運用知識本體與智慧型代理人技術的資訊適性化推薦管理系統：以研討會發佈管理系統為例

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摘 要

網際網路上資訊種類相當繁雜，由於缺乏適當的評估與管理機制，使得知識的重複利用率並不如原先預期。本研究目的是透過推薦系統的精確推薦與分享，讓使用者能將更多的時間專注工作或課業上。本研究設計的運用知識本體與智慧型代理人的資訊適性化推薦管理系統，包含使用者介面、儲存庫、訊息服務推薦核心等三個模組。 為使代理人開發過程能更具彈性與完整，本研究使用MASE方法論進行分析、設計與實作。訊息服務內容的規劃是遵循使用OWL-S 規範。本研究建置的訊息推薦系統，具體貢獻如下：⑴運用知識本體於服務的搜尋機制：以知識本體為基礎的查詢，使用者可以更精確的取得服務；⑵以MASE方法論實作代理人系統：藉由不同模型的組合搭配，使代理人系統可以很完整而且順利的完成實作；⑶整合各種工具與標準：本論文整合並且應用各種標準與工具進行主動式推薦系統的實作。由於各類服務在未來網際網路上的應用會越來越普遍，因此本研究在實際運用上有其前瞻性與必要性。

關鍵詞 : 訊息服務 ; 智慧型代理人 ; 推薦系統 ; 知識本體

目錄

參考文獻

一、中文部份 林育群(2003)，智慧型代理人應用於營建採購協商之研究，交通大學土木工程系，碩士論文，民92。 吳仁和，林信惠(2000)，系統分析與設計-理論與實務運用，智勝文化事業有限公司出版，台北，第232-240頁。 二、英文部份 A.J. Duineveld, R. Stoter, M. R. Weiden, B. Kenepa, & V. R.Benjamins(2000), Wonder Tools? a comparative study of ontological engineering tools, International Journal of Human-Computer Studies, Vol. 52, No. 6, pp.1111-1133. A leksander B. Demko & Nicolino J. Pizzi(2003), The utility of graph theoretic software

metrics: a case study, Electrical & Computer Engineering, Vol. 2, pp.1309-1312, May. A. Zisman; A. Kozlenkov(2001), Knowledge base approach to consistency management of UML specifications, Automated Software Engineering,. (ASE 2001). Proceedings. 16th Annual International Conference on , 26-29 Nov. 2001, Page(s): 359 -363 A. Perini, P. Bresciani, F. Giunchiglia, P. Giorgini, & J. Mylopoulos(2001). A knowledge level software engineering methodology for agent oriented programming. In Proc. of the 5th Int. Conference on Autonomous Agents, Montreal CA, May . ACM. B. Chandrasekaran,J. R. Josephson, & V. R. Benjamins(1999), What Are Ontologies & Why Do We Need Them? IEEE Intelligent Systems, Vol. 14, Issue 1, pp.20-26,. Available at http://dlib.computer.org/ex/books/ex1999/pdf/x1020.pdf. C. C. Hayes(1999), Agent in a Nutshell – A Very Brief Introduction, IEEE Trans. on Knowledge & Data Engineering, Vol. 11, No.1, Jan/Feb. C.A. Iglesias; M. Garijo; & J.C. Gonzalez, (1999) A Survey of agent-Oriented Methodologies. Proceedings of the Fifth International Workshop on agent Theories, Architectures. DARPA, DARPA Agent Markup Language (DAML)(2004), Defense Advanced Research Projects gency, http://www.daml.org. David Tennenhouse, Proactive Computing(2000)., Communicationsof the ACM, Vol. 43, No. 5, pp. 42-50, May. David W. McDonald(2003), Ubiquitous Recommendation Systems, Computer, Vol. 36, No. 10, pp. 111-112, Oct. Davies, D. Fensel & F. V. Harmelen.(2003)., Towards The Semantic Web: ontology-driven knowledge management, England : Wiley, Aug. E. K. Mugisa(2003), A reuse triplet view of UML, SoutheastCon, in Proceedings IEEE, pp. 126 – 133, Apr. FIPA ACL Message Structure Specification Technical Report, SC00061G(2002), Foundation for Intelligent Physical Agent, Dec. Guttman, R. H., Moukas, A.G.& Maes, P, (1998), Agents as Mediators inElectronic Commerce, Electronic Markets, 8(1), pp. 22-27. Gheorghe Tecuci(1998). Building Intelligent Agents: An Apprenticeship Multi strategy Learning Theory, Methodology, Tool & Case Studies. ACADEMIC PRESS. Giunchiglia F., Mylopoulos j. (2001), Perini A., The Tropos software development methodology: processes, models & diagrams, November1. H.Suguri(1999), A standardization effort for agent technologies: The Foundation for Intelligent Physical Agents & its activities, in Proceedings of the 32nd Annual Hawaii International Conference, pp. 10. H. M. Kim, (2002), XMLhoo!: A Prototype Application for Intelligent Query of XML Documents using Domain-Specific Ontologies, Proceedings of the 35th Hawaii International Conference on Systems Science (HICSS-35 ‘ 02), USA. J. Odell, H. V. D. Parunak, & B. Bauer, (2000) Extending UML for agents. In Proceedings of the agent -Oriented Information Systems Workshop at the 17th National conference M. Uschold & M. King, (1995), Towards a Methodology for Building Ontologies, Workshop on Basic Ontological Issues in Knowledge Sharing,International Joint Conference on AI (IJCAI-95), Canada. M. L. Fernandez, Aug(1999), Overview of Methodologies For Building Ontologies, Proceedings of the Workshop on Ontologies & Problem-Solving Methods, International Joint Conference on AI (IJCAI-99), Sweden. Maes, P., Guttman, R.H. & Moukas, A.G, (1999), Agents that Buy & Sell: Transforming Commerce as We Know It, Communications of the ACM, Vol.42,No. 3, pp.81-91. Mark Stang & Stephen Whinston(2001)., Enterprise Computing with Jini Technology, IT Professional, Vol. 3, No. 1, pp. 33 -38, Jan/Feb. M. Bjerkander & C. Kobryn(2003), Architecting systems with UML2.0 Software, IEEE, Vol. 20, No. 4, pp. 57-61. Jul/Aug. M. Luck, R. Ashri & M. D ’ inverno(2004)., Agent-based Software Development, USA: Artech House, Feb. Mark F. Wood Scott A. DeLoach(2000), An Overview of the Multiagent Systems Engineering Methodology, In AOSE-Proc. of the First International Workshop on AOSE, 10 th June . Limerick, Ireland Ciancarini, P., Wooldridge, M.: (ed.) Lecture Notes in Computer Science, Vol. 1957 Springer - Verlag, Berlin. Michael Gruninger & Mark S Fox, (1995), Methodology for the Design & Evaluation of Ontologies Department of Industrial Engineering University of Toronto, Canada, M S A. Mark F. Wood Scott A. DeLoach(2000), An Overview of the Multiagent Systems Engineering Methodology, In AOSE – Proc. of the First International Workshop on AOSE, 10 th June 2000, Limerick, Ireland Ciancarini, P., Wooldridge, M.: (ed.) Lecture Notes in Computer Science, Vol. 1957 Springer-Verlag, Berlin. Nwana, H. S. (1996), Software Agents:An Overview, Knowledge Engineering Review, Nol.11, No.3, pp. 205-244. N. Guarino(1998), Formal Ontology & Information System, In Proceedings of FOIS'98, Trento, Italy, pp. 3-15, Amsterdam, IOS Press, June. Available at ftp://ftp.ksl.stanford.edu/pub/KSL_Reports/KSL-92-71.ps. Object Services & Consulting, Inc, (1999) Agents for the Masses, http://www.objs.com/agility/tech-reports/9902-agents-for-the-masses.doc. OWL-S: Semantic Markup for Web Services, (2004). http://www.daml.org/services/owl-s/1.0/owl-s.html Paul Resnick & Hal R. Varian(1997), Recommendation systems Communication of ACM, Vol. 40, No. 3, pp. 56-58. P. A. Huhns et al., Inside an agent(2001) Internet Computing, IEEE,Vol. 5, NO. 1, pp. 82-86, Jan/Feb. Park, Chang-Sup; Kim, Myoung Ho; Lee, Yoon-Joon. (2002), Finding an efficient rewriting of OLAP queries using materialized views in data warehouses, Decision Support Systems Volume: 32, Issue: 4, March, pp. 379-399. Padgham, L. & Winikoff, M. (2002), Prometheus: A Methodology for Developing Intelligent Agents, Proceedings of the Third International Workshop on Agent Oriented Software Engineering, at AAMAS 2002. July, 2002, Bologna, Italy. January 2003. R.Larry Dooley,C.Hopkins, & C.L. Yieh(1988) ,Artificial intelligence-Bayesian analysis system for cardiac catheterization laboratory, in Proceedings of the Annual International Conference of the IEEE, Nov., pp. 1337. R. B. France et al(2004)., A UML-based pattern specification technique, Software Engineering, IEEE Transactions on, Vol.30, No. 3, pp. 193-206, Mar. R. Larry Dooley, C. Hopkins, & C.L. Yieh(1998), Artificial intelligence-Bayesian analysis system for cardiac catheterization laboratory, in Proceedings of the Annual International Conference of the IEEE, Nov., pp. 1337. S.Cranefield, M. Nowostawski, & M. Purvis(2001). Implementing agent communication languages directly from UML specifications. Department of Information Science, University of Otago, PO Box 56. T. R. Gruber(1993), A Translation Approach to Portable Ontology Specifications, Journal of Knowledge Acquisition, Vol. 5, pp. 199-220. Wooldridge, M., Jennings, N., Kinny, D. (2000), The Gaia Methodology for Agent-Oriented Analysis & Design. Autonomous Agents & Multi-Agent Systems. Wooldridge M. J., Jenning N. R. & Kinny D(1999). A methodology for agent-oriented analysis & design. In Proc. of the third international conference on Autonomous agents, pages 69-76. Wood, M. F. (2000), Multiagent Systems Engineering: A Methodology for Analysis & Design of Multiagent Systems. MS thesis, AFIT/GCS/ENG/00M-26. School of Engineering, Air Force Institute of Technology (AU), Wright-Patterson AFB

Ohio, USA . Web Services Activity, 2004. http://www.w3.org/2002/ws. Zacharis Z. Nick, & Panayiotopoulos Themis(2001), Web search using a genetic algorithm, Internet Computing IEEE, Vol.5 , No. 2 , pp. 18-26, Mar./Apr. Zarnekow,Brenner W., R., & Wittig, H. (1998), Intelligent Software Agents, Springer.