

# Service-based Architecture for Personalized and Addaptive Access to the Knowledge in Digital Library

Desislava Paneva  
Mathematical Linguistics Department  
Institute of Mathematics and Informatics, BAS

**Keywords:** personalization, service-based architecture, digital library

## Abstract

The most essential functionalities for the knowledge delivery systems such as digital libraries are personalization, content adaptation, and changeability of the interface according to the users' individual characteristics, preferences and behaviour in the environment. Our main tasks are users' acquaintance, capturing data about them, user modelling, and developing special services for environment customization and quick access to objects/collections of users' interest and need. This paper presents service-based architecture for realization of personalized and adaptive access to the knowledge in digital library which is based on a special IEEE PAPI and IMS LIP-oriented ontological user model whose scope, conceptions, relations and implementation are also described. The main services aims to provide user's customized access, browsing, searching and grouping of digitised objects and collections in order to realize personalized and adaptive content flow. They require and trace out data about the preliminary users knowledge level in the iconographic domain, their object observation style, cognitive goals and interests, preferences about the objects/collections presentation and grouping, physical limitations, used knowledge delivery channels (Web, mobile phone), *etc.*, after that they transform the available digitised objects into a new personalized form and deliver them to the user. Other services attend to profile management, user behaviour tracking, *etc.* We use special usage scenarios/instructions defining a wide range of service actions dependent on the user's background, events and non-formal learning situations, knowledge delivery channels, *etc.*