

Event-based Audiovisual Frameworks for Multimedia Content Management

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Abstract

The amount of digital images and videos being created and shared through smart phones and social networks have increased dramatically in recent years. These personal contents tell stories, rekindle memory, and create profound connections among friends and family. However, the large collections or databases of personal and social media content make it increasingly difficult to retrieve specific images or videos from an event or to select specific scenes for creating a photobook or multimedia story for sharing. Current multimedia tools and services provide primitive capability based mainly on manual annotations, which are time consuming and severely limit the user experience and other advanced functionality. Hence, continual research is necessary to enable easy searching, browsing, sharing, disseminating, and repurposing of multimedia content. In this talk, I will highlight research activities on automated media organization using an event detection and classification framework that utilizes image and data analysis techniques, as well as contextual information. Automatic detection of significant events and temporal recurring events in large image collections will be described. I will also introduce some recent work on Audio-Visual Grouplet (AVG) for video concept detection. AVG is a novel representation and framework for studying the statistical temporal audio-visual interactions and correlations in unstructured videos. Performance evaluation of the various techniques will be discussed.

Brief Biography

Alexander C. Loui obtained his B.A.Sc. (Honors), M.A.Sc, and Ph.D. in Electrical and Computer Engineering from the University of Toronto, Canada. In 1990, he joined Bellcore (now Telcordia) as a Member of Technical Staff working on audiovisual compression and VOD technologies. He joined Kodak Research Labs in 1996. Since then he has led and contributed to pioneering research on digital content management, event detection and classification, video concept detection, auto-albuming, and content-based retrieval. He is currently a Senior Principal Scientist and Principal Investigator of a number of research initiatives. His research interests span the areas of multimedia analysis and management, semantic indexing and retrieval, image/video quality metrics, computer vision, and mobile computing. Dr. Loui has been an Adjunct Professor of the ECE Department, University of Toronto. He has been an associate editor of the IEEE Signal Processing Letters, IEEE Transactions on Multimedia, IEEE Transactions on Circuits and Systems, SPIE Journal of Electronic Imaging, and Advances in Multimedia. He is an elected member of a number of multimedia TC's within IEEE. He was Chair (2005) of the Rochester Chapter of IEEE Signal Processing Society. He has been the Chair (2010 – 11), Vice Chair (2009) and Treasurer (2007-08) of the IEEE Rochester Section. He has given many invited talks and served on numerous international conference and technical committees. He is a Kodak Distinguished Inventor (with over 65 granted and pending US patents) and a Fellow of IEEE.