

## 計畫編號：08

計畫名稱：以概念、情境與內容為本的社群化推薦系統

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計畫中文摘要：

近年來 Web 2.0 的概念掀起了一波社群網路應用的革命，從部落格、維基百科、網路相簿、線上影片分享到網路電話網站，不但徹底改變人類生活習慣，更引發一股新的創業投資熱潮。以著名的美國校園社群網站 Facebook 為例，短短三年內，其市值已成長到 150 億美元。根據長尾理論，消費市場已由主流商品大幅轉向至利基商品，個人化推薦系統之需求因運而生。

本計畫旨在研發一個以概念、情境與內容為本的社群化推薦系統，依照 Web 2.0 網站中資料相關的語義概念、使用者當時的情境與資料本身的內容，主動推薦有用的資訊給使用者。以提供線上影片分享之 Web 2.0 網站為例 (如訊連科技)，依影片之語義概念以及使用者的社群關係，我們可推薦符合使用者與眾不同喜好的影片類型，並解釋推薦的原因；依使用者在社群中不同的交友情境，我們可推薦其朋友評價最好的影片；依影片本身的內容，我們可把相關商品的影片廣告置入原影片中。本社群化推薦系統預期可增進社群間使用者的互動與資訊的分享，進而增加使用者對社群的凝聚力。

C3R 推薦系統架構共提供以下功能：(1) 社群化推薦界面模組提供語意概念搜尋功能，負責主動推薦使用者有興趣之數位內容、交友對象、與相關商品，並說明推薦的依據；(2) 概念情境內容分析模組負責學習使用者的個人偏好與習慣，分析其人際網路及族群行為，並進行視訊內容彙總與物件偵測；(3) 多媒體內容分享平台負責迅速有效地傳遞多媒體內容至客戶端，同儕間採取點對點分享機制、統一資料格式、並可動態校訂系統效能。

透過與訊連科技的合作，本計畫將發展推薦系統相關技術元件，並可實際測試功能與蒐及使用者資料。此創新的社群化推薦技術將是提昇台灣軟體產業於 Web2.0 世代之全球競爭力不可或缺之重要元素。

計畫英文摘要：

The Internet and online e-commerce have dramatically changed the

way people access information, products, and services. With higher demand for personalization from the consumers, future business is selling less of more – shifting her focus from the mass market to the niche market. By filtering information items that are likely of interest to the individual user, recommender systems can be the key to any successful business.

The emergence of Web 2.0 creates new opportunities for information push (recommendation) in addition to information pull (search). Traditional recommender systems compare a user's profile to the features of the information item (content-based) or behavior of similar users (collaborative filtering). The vast amount of user-generated content (UGC) without structured metadata or well-defined categorization presents new challenges to create the best recommendations. The objective of this research is to develop the next generation recommender system that is better at adapting to the fast growing online media landscape.

The objective of this research is to develop the next generation recommender system that is better at adapting to the fast growing online media landscape. In particular, the C3R recommender system will employ innovations in social network, tagging, and peer-to-peer content sharing to provide social recommendations that are

- Concept-aware – semantically similar to the concept of interest,
- Context-aware – matching the given social context, and
- Content-aware – relevant to the current media content.

The proposed C3R recommender system consists of (1) social recommender interface module: to provide explanation-based recommendation, similarity-based concept search, and content-based video advertisement; (2) concept, context, and content analysis module: to perform semantic clustering of tags, social profiling, social network discovery and extraction, and video object detection; (3) multimedia content sharing infrastructure: to support efficient delivery of content via a peer-to-peer mechanism with universal naming, and dynamic performance tuning.

The C3R prototype and its core technical components will be

developed and tested through our collaboration with Cyberlink. This project will create innovative technology for our software industry to be globally competitive in the Web 2.0 era and beyond.