Prilagodljivi hipermedijski učni sistemi - Povzetek

Magistrska naloga obravnava model prilagodljivega hipermedijskega sistema v svetovnem spletu. Prilagodljivi hipermedijski sistemi povezujejo dva različna pristopa k računalniško podprtemu poučevanju: inteligentne učne sisteme in izobraževalne hipermedijske sisteme. Prvi temeljijo na znanju (poznavanju učne domene) in zaporedje poučevanja prilagajajo značilnostim posameznega uporabnika. Druga vrsta sistemov pa temelji na tekstu ali multimediji, ki je nadgrajena s povezavami (na hipermediji), učenje pa sloni na različnih pripomočkih za navigacijo po bazi tako povezanih informacij. Prilagodljivi hipermedijski sistemi so osnovani na klasični hipermediji, ki jo nadgradijo z inteligentnimi orodji, s pomočjo katerih podpirajo uporabnika pri učenju. Tako združujejo prednosti obeh omenjenih pristopov in kombinirajo prosto raziskovanje s sistemsko vodenim poučevanjem.

V okviru naloge sem raziskala problematiko prilagodljivih hipermedijskih sistemov ter zgradila model takega sistema v svetovnem spletu. Model je zasnovan splošno in neodvisno od domene učenja ter tako predstavlja le ogrodje prilagodljivega sistema, ki lahko deluje na poljubni učni domeni. Predstavljeni model uporablja za prilagajanje uporabniku tehnike prilagodljive podpore navigaciji, torej se izbira možnih poti skozi učno snov sproti prilagaja znanju in napredovanju uporabnika. Zato je potrebno vzpostaviti model učne domene, ki je predstavljena s semantično mrežo medsebojno povezanih konceptov, in vzdrževati model uporabnika, ki predstavlja njegovo znanje ter spremlja njegovo napredovanje.

Predstavljeni model prilagodljivega hipermedijskega sistema sem implementirala s programčkom v javi ter pripravila potrebno vsebino za neko poskusno učno domeno. Implementacija modela mi je omogočila do podrobnosti spoznati uporabljene prilagoditvene tehnike in preizkusiti obnašanje sistema.

Adaptive Hypermedia Learning Systems - Abstract

This Master's thesis concerns a model of an adaptive hypermedia system on the World Wide Web. Adaptive hypermedia systems combine two different approaches to computer assisted instruction: intelligent tutoring systems and educational hypermedia systems. The first are knowledge centred; they have knowledge of the teaching domain and adapt the instructional sequence to the particular user's characteristics. The second type of systems is based on text or multimedia upgraded with links (hypermedia); learning is based on various navigational aids in a database of linked information. Adaptive hypermedia systems are based on traditional hypermedia that is upgraded with intelligent tools, which support users in learning. This way, they integrate the advantages of both the above approaches and combine free exploration with system–driven tutoring.

As part of the thesis, I conducted research in the field of adaptive hypermedia systems and created a model of such a system on the World Wide Web. The model is designed generally and is independent of the teaching domain. It therefore represents only a shell of an adaptive system that can be used in any teaching domain. The presented model uses adaptive navigation support techniques for adaptation to the user, so it dynamically adapts the choice of possible paths through the learning material to the user's knowledge and progress. Therefore, we have to create a model of the teaching domain, which is represented by a semantic network of interconnected concepts, and maintain a user model, which represents the user's knowledge and keeps track of the user's progress.

I also implemented the presented model of an adaptive hypermedia system with a Java applet and prepared the content for a particular teaching domain, which was used for testing. The implementation of the model enabled me to get to know the details of adaptation techniques used and to test the system's behaviour.