



Jahresübersicht 2003

Veröffentlichungen des Jahres 2003 inklusive aller verfügbaren Abstracts

P. Biermann & I. Wachsmuth: An Implemented Approach for a Visual Programming Environment in VR.

In: *Proceedings Fifth Virtual Reality International Conference (VRIC 2003)*,
Laval, France, 14-16 May 2003, 229-234.

G. A. Fink, J. Fritsch, N. Leßmann, H. Ritter, G. Sagerer, J. J. Steil, and I. Wachsmuth: Architekturen situierter Kommunikatoren: Von Perception über Kognition zum Lernen

In K. Dittrich, W. König, A. Oberweis, K. Rannenber, W. Wahlster (eds.):
Informatik 2003, Innovative Informatikanwendungen, Beiträge der 33. Jahrestagung der Gesellschaft für Informatik e.V. (GI), 29. September - 2. Oktober 2003, Frankfurt am Main, Band 2, 29-44
Lecture Notes in Informatics (LNI) - Proceedings, German Informatics Society (GI), Volume P-35, 2003.

Abstract:

Charakteristisches Merkmal intelligenter Systeme ist das Ineinandergreifen zahlreicher Teilfunktionen. Während in der Vergangenheit in erster Linie die Realisierung eines geeigneten Umfangs von tragfähigen Teilfunktionalitäten angestrebt wurde, verschieben die Fortschritte auf diesem Feld die Herausforderung mehr und mehr zur Frage einer übergreifenden Architektur, die eine große Anzahl von Teilfunktionen integrieren und zu einem "intelligenten" Zusammenwirken bringen kann. Die Entwicklung integrierter Architekturkonzepte ist eines der wesentlichen Ziele des Bielefelder SFB 360. Dabei entstanden drei auf jeweils einen zentralen Aspekt fokussierte Teildemonstratoren, die wir in diesem Beitrag vorstellen werden. Diese Teilsysteme mit den Schwerpunkten Perzeption, Kognition bzw. Lernen sind wechselseitig koppelbar und arbeiten auf einer realitätsnahen Komplexitätsebene. Die entwickelten Konzepte können somit einen wesentlichen Beitrag zur Erforschung der Architektur künstlicher kognitiver Systeme leisten.

B. Jung & S. Kopp: FlurMax: An Interactive Virtual Agent for Entertaining Visitors in a Hallway.

In T. Rist et al. (Eds.): *Intelligent Agents. 4th International Workshop, IVA 2003, Proceedings*,
LNCS 2792, Springer-Verlag, 2003, pp. 23-26.

Abstract:

FlurMax, a virtual agent, inhabits a hallway at the University of Bielefeld. He resides in a wide-screen panel equipped with a video camera to track and interact with visitors using speech, gesture, and emotional facial expression. For example, FlurMax will detect the presence of visitors and greet them with a friendly wave, saying "Hello, I am Max". FlurMax also recognizes simple gesturing of the by-passer, such as waving, and produces natural multimodal behaviors in response. FlurMax's behavior selection is controlled by a simple emotional/motivational system which gradually changes his mood between states like happy, bored, surprised, and neutral.

B. Jung: Task-Level Assembly Modeling in Virtual Environments.

Computational Science and Its Applications - ICCSA 2003,
International Conference, Montreal, Canada, May 18-21, 2003,
Proceedings, Part III. LNCS 2669. Springer, 2003, 721-730.

Abstract:

This contribution introduces a new framework for assembly modeling in Virtual Reality. Aiming at an easy instructability of the virtual environment, the framework provides a task-level interface which directly maps logical assembly commands to corresponding changes in the geometry scene. For example, the visual assembly of two parts is achieved given only a single command 'connect(a,b)'. This is in contrast to the assembly modeling style of conventional CAD systems which forces the designer to break down each conceptual assembly task into a series of lower-level subtasks. The proposed framework consists of two parts: (1) A knowledge-based model of connection-sensitive part features ("ports") and the connections between them; and, (2), a set of algorithms that define the task-level interface for assembly, disassembly, and adjustment operations. All algorithms are computationally efficient and easily meet the real-time requirements of virtual environments. At the user interface, both direct manipulation and directive interfaces, e.g. based on natural language instructions are supported. A family of implemented VR-systems, including CAVE and Internet-based applications, demonstrates the feasibility of the approach.

B. Jung & J.-T. Milde: XML-RPC und SOAP als Basis von Web-Services.

In H. Wittenbrink & W. Köhler (eds.): *XML*, SPC-Verlag, 2003.

S. Kopp, B. Jung, N. Lessmann & I. Wachsmuth: Max - A Multimodal Assistant in Virtual Reality Construction.

In: *KI-Künstliche Intelligenz 4/03* 11-17, Bremen: arenDTap Verlag, 2003.

M. E. Latoschik, M. Schilling: Incorporating VR Databases into AI Knowledge Representations: A Framework for Intelligent Graphics Applications.

In: *Proceedings of the Sixth IASTED International Conference on Computer Graphics and Imaging*. Honolulu, Hawaii, August 2003.

Abstract:

This article presents a framework for incorporating commonly used VR (Virtual Reality) databases for graphics and physics simulation into an AI (Artificial Intelligence) knowledge base using a unifying semantic net (SN) representation. Several examples in the area of multimodal interaction for AI based graphics applications are given to motivate this approach. An evaluation of the chosen SN knowledge representation (KR) regarding five roles suitable to analyze a given KR is followed by a discussion about resulting conceptual and technical requirements for the underlying DB/KBMS (database/knowledge base management system) which supports the chosen KR as well as mediating layers for external simulation relevant modules.

Keywords:

Virtual Reality, Artificial Intelligence Techniques, Human-Computer Interaction, Multimodal Interaction

N. Leßmann & I. Wachsmuth: A Cognitively Motivated Architecture for an Anthropomorphic Artificial Communicator

Poster

In: *Proceedings of the Fifth International Conference on Cognitive Modeling (ICCM-5 2003)*, Bamberg, April 2003, 277-278.

T. Pfeiffer, I. Voss & M. E. Latoschik: Resolution of Multimodal Object References using Conceptual Short Term Memory.

In F. Schmalhofer & R. Young (eds.): *Proceedings of the EuroCogSci03*, Lawrence Erlbaum Associates Inc 2003.

T. Sowa, S. Kopp:
A Cognitive Model for the Representation and Processing of Shape-Related Gestures.

In F. Schmalhofer, R. Young & G. Katz (eds.): *Proceedings of the EuroCogSci03*, p. 441, Lawrence Erlbaum Associates Inc 2003.

T. Sowa, I. Wachsmuth:
Coverbal Iconic Gestures for Object Descriptions in Virtual Environments: An Empirical Study.

M. Rector, I. Poggi & N. Trigo (eds.): *Proceedings of the Conference "Gestures. Meaning and Use."*, Porto, Portugal, April 2000, 365-376.

Abstract:

This paper describes an empirical study aimed at investigating object references in Virtual Environments using iconic gestures. Observations are focused on spatial concepts conveyed gestually and their relation to features of the gesture shape. A set of important features and spatial concepts useful for automated gesture recognition is identified. Based on these findings we propose a model of an iconic reference recognizer.

I. Voss:
Conceptualisation of Episodes in Interactive Virtual Construction.

In C. Stephanidis (ed): *HCI International 2003 Adjunct Proceedings*. pp. 185-186, Crete University Press, Heraklion June 2003.

I. Voss, I. Wachsmuth:
Anticipation in a VR-based Anthropomorphic Construction Assistant.

In J. Jacko & C. Stephanidis (eds.): *Human-Computer Interaction, Theory and Practice (Part I)*, pp. 1283-1287, Lawrence Erlbaum Associates, Publishers. London 2003.

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