, mobility and QoS provisioning in wireless and mobile IP networks. This tutorial also covers routing, security, baseline architecture of the inter-networking protocols and end to end traffic management issues.

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Computer vision applied to comic book image

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Heritage museums such as the Kyoto International Manga Museum, the International City of Comic books and Images in France (CIBDI) and The Digital Comic Museum (DCM) have already digitized several thousands of comic books that some are now in the public domain. Despite the growing market place of digital comics, few researches have been carried out to take advantage of the added value provided by these new media. Comic book image processing is at the intersection of several research fields within the computer vision domain (e.g. complex background, semi-structured and mixed document images) and combines their difficulties. We review, highlight and illustrate these challenges in order to give a good overview about the last research advances in this field and the current issues. In order to cover the widest possible scope of study, we propose different approaches for comic book image analysis. One aims at recognizing graphical and textual elements in an intuitive way, trying to imitate the human understanding system, from simple to complex visual elements. Simple elements such as panels, balloons and text are recognized first, followed by balloon tails and then the comic character positions. In another approach, we introduces a knowledge-driven system that combines low and high level processing to build a scalable system of automatic comics image understanding. We built an expert system composed by an inference engine and two models, one for comic's domain and another one for image processing domain, both stored in ontology. This expert system allows a higher level semantic description and consistency. We can then infer the reading order, the semantic of the speech balloons, the relations between speech balloons and speakers, interaction between comic characters etc.

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