CITY UNIVERSITY OF HONG KONG
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Chinese MPEG-21 Rights Expression Language: Enhancing Digital Rights Management Adoption to Digital Libraries in Hong Kong

中文化 MPEG-21 權限描述語言：加強數字權限保護在香港數字圖書館中的應用

Submitted to
Department of Manufacturing Engineering and Engineering Management
製造工程及工程管理學系
In Partial Fulfillment of the Requirements
for the Degree of Master of Philosophy
哲學碩士學位

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September 2009
二零零九年九月

Abstract

The World Wide Web has explosively expanded over the world during these ten years and we are now facing an exciting new era which is bringing tremendous change to Internet innovation. China has witnessed a dramatic shift of the demographics of Chinese Internet users. By the end of June 2008, the population of Chinese Internet users was 253 million, ranked first in the world, and Chinese is world's second largest language group.

Digital library is widely recognized as an important infrastructure for information and knowledge sharing, as well as an essential service to help users find and access information resources in the networked information society. While enjoying the benefits that digital revolution has brought to digital library development, people also have to face the problem of protecting the usage right in the digital content lifecycle. Rights Expression Language (REL), also called rights metadata in digital library scenario, is a key technology in Digital Rights Management (DRM) systems to specify usage rights by a machine readable license. However, the research on it has just started and is immature in China and Hong Kong, and mainly about function and benefits, and comparison and evaluation of current RELs. In addition, there is no Chinese REL standard in digital library context.

Motivated by the above observations, this research aims to discuss the issues of localizing MPEG-21 REL into Chinese language especially for the use in digital libraries. To achieve this aim, the current research situation of REL in digital library scenario is investigated. Then, the factors affecting localization process are identified, and an appropriate REL localization model in digital library scenario is established. Based on the model, core rights and multimedia extension rights in MPEG-21 REL are localized into Chinese language. Finally, a case example is presented to demonstrate the use of Chinese MPEG-21 REL. Results show that Chinese REL in

digital library context is a necessity in providing linguistically, culturally and contextually tailored rights metadata to protect the rights of each stakeholder. The work also builds a foundation for DRM development in digital libraries.

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List of Abbreviations

Abbreviation	Full Name
ANSI	American National Standards Institute
AVSREL	Audio and Video Coding Standard REL
CCCII	Chinese Character Code for Information Interchange
CDRMREL	China DRM REL
CELTS	China ELearning Technology Standardization Committee
CNKI	China National Knowledge Infrastructure
CNNIC	China Internet Network Information Center
CSBTS	China State Bureau of Quality of Technical Supervision
DC	Dublin Core
DCMES	Dublin Core Metadata Element Set
DDI	Data Documentation Initiative
DMCA	Digital Millennium Copyright Act
DPRL	Digital Property Rights Language
DRM	Digital Rights Management
DS/A	Draft Standard for Approval.
DS/C	Draft Standard for Comments
DS/E	Draft Standard for Examination
EACC	East Asian Character Code
EAD	Encoded Archival Description
EMMS	Electronic Media Management System
EQV	Equivalent
EUCD	European Union Copyrights Directive
FGDC	Federal Geographic Data Committee metadata
GB	GuoBiao
HKCAN	Hong Kong Chinese Authority
HKSCS	Hong Kong Supplementary Character Set
HKLA	Hong Kong Library Association
IDC	Internet Data Center
IDT	Identical
IDV	Individualism
IFPI	International Federation of the Phonographic Industry
IPMP	Intellectual Property Management and Protection
IPR	Intellectual Property Rights
KWIC	Key Word In Context
LISA	The Localization Industry Standards Association
LIVAC	Linguistic Variations in Chinese Speech Communities
LOREL	Learning Object REL
LTO	Long-Term Orientation
ISO	International Organization for Standardization
MARC	Machine Readable Catalogue

MAS	Masculinity
METS	Metadata Encoding & Transmission Standard
MOD	Modified
NEQ	Not Equivalent
NTC/SID	National technical Committee of Standardization for Information and Documentation
OAI	Open Archives Initiative Protocol for Metadata Harvesting
ODRL	Open Digital Rights Language
ONIX	Online Information Exchange
OREL	Ontology based REL
PARC	Palo Alto Research Center
PDI	Power Distance Index
RDD	Rights Data Dictionary
REL	Rights Expression Language
RMCS	RealSystems Media Commerce Suite
SIPOC	The State Intellectual Property Office of China
TC	Technical Committee
TEI	Text Encoding Initiative
UAI	Uncertainty Avoidance Index
WIPO	World Intellectual Property Organization
WMRM	Windows Media Rights Manager
XrML	eXtensible rights Markup Language