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Multimedia Services and Applications

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Due to the latest developments in communication, computing, and storage technologies, multimedia services and applications are being deployed for various applications such as entertainment, health care, smart homes, security and surveillance, and intelligent environments. The special issue focuses on research challenges and issues related to multimedia applications.

Scheibe et al. in their paper titled "Pose Estimation of Rotating Sensors in the Context of Accurate 3D Scene Modeling" present the designed calibration and pose estimation techniques for panoramic sensor-line cameras and laser range-finders. The sensor-line cameras for used for panoramic imaging and laser range-finders can generate dense depth maps (of isolated surface points). The authors combined these techniques to reconstruct 3D environments such as large buildings.

In "A Service-Oriented Platform for Ubiquitous Personalized Multimedia Provisioning", Yu et al. propose a three-layer software platform, UPmP, to support efficient development and deployment of ubiquitous personalized multimedia services. The platform provides the core functionalities for ubiquitous personalized multimedia provisioning including service management, multimedia recommendation, adaptation, and delivery.

Sandnes et al. in their paper, "Near Eyes-Free Chauffeur Computer Interaction with Chording and Visual Text Mnemonics", investigate a user interface interaction style for in-car user interfaces. The users interact with the in-car computer using three chording keys, where chording pattern sequences are derived based on visual mnemonics. The illustrations include: an in-car multimedia system, a mobile phone, and a GPS-navigation system.

Chen et al., "Gabor Filter Aided 3D Ultra-sonography Diagnosis System with WLAN Transmission Consideration", investigate 3D inter-pixel correlations instead of 2D features. Gabor filters provide a multi-resolution representation of texture, which increases ultrasound technology capability in the differential diagnosis of solid breast tumors. The physicians can use the proposed diagnostic system using hand-held devices in the hospital. They also investigate the transmission control strategies that adapt to the time varying wireless network conditions.

In the paper, "Cross Layer Optimization for Data Gathering in Wireless Multimedia Sensor Networks within Expected Network Lifetime", Shu et al. investigate efficient gathering of multimedia data in WSNs within an expected lifetime. They propose an adaptive scheme to adjust the transmission radius and data generation rate by considering the interaction among physical, network and transport layers.

Azzedin in the paper titled "Classifying and Tracking Free Riders in Multimedia-Based Systems" addresses the problem of free riding in decentralized collaborative environments, by proposing a novel taxonomy of free riders in multimedia systems based on trustworthiness. Further, a new mechanism to filter out and isolate free riders is also proposed, simulated, and evaluated for multimedia systems.

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