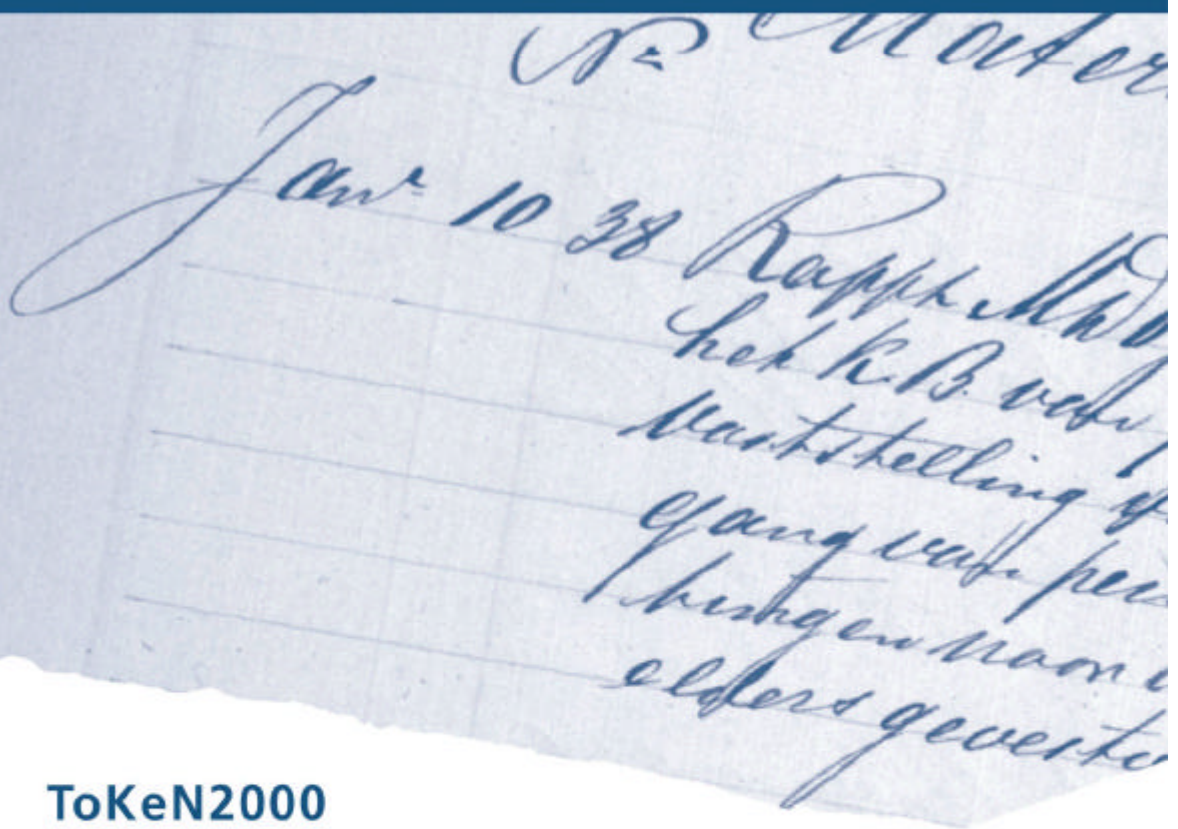


# REPORT

The logo for the Netherlands Organisation for Scientific Research (NWO), featuring the letters 'NWO' in a stylized, white, serif font. The 'N' and 'W' are connected at the top, and the 'O' is a simple circle. The logo is set against a dark blue background that transitions into a lighter blue background with faint, overlapping cursive handwriting.

Digitalisation and Information Technology



## ToKeN2000

Access To Knowledge and its enhancement Netherlands 2000

**Workshop, March 26, 2004 Groningen**

Netherlands Organisation for Scientific Research

**PROGRAMME OFFICE TOKEN2000**

Netherlands Organisation for Scientific Research (NWO)

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**SOURCE COVER IMAGE:** Nationaal Archief, Archief van het Kabinet der Koningin, Boek 7824 (1903)

**PHOTO S:** Sjoerd de Jong

**CARTOON S:** Carolien Feldbrugge, Beeldleveranciers Amsterdam

After two fruitful ToKeN2000-workshops in June 2000 and February 2002 and a first ToKeN2000-symposium in February 2003 a third ToKeN2000-workshop was held at the Nieuwe Academie building in Groningen. The workshop was organised by the Netherlands Organisation for Scientific Research (NWO) and the Institute for Artificial Intelligence of the University of Groningen.



THE AUDIENCE

#### **TOKEN2000 – ACCESS TO KNOWLEDGE AND ITS ENHANCEMENT NETHERLANDS 2000**

is an interdisciplinary research programme, in which cognition and computer science focus on fundamental problems affecting interaction between human beings on the one hand, and knowledge and information systems and the products they yield on the other hand. Fundamental research issues are Control, Navigation, Language technology, Delivery techniques, and Knowledge enhancement.

The ToKeN2000-research is concentrated around three fields of application, namely Education & Culture, Law enforcement & the judicial system and Health care. At present twelve ToKeN2000-projects are ongoing (five projects in the health care sector, six projects in the field of education and culture and one project on law enforcement and the judicial system). Of these twelve projects six were illustrated during the workshop in lectures by PhD students and Postdoctorals who are directly involved. The keynote presentation was on Intelligent Mobile Companions by Prof. Anthony Jameson of the German Research Center for Artificial Intelligence (DFKI) and the International University in Germany. The plenary sessions were interrupted by a poster session after the lunch break. For the programme of the day please check Appendix 1.



## REPORT OF THE DAY'S PROCEEDINGS

Meanwhile a ToKeN2000-tradition, the **CHAIR OF THE PROGRAMME COMMITTEE**, Professor Jaap van den Herik (Maastricht University) opened the workshop and welcomed the speakers and the participants. In his lecture he gave a short summary of the achievements over the last years. The most important announcement, however, was that of



PROF. JAAP VAN DEN HERIK

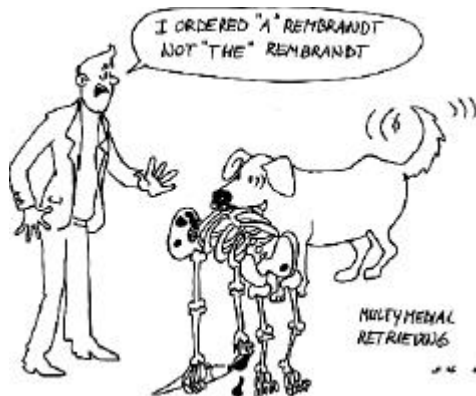
the launching of a request for proposals for ToKeN2000. Before June 2, 2004 proposals could be submitted within one of the three ToKeN2000 fields of application, namely Law enforcement & the judicial system. According to Van den Herik this is an important step for this research programme, which was made possible by NWO in close cooperation with the Council for the Judiciary (Raad voor de rechtspraak).



PROF. ANTHONY JAMESON

In his **KEYNOTE LECTURE** "Intelligent Mobile Companions: New Assistance or Nuisance?" Professor Anthony Jameson stated that in certain situations intelligent companions are extremely useful, for example in video route descriptions. Unfortunately, at present the dialogue with the existing companions is still quite slow. In his talk, Jameson examined several typical issues concerning the usability of intelligent companions. He presented some impressive examples of companions developed by the DFKI. Furthermore, he raised the question whether people really find systems with such capabilities useful and usable in everyday life? Are people not reluctant to use these companions because of a general feeling of mistrust? One of his main conclusions was the existence of a gap between theoretical visions on the companions on the one hand and the problems that arise when people try to use these systems on the other. If tried in a realistic setting people are still unwilling to use the companions in certain situations and environments. To try to overcome this gap Jameson emphasized the need to take all requirements, wishes and constraints into account when developing these systems.





The following **LECTURES** addressed the progress made in the ongoing ToKeN2000-projects. Young ToKeN2000-researchers enthusiastically presented their work.

Ms. Carolien Feldbrugge, a cartoonist of Beeldleveranciers Amsterdam articulated her impressions of the presented research in sketches. Some of her **CARTOONS** are included in this report.

The first lecture by Drs. Egon van den Broek (University of Nijmegen) and Ir. Niek Bergboer (University of Maastricht) was on a user-centered approach for Content-Based Image Retrieval (CBIR). Both researchers are working in the project EIDETIC which deals with the automatic recognition of image content from digital images. The possibilities of content-based search techniques are studied. Of specific interest are the analysis and retrieval of digital art collections.

The morning session was concluded by dr. Elena Zudilova of the University of Amsterdam who is working in the ToKeN2000-project DIME on a system for vascular reconstruction - the Virtual Radiology Explorer (VRE). DIME is a collaboration between researchers at the Leiden University Medical Center and the Universities of Amsterdam and Twente. In her lecture Zudilova discussed the functionality and features of the VRE system as well as possible ways for it's improvement.

After the lunch break an impressive **POSTER SESSION** was held where ToKeN2000-researchers presented the developments within their projects. The posters illustrated the progress made since the previous ToKeN2000-day in 2003. Appendix 2 lists the 22 submitted posters.



IMPRESSIONS OF THE POSTER SESSION

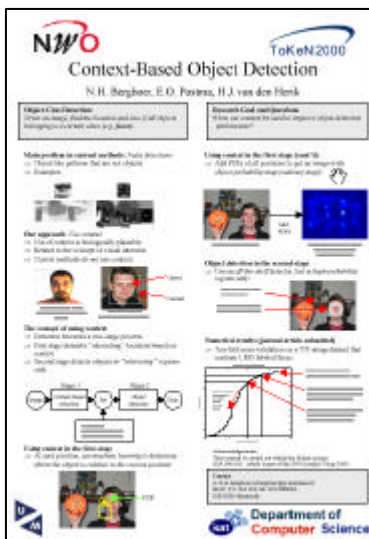
Ir. Theodore Charitos (University of Utrecht) started the afternoon session with a lecture on medical decision support, specifically a Bayesian model of bacterial colonisation of the respiratory tract. The Bayesian network is part of a decision-theoretic model, which describes the effects of antibiotics on this process in patients in the intensive care unit (ICU). The model is part of a decision-support system, currently under development in the TIMEBAYES project.

Following was Drs. Wouter Teepe of the University of Groningen who spoke about the trade off between confidentiality and availability, which is currently under research in the ToKeN2000-project ANITA. This project concentrates on the legal problems with respect to the rights and duties concerning the collection and processing of data for certain enquiries.



In his talk on the ongoing CHIME project Dr. Frank Nack (CWI) focussed on the goals of the CHIME environment, which facilitates the various processes within semi-automated presentation generation. The CHIME project is investigating the use of semantic models for tailoring the presentation of cultural information extracted from existing repositories to different types of users. Nack outlined the achievements of the first year and described future plans.

Dr. Floris Wiesman (University of Maastricht) held the final lecture of the day on agent-based support for physicians. Wiesman carries out research in the MIA-project that investigates how structured (e.g., lab data) and unstructured (e.g., narratives such as progress reports) medical data can be combined in a way that different physicians in a hospital are provided with relevant information.



THE WINNING POSTER

At the end of the day the winner of the **POSTER CONTEST** - nominated by the participants - was announced. The poster entitled *Context-Based Object Detection* (Authors: N.H. Bergboer, E.O. Postma, H.J. van den Herik - University of Maastricht, IKAT) won the contest.



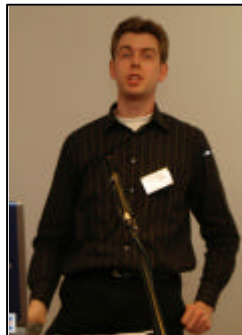
**WORKSHOP-CHAIR** Professor Lambert Schomaker concluded the day with a few words of thanks to the speakers, particularly the keynote speaker, the approximately 70 participants and those involved in the organisation of this interesting and inspiring day.

PROF. LAMBERT SCHOMAKER

## THE LECTURERS



DRS. EGON VAN DEN BROEK



IR. NIEK BERGBOER



DR. ELENA ZUDILOVA



IR. THEODORE CHARITOS



DRS. WOUTER TEEPE



DR. FLORIS WIESMAN



DR. FRANK NACK

## APPENDIX 1: PROGRAMME MARCH 26, 2004

Chair:	Prof. dr. L. Schomaker, University of Groningen (Member Programme Committee ToKeN2000)
10:30	<i>Registration and welcome with coffee/tea</i>
11:00 – 11:15	<i>Opening</i> Prof. dr. H.J. van den Herik, University of Maastricht Chairman Programme Committee ToKeN2000
11:15 – 12:00	<i>Keynote presentation: Intelligent Mobile Companions: New Assistance or Nuisance?</i> Prof. Anthony Jameson, German Research Center for Artificial Intelligence (DFKI) and International University in Germany
12:00 – 12:15	<i>Coffee/Tea Break</i>
12:15 – 12:35	<i>User-centered intelligent content-based image retrieval (EIDETIC)</i> Drs. E.L. van den Broek, Nijmegen Institute for Cognition and Information, University of Nijmegen and Ir. N.H. Bergboer, University of Maastricht/IKAT
12:35 – 12:55	<i>Vascular Reconstruction Procedure: Simulated and Real. First Lessons of User Profiling (DIME)</i> Dr. E. V. Zudilova, University of Amsterdam
13:00 – 14:00	<i>Lunch*</i>
14:00 – 15:00	<i>Poster session</i>
15:00 – 15:20	<i>Uncertainty, Causality and Medical Decision Support (TIMEBAYES)</i> Ir. T. Charitos, University of Utrecht
15:20 – 15:40	<i>The trade off between confidentiality and availability (ANITA)</i> Drs. W. Teepe, University of Groningen
15:40 - 16:00	<i>CHIME - Cultural Heritage in an Interactive Multimedia Environment</i> Dr. F. Nack, CWI
16:00 – 16:30	<i>Coffee/Tea Break</i>
16:30 – 16:50	<i>Agent-Based Support for Physicians (MIA)</i> Dr. F.J. Wiesman, University of Maastricht/IKAT
16:50 – 17:00	<i>Closing remarks</i> Chair of the conference
17:00	<i>Reception</i>

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\* With lunch concert by musicians of the Groningen conservatorium

## APPENDIX 2: PARTICIPANTS

Abu-Hanna	A.	University of Amsterdam, AMC
Aroyo	L.M.	Technical University of Eindhoven
Arsenijevic	B.	University of Leiden
Bachvarova	Y.	CWI
Bergboer	N.	University of Maastricht
Bocconi	S.	CWI
Bouwhuis	D.G.	Technical University of Eindhoven
Braun	L.	University of Maastricht
Charitos	T.	Universiteit Utrecht
Chepegin	V.I.	Eindhoven University of Technology
Cnossen	F.	Rijksuniversiteit Groningen
Cramer	H.S.M.	University of Amsterdam
Cremers	C.	University of Leiden
De Croon	G.	University of Maastricht (IKAT)
De Vey Mestdagh	C.J.N.	Rijksuniversiteit Groningen
Deac	A.I.	Delft University of Technology
Dijkstra	P.	Rijksuniversiteit Groningen
Feldbrugge	C.	Beeldleveranciers
De Greef	H.P.	Technical University of Eindhoven
Ten Hagen	S.H.G.	University of Amsterdam
Harders	H.	Rijksuniversiteit Groningen
Hoenkamp	E.	Radbout University Nijmegen (NICI)
Hoogland	E.	NWO Earth and Life Sciences
Jameson	A.	DFKI, Germany
De Jong	S.	Rijksuniversiteit Groningen
Jurgelenaite	R.	Radbout University Nijmegen
Kersten	M.L.	CWI
Klein	M.C.A.	Vrije Universiteit Amsterdam
Klöditz	C.	NWO Physical Sciences
Koster	C.H.A.	Radbout University Nijmegen
Latoszek-Berendsen	A.	University of Maastricht
Lokai	N.	Rijksuniversiteit Groningen
Lucas	P.	Radbout University Nijmegen
Luursema	J.M.	University of Twente
Meijler	A.P.M.	NWO Physical Sciences
Nack	F.	CWI
Nap	H.H.	Technical University of Eindhoven
Niessink	H.	Rijksuniversiteit Groningen
Overberg	R.I.	University of Leiden (LUMC)
Postma	E.	University of Maastricht
Reckman	H.	University of Leiden
Renkema	S.	Rijksuniversiteit Groningen
Reiber	J.	University of Leiden (LUMC)
Roos	N.	University of Maastricht
Rudledge	L.	CWI
Schaap	J.	University of Leiden (MC)
Schellekens	M.H.M.	Tilburg University
Schmidt	A.H.J.	University of Leiden
Schomaker	L.R.B.	Rijksuniversiteit Groningen
Schweers	M.	Rijksuniversiteit Groningen
Staalduinen	M.	Delft University of Technology

Teepe	W.	Rijksuniversiteit Groningen
Toma	T.	University of Amsterdam
Toussaint	P.	University of Leiden (LUMC)
Van Assem	M.F.J.	Vrije Universiteit Amsterdam
Van de Sanden	M.	Rijksuniversiteit Groningen
Van den Broek	E.L.	Radbout University Nijmegen (NICI)
Van den Herik	H.J.	University of Maastricht
Van der Lubbe	J.C.A.	Delft University of Technology
Van Dijk	F.	Raad voor de rechtspraak
Van Dijk	S.	Rijksuniversiteit Groningen
Van Montfort	X.	Technical University of Eindhoven
Van Ossenbruggen	J.R.	CWI
Van Vugt	H.	Vrije Universiteit Amsterdam
Visscher	S.	Universiteit Utrecht (UMC)
Wiesman	F.J.	University of Maastricht
Wierda	G.	Raad voor de rechtspraak
Wolf	L.F.	University of Leiden
Zudilova	E.V.	University of Amsterdam

## APPENDIX 3: POSTERS PER TOKEN2000 PROJECT

### **EIDETIC: Intelligent Content-based Image Retrieval**

**PI: Prof. dr. E.O. Postma, postma@cs.unimaas.nl**

- 1** *Context-Based Object Detection*  
N.H. Bergboer, E.O. Postma, H.J. van den Herik
- 2** *Line Pattern Extraction in X-ray Images of Etchings*  
M. van Staalduinen, J. C. A. van der Lubbe, E. Backer
- 3** *Visual Memory and Recognition*  
X. van Montfort, P. de Greef, D. Bouwhuis

### **I2RP: Intelligent Contact Retrieval and Presentation in Public Historical Multimedia Databases**

**PI: Prof. dr. L.R.B. Schomaker, schomaker@ai.rug.nl**

- 4** *Narrative Structures and Media Allocation*  
S. Bocconi, Y. Bachvarova
- 5** *MEANING.JPEG, natural language generation as compression*  
B. Arsenijevic, C. Cremers, G. Kempen
- 6** *Automated Ontology Mapping for Intelligent Multimedia Information Retrieval*  
F. Wiesman, N. Roos, H.J. van den Herik

### **DUMPERS: Distributed user modeling and Exploration in Personalized Recommender Systems**

**PI: Dr. M.W. van Someren, maarten@swi.psy.uva.nl**

- 7** *DUMPERS Distributed User Modeling for Personalized Exploring Recommender Systems*  
V. Hollink, S. ten Hagen, M. van Someren

### **CHIME: Cultural Heritage in an Interactive Multimedia Environment**

**PI: Prof. dr. H.L. Hardman, Lynda.Hardman@cw.nl**

- 8** *Cultural Heritage in an Interactive Multimedia Environment*  
L. Hardman
- 9** *Towards a Framework for System-supported Multimedia Authoring*  
L. Hardman, F. Nack, K. Falkovich
- 10** *User Model Server*  
P.M.E. De Bra, dr. L. Aroyo, V.I. Chepegin
- 11** *Translating Thesauri to RDF-based Formalisms*  
A. Th. Schreiber, M.F.J. van Assem

### **AUTHENTIC: Knowledge discovery and disclosure for visual art: authentication and dating of graphic art and paintings**

**PI: Dr.ir. J.C.A. van der Lubbe, J.C.A.vanderLubbe@its.tudelft.nl**

- 12** *Optimal Image Generation for Art Databases*  
A.I. Deac, J.C.A. van der Lubbe, E. Backer

**ANITA: Administrative Normative Contact Transaction Agents**

**PI: Dr. mr. C.N.J. de Vey Mestdagh, C.N.J.de.Vey.Mestdagh@rechten.rug.nl**

No poster submitted.

**VINDIT: Combining visual and textual Contact for Contact retrieval**

**PI: Prof. dr. E.O. Postma, postma@cs.unimaas.nl**

**13** *Situated Perception for Object Detection*

G. de Croon, E.O. Postma, H.J. van den Herik

**I-CATCHER: Intensive-Care Acces to Terminology & Course of Health Exploration & Retrieval**

**PI: Dr. A. Abu-Hanna, a.abu-hanna@amc.uva.nl**

**14** *Prognostic modeling in the Intensive Care Discovering Temporal Knowledge*

T. Toma, N. Peek, A. Abu-Hanna

**15** *Using Terminological Knowledge Systems in the Intensive Care*

F. van Harmelen, M. Klein, A. ten Teije, R. Cornet

**DIME: Distributed Interactive Medical Exploratory for 3D Medical Images**

**PI: Prof. dr. ir. J.H.C. Reiber, j.h.c.reiber@lumc.nl**

**16** *A VR-based pre-surgical planning and teaching environment*

J.A. Schaap, P.J.H. de Koning, J.H.C. Reiber

**17** *Virtual Radiology Explorer: User Profiling*

E.V. Zudilova, A.G. Hoekstra, P.M.A. Sloot, H.S.M. Cramer, V. Evers

**TIMEBAYES: Building and Using Temporal Bayesian Models in a CPR Setting**

**PI: Dr. P.J.F. Lucas, peterl@cs.kun.nl**

No poster submitted.

**NARRATOR: Narrative Disclosure of Health Care Knowledge**

**PI: Dr. P.J. Toussaint, p.j.toussaint@lumc.nl**

**18** *Narrator: An information system for inter-patient exchange of personal illness experiences. An overview of the project*

R. Overberg, P. Toussaint, L. Wolf, B. Zwetsloot-Schonk

**19** *Semantics-based retrieval of narratives*

H. Reckman, C. Cremers, P. Toussaint

**20** *Improving Accessibility by Cognitive Engineering*

H.H. Nap, P. de Greef

**MIA: Medical Information Agent**

**PI: Prof. dr. ir. A. Hasman, hasman@mi.unimaas.nl**

**21** *Making Implicit Information Needs Explicit*

L.M.M. Braun, F. Wiesman, H.J. van den Herik and A. Hasman

**22** *Do intentions of guidelines matter?*

Agnieszka Latoszek-Berendsen, Paul de Clercq, Arie Hasman, Jaap van den Herik