

CHAPTER 28

MATHEMATICAL SCIENCES COMPUTER SCIENCE

Doctoral Theses

285. HARMEET KAUR
Trust Based Decentralized Recommender Systems.
Supervisor : Dr. Punam Bedi
Th 15274

Abstract

Recommender systems are usually classified into three categories, based on how the recommendations are made : Content-based, Collaborative filtering and Hybrid. To overcome the limitations of lack of trust and the central control in the existing recommender systems, a trust based decentralised recommender system is presented in this work, in which information is distributed over the entire network in the form of ontologies. A case study of tourism recommender system is chosen to generate the recommendations for the selection of destination. The experiment is conducted to recommend cities of United States of America to the persons living in India, who want to visit the USA for tourism purpose. In this experiment, the dataset is taken from the Places Rated Almanac, by Richard Boyer and David Savageau, copyrighted and published by Rand McNally. The destination ontology is developed using Protege 2000 with continent, country, state and city classes in the hierarchy. The ontology contains 329 cities of USA as individuals of class city but it can be populated with the individuals of the countries, states and cities of the world. The validity of the presented recommender system is established by comparing the generated recommendations with the manual recommendations given by peers. Various evaluation metrics including precision and recall are also computed by varying the parameters of the system to show the validity of the presented system.

Contents

1. Introduction.
2. Recommender systems.
3. Building trust via

reputation. 4. Weaving a web of trust among agents. 5. Trust dimension of recommender system. 6. Trust based recommender system for the semantic web. 7. Conclusion.

286. SRIVASTAVA (Sangeeta)

Method Engineering in Information Systems.

Supervisors : Prof. Naveen Prakash, Dr. Sangeeta Sabharwal and Dr. S. Santosh
Th 15275

Abstract

Discusses the role and users of model transformation in method engineering and information systems. Model transformation is the process of conversion of scheme of source model say M1 to schema of target model say M2. It is widely used for schema transformation in information systems. However, engineering of compound methods for model transformation in method engineering has not been explored as yet. Provides a technique to engineer methods for generic model transformations and the process for generic schema transformations. In order to solve our problem we need a generic model transformation approach that also instantiates the process of generic schema transformation. This issue can be resolved in four steps :- Step 1 is generic model representation on a common platform, step 2 deals with model mappings between the concepts of the source and target models. We use an abstract meta model Method View Model (MVM) of (Pra00) for step 1 and step 2 and organise the MVM meta models of M1 and M2 as method graphs. Further, we use the properties of graphs like isomorphism and pattern matching to define a generation technique to establish mapping between the model concepts of the two graphs. Thereafter, in step 3 and step 4 generic transformation rules and generic instantiation rules are defined which are based on the model mappings between the concepts of M1 and M2. The mapping established between source and target model concepts M1 and M2 can be used as is mapped to, along with the integration class of operations, method constraint.

Contents

1. Introduction 2. The classification framework. 3. The representation. 4. The level mapping. 5. The node and edge mapping. 6. Engineering compound methods and the process for schema transformation. 7. Implementation of tool. 8. Conclusions and future research.