

# Multi-Dimensional Spatio-Temporal Data Model – Application to Tourism Guidance System of Cultural Resources

Ching-Sheng Chiu<sup>1</sup>, Chin-Chien Cheng<sup>2</sup>, Yu-Chih Lin<sup>3</sup>

1 Professor. Department of Urban Planning and Spatial Information, Feng Chia University, Taiwan, E-mail: [cschiu@fcu.edu.tw](mailto:cschiu@fcu.edu.tw)

2 Research Assistant. Department of Urban Planning and Spatial Information, Feng Chia University, Taiwan, E-mail: [D9935532@gmail.com](mailto:D9935532@gmail.com)

3 Postdoctoral Research Fellow. Department of Urban Planning and Spatial Information, Feng Chia University, Taiwan, E-mail: [bravo0112@gmail.com](mailto:bravo0112@gmail.com)

This research aims to collect and construct the Wu-Feng cultural tourism spatio-temporal information and to develop a tourism guidance system (TGS) as the information source of cultural tourism for tourists. Toward this end, this research proposes a Multi-Dimensional Spatio-Temporal (MDST) data model, which is organized by the theme and the dimension. The theme covers 10 cultural tourism theme categories, including monuments tour, natural exploration, historical traces, industrial development, political development, edutainment, religious belief, arts and aesthetics, community tour, and food feast. The dimension contains 5 dimension features such as events, people, objects, places, and time. In order to help users quickly understand the spatial and temporal relevance of cultural tourism information, the theme categories are classified based on the event features and the relationship between the theme and dimension is constructed through the MDST data model. Then, the theme and dimension data are linked to the TGS to provide the customized tour information to users. By this way, the interest and depth of cultural resources can be increased and the cultural tourism value of Wu-Feng will be enhanced.

Keywords: Tourism Guidance, Spatio-Temporal Data Model, Cultural Resources, Wu-Feng