1. Module name: Personalization

2. Scope: This module addresses Personalization standards that may be appropriate in the context of a DL, along with its’ approaches, effects, limitations, and challenges.

3. Learning objectives
   Student will be able to:
   a. Have a clear understanding of what Personalization is and how it can affect Digital Libraries
   b. Understand various personalization approaches
   c. Understand the limitations and challenges of Personalization

4. 5S characteristics of the module
   - Society:
     o Where all other personalization dimensions would be organized or targeted for particular societies of users, e.g., incorporation and adaptation of specialized services for librarians, professors, and students in a digital library of theses and dissertations;
   - Scenarios:
     o Like scenario re-design, by introducing new functions and interaction techniques, e.g., navigation by context, or by specializing existing ones, e.g., changes in syntax and parameters for searching;
   - Spaces:
     o Such as mappings between different spaces (e.g., from vector space models to probabilistic ones) for interoperability or reduction of
dimensionality for providing better search services (e.g., with Latent Semantic Indexing (LSI));

- Structures:
  - Including restructuring, reduction, or other transformations over classification systems, ontologies, internal structures of documents, etc;

- Stream:
  - Which could include, in the case of textual streams, translations of language and conversion of encodings, or, in the case of multimedia data, possible conversions between formats according to a user's platform;

5. **Level of effort required (in-class and out-of-class time required for students)**
   a. In class: 1.25 hours
   b. Outside of class: 2-3 hours for readings

6. **Relationships with other modules (flow between modules)**
   a. Module 6-d (Interaction design, usability assessment)
      i. Personalization could affect the usability of a digital library
   b. Module 9-c (DL evaluation, user studies)
      i. Personalization can affect a user’s opinion of a DL and have an impact on the user studies

7. **Prerequisite knowledge required (completion optional)**
   a. Students will *not* be expected to have had prior training in personalization.

8. **Introductory remedial instruction:**
   a. None

9. **Body of knowledge**
   1. What is Personalization?
a. Tailored Services
b. Adapting Presentation
c. Make DL’s accessible
d. Device Examples
   i. Eye track
   ii. Sense Cam
   iii. Preservation migration

2. Goals

3. User Centered
   a. Personal Information
      i. Profile
      ii. Age
      iii. Sex
      iv. Health
      v. Activities
      vi. Commerce
      vii. Modeling Queries
   b. Personal View on Information World
      i. Distribution
      ii. Services
         1. Intelligent Tutoring Systems
      iii. Broadcast, on demand
      iv. Alerts (Notifications), Interruptions
      v. Trails, bread crumbs
   c. Capturing Personal Information
      i. Eye tracking
      ii. Click through logs
      iii. Privacy
iv. Analysis

4. Classification of Personalized Methods
   a. Content
      i. Structuring
      ii. Selection
      iii. Enrichment
   b. Services
      i. Special Services
      ii. Service Properties

5. Information Filtering

6. Notification

7. Recommender System
   a. Definition
      i. Personalization Service
      ii. Most popular DL personalization
      iii. Tailors information to individuals
   b. Scope
   c. Components
      i. Background Data
      ii. Input Data
      iii. Algorithm
   d. Types
      i. Content-based
         1. Contextualization
      ii. Knowledge-based
      iii. Collaborative Information Filtering
      iv. Demographic-based
         1. In the community
2. Multiple memberships
3. Roles
   v. Utility-based
   vi. Hybrid
    1. integrated information inference
    vii. Community-based
8. Advanced Approaches for Personalization
   a. Personal Reference Libraries
   b. Cooperative Content Annotation
   c. Personal Web Context
9. Social Effects of Personalization
   a. Individual Experience
   b. Community Experience
   c. Social Groups
10. Personalized Information Environment (PIE)
    a. Collection Personalization
       i. Personalized Filtering
       ii. Personalized Retrieving
    b. Material Personalization
11. Evaluation Issues
    a. Access Personalization
    b. User-Centered Evaluations
    c. Identify Appropriate Criteria
    d. Training and Testing
    e. Usability
    f. Usefulness
    g. Performance
    h. Failures
i. Types
ii. Causes
iii. Solutions

i. Benefits
   i. Memory
   ii. Symbiosis

12. Limitations and Challenges
   a. Privacy
   b. Hinder Findings
   c. Hinder Group Communication
d. Predictability

10. Resources

Assigned readings for students:


**Recommended readings for students:**


Recommended background reading for instructor:


11. Concept Map (created by students)
12. Exercises / Learning activities
   
   e. Pick a Digital Library and determine five ways in which you would like to personalize it. Discuss it with the rest of the class.
   
   f. Look at a Digital Library and name three ways you think personalizing it would benefit the users. Discuss it with the rest of the class.

13. Evaluation of learning objective achievement
   
   a. none

14. Glossary
   
   a. none

15. Additional Useful links

16. Contributors
   
   a. Initial authors: Ashley Robinson, Chester Rosson, Pramodh Pochu, Sheng Guo
   
   b. Evaluator: Edward A. Fox