AIM@SHAPE

Advanced and Innovative Models And Tools for the development of Semantic-based systems for Handling, Acquiring, and Processing knowledge Embedded in multidimensional digital objects

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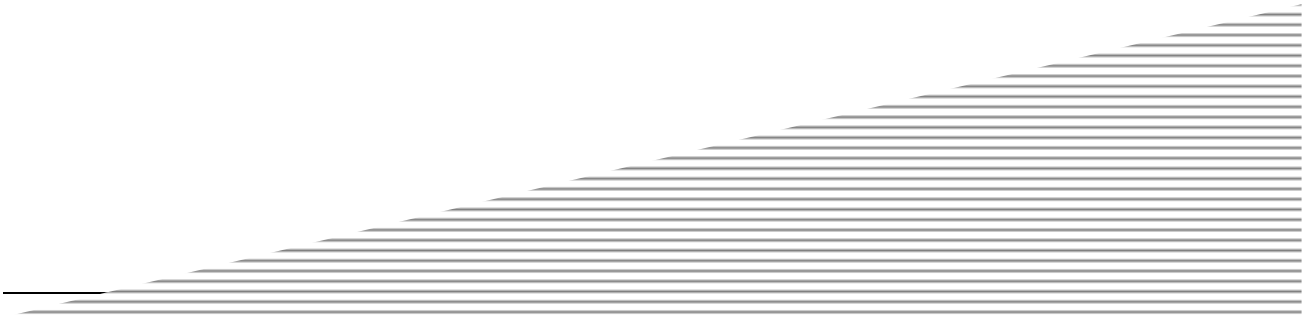

Special Sessions or Workshops devoted to AIM@SHAPE

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CNR-**IMATI**-GE	C.N.R. – Istituto di Matematica Applicata e Tecnologie Informatiche Dept. of Genova, Italy
DISI	Università di Genova – Dipartimento di Informatica e Scienze dell'Informazione, Italy
EPFL	École Polytechnique Federale de Lausanne, Switzerland
FhG/**IGD**	Fraunhofer Institut für Graphische Datenverarbeitung, Germany
INPG	Institut National Polytechnique de Grenoble, France
INRIA	Institut National de Recherche en Informatique et Automatique, France
ITI-CERTH	Informatics and Telematics Institut – Center for Research and Technology Hellas, Greece
UNIGE	Université de Genève, Switzerland
MPII	Max-Planck-Institutfür Informatik, Germany
SINTEF	Stiftelsen for industriell og teknisk forskning ved Norges Tekniske Høgskole, Norway
TECHNION	Technion – Israel Institute of Technology, Israel
UU	Utrecht University, Netherlands
WEIZMANN	Weizmann Institute of Science, Israel

Document History

Vers.	Issue Date	Stage	Content and changes
1	19/07/06	1st Draft	
2	28/08/06	Final (100%)	

EXECUTIVE SUMMARY

This report is a supporting document for **Deliverable D8.8.1 – Special Sessions or Workshops devoted to AIM@SHAPE**; the actual Deliverable consists of events, namely a workshop, the "Workshop on Shapes and Semantics", held at Matsushima, Japan, on June 17, 2006 and some special sessions. These special sessions were organized by members of the consortium at international conferences and workshops as part of the openness activities of the project to create visibility by presenting the network and the results of its research efforts.

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1 INDUSTRIAL CHALLENGES WORKSHOP IN DARMSTADT IN MARCH 2006

The workshop *Industry Challenges in Geometric Modeling and Simulation – 2006* was organized as the fourth one in this series (see the previous deliverable on special sessions for information on the second and third). As before this event was intended to promote the co-operation of industry and academia in addressing relevant and challenging problems from geometry, computer-aided design, shape modeling, simulation and other related areas, bringing together practitioners from industry and application-minded people from academia to discuss current research issues, investigate future trends and explore concrete opportunities for collaboration including funding sources.
The workshop was also organized as a NIG event and again in cooperation with the Special Interest Group on *Geometric Modeling, CAD, Evolving Interfaces and Surfaces* of ECMI, the European Consortium for Mathematics in Industry http://www.ecmi-indmath.org/. Again the Centre of Mathematics for Applications, CMA, a national Norwegian Centre of Excellence at the University of Oslo, Norway, www.cma.uio.no, was co-sponsor.

Date: March 9-10, 2006

Location: partner site IGD, Darmstadt, Germany

Audience: 33 researchers from academia (21) and industry (12) from 8 countries

Organizers of the workshop:
- Ewald Quak (SINTEF, AIM@SHAPE)
- Ulrich Reif (Darmstadt University of Technology)

Participation by AIM@SHAPE members:
- IGD
- SINTEF
- INPG

2 COMPUTATIONAL ALGEBRAIC GEOMETRY AND APPLICATIONS IN NICE IN JUNE 2006

The conference was organised on the occasion of A. Galligo's 60th birthday. The conference themes included:

- Deformation of singularities
- D-modules
- Symbolic computation and complexity
- Approximate polynomial algebra
- Computer aided geometric design
- Shapes

Many presentations combined algebraic and geometric aspects. Famous mathematicians of these domains were invited to give a talk and produced high quality lectures. One of these invited speakers was B. Falcidieno who presented the objectives of the AIM@SHAPE network and some of her works on computational topology. The presentations raised new interests and new questions among mathematicians and geometers, who are not necessarily aware of problems in Shape Analysis.

A total of 24 presentations were given during this conference with a lot of interactivity between the participants. More information on the conference is available at http://www-sop.inria.fr/galaad/conf/06andre/index.html

Date: June 2-6, 2006

Location: Nice, France

Audience: ca. 60 researchers

Organizer of the network special session:

- L. Buse' (INRIA)
- M. Elkadi (UNSA)
- B. Mourrain (INRIA)

A special session was devoted to AIM@SHAPE. It included one invited talk and two contributed presentations:

- Bianca Falcidieno (CNR IMATI-Ge, Genova, Italy): *Computational Topology Tools for Shape Modelling and Reasoning (Invited talk).*
- Jan Thomassen (SINTEF, Norway): *Approximate implicitization in CAGD.*
- Olivier Ruatta (Université de Limoges, France): *Intersection curve of two parametrized surfaces.*

3 CAD'06 CONFERENCE IN PHUKET IN JUNE 2006

The " CAD'06" conference was aimed at CAD researchers, educators, developers, vendors, and the business community dealing with CAD technology and its financial issues. It also included an exhibition open to all CAD businesses including software houses, hardware manufacturers, vendors, e-businesses, educators, publishers and sectors from various governmental agencies. To cater a broad audience, CAD'06 had a poster session, tutorial presentations, parallel paper sessions, product demonstrations, and several forms of exhibits. It offered then a good opportunity to present AIM@SHAPE network of excellence.

AIM@SHAPE was presented during a special session of the conference illustrating objectives and scientific and technological results of the project.

In addition. during the whole conference there was a dedicated space in the exhibition room with thematic posters leaflets and running presentations illustrating the main project objectives and research activities.

Date: June 19-23, 2006

Location: Phuket, Thailand

Audience: The conference participants were about 100, mostly researchers in the field of product modelling and engineering.

Project presentation has been organized by IMATI & TECHNION.

Participation by AIM@SHAPE members:

- IMATI (F. Giannini, M. Monti)
- TECHNION (G. Elber)
- EPFL (D. Thalmann)
- MIRALAB (N. Magnenat Thalmann)

4 WORKSHOP ON SHAPES AND SEMANTICS IN MATSUSHIMA IN JUNE 2006

The "First International Workshop on Shapes and Semantics" aimed at providing a forum for the dissemination of new and emerging fields engaged in the integration of Multidimensional Media with Knowledge and Content processing technologies. Focus of this event was on the dissemination of the most relevant results of projects funded by the European Commission and targeted at bridging the gap between semantics and digital media systems. The workshop offered an opportunity to projects, institutions and individuals to present ongoing research to industrial representatives and development engineers who could exploit the technology emerging from the projects. The workshop was organized in two plenary tracks of presentations, the first aimed at presenting scientific and technological results of the AIM@SHAPE project, and the second aimed at providing an overview of the relevant projects, research results, open issues and emerging challenges in this research area. The workshop also included key-notes and/or industrial panels.

Prospective contributors were invited to submit extended abstracts on following topics:

- Shape perception, classification and annotation
- Shape semantics and ontologies
- Shape matching and retrieval
- Knowledge driven multimedia content analysis and understanding
- Intelligent media creation and processing tools
- Knowledge based inference for semantic media annotation

The contributions were reviewed by the scientific committee and the accepted ones were presented during the Workshop and they were invited as full papers for a special issue of an international journal after the Workshop.

Data: June 17, 2006

Location: Matsushima, Japan

The workshop participants were 28.

Three were the invited speakers:

Masayuki Nakajima, Tokyo Institute of Technology, Japan
Masa Inakage, Keio University, Japan
Hareesh P. V., Matsushita Electric Works Ltd, Japan

Workshop Chairs:

Bianca Falcidieno, IMATI-CNR, Italy
Daniel Thalmann, EPFL, Switzerland
Issei Fujishiro, Tohoku University, Japan

5 "WORKSHOP ON SHAPES AND SEMANTICS" - PROGRAMME

09:00 - 09:10 Welcome address
Bianca Falcidieno, Issei Fujishiro, Frederic Vexo

09:10 - 09:30 AIM@SHAPE project presentation
Bianca Falcidieno

Invited paper (09:30 - 10:15)
Autonomous Agents Action and Semantics
Masayuki Nakajima, Tokyo Institute of Technology, Japan

Technical session II (10:15 - 11:15)
Thickness-Preserving Shape Deformations
S. Yoshizawa, A. Belyaev, H.-P. Seidel

From Ridges in Scale-Space to Hierarchical Shape Representation
O. Bertrand, A. Lux, T.T. Hai Tran

Topology-Based Reasoning on Non-Manifold Shapes
L. De Floriani, A. Hui, L. Papaleo

Interactive Object Contour Extraction for Shape Modeling
T. Adamek, N.E. O'Connor

11:15 - 11:30 Coffee break

11:30 - 12:00
Ontologies in AIM@SHAPE
L. Papaleo, G. Brunetti, N. Sevilmis, F. Vexo, M. Pitikakis, G. Vasilakis

12:00 - 12:30
The Digital Shape Workbench and the Search Engine of AIM@SHAPE
W. Salem, S. Hammann, M. Pitikakis, G. Vasilakis

12:30 - 14:00 Lunch break & Project Demos (DSW components, Search Engine)

Invited paper (14:00 - 14:45)
From Digital Shape to Physical Shape for Aesthetic Computing
Masa Inakage, Keio University, Japan

Technical session II (14:45 - 15:15)
3D Shape Matching Using Curve-Skeletons with Thickness
Y. Lu, K. Kaneko, A. Makinouchi

Statistical Learning for Shape Applications
W. Saleem, D. Wang, A. Belyaev, H.-P. Seidel

15:15 - 15:30 coffee break

Invited paper: (15:30 - 16:15)
Anthropometric Digital Human Models and Universal Design

Hareesh P V, Matsushita Electric Works Ltd, Japan

Technical session III (16:15 - 17:15)
Emotional Body Expression Parameters in Virtual Human Ontology
A. Garcia-Rojas, F. Vexo, D. Thalmann, A. Raouzaiou, K.Karpouzis, S. Kollias

Landmark Detection on 3D Face Scans by Facial Model Registration
T. Whitmarsh, R. C. Veltkamp, M. Spagnuolo, S. Marini, F. Ter Haar

Towards a 3D Semantic Sketcher for Car Aesthetic Design
V. Cheutet, C.E. Catalano, B. Falcidieno, F. Giannini, J.C. Leon,
M. Monti, J. P. Pernot

Towards a Conceptualization for Shape Acquisition and Processing
R. Albertoni, L. Papaleo, F. Robbiano, M. Spagnuolo

Conclusions (17:15 - 17:30)