CURRICULUM VITÆ

Francesco Robbiano

1   Personal Data

Place of birth: Genova, Italy

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2   Education

- **PhD** in Electronic, Informatics and Telecomunication Engineering – School in Sciences and Technologies for the Information Society. Achieved on April 7th, 2010 at the University of Genova. Dissertation: "*Descriptions of 3D objects based on concepts, content, and context*".

- **Laurea** (Master Degree) in **Computer Science** achieved on April 23rd, 2002 at the University of Genova with mark 110/110 Cum Laude. Dissertation: "*Metaweb: Motore di ricerca e navigazione "semantica" nel meta-universo delle descrizioni delle risorse. Definizione del modello formale e implementazione di un prototipo in Java e XML*".

- High School - **Diploma di Maturità scientifica** obtained in 1993 with mark 56/60 at the Institute M. L. King of Genova. The school year 1989/90 was attended at the school KCVI at Kingston, Ontario – Canada.

3   Current position and activity

Currently I am a Research fellow at IMATI-CNR, Genova. Member of the Shape Modeling Group. The collaboration with CNR began in December 2002, and is about the topics of modeling, analysis, conceptualizazion and description of 3D objects.

Involvement in 8 National and International Research Projects, among which:

- FIORES-II: Character Preservation and Modeling in Aesthetic and Engineering Design, Progetto Europeo GROWTH n. G1RD-CT-2000-00037. Duration: 2000-2003.

- 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, Rete di Eccellenza, EC IST Contract n. 506766. Duration: 2004-2007.

- SHALOM : SHApe modeLing and reasOning: new Methods and tools, FIRB Project, International cooperation Italy/Israel, code RBIN04HWR8. Duration: 2006-2009

- FOCUS K3D : FOster the Comprehension, adoption and USe of Knowledge intensive technologies for coding and sharing 3D media content in consolidated and emerging application communities, Coordination Action, EC IST ICT-2007-214993. Duration: 2008-2010.

3.1   SYNTHESIS OF RESEARCH ACTIVITY

Since December 2002, after getting the Master Degree, I have been working at the Institute of Applied Mathematics and Information Technologies of the National Council of Researches (IMATI-CNR), under the direction of Dott. Bianca Falcidieno, participating actively to the institute research activity.

The domains of shape modelling and computer graphics have been constituting the framework of my research activity. The *leitmotif* of my research is the investigation of different modalities of resource description, to the aim of a high-level semantic approach to 3D objects.

At the beginning, my formative path lingered on the "Design by Feature" paradigm in the CAD context. To this aim I worked at the implementation/integration of a system on recognition and completion of form features within the FIORES II Project. Since 2004, coinciding with the kick-off of the Network of Excellence AIM@SHAPE, I began to tackle conceptual aspects which are relative to the description of 3D objects. The focus on a semantic characterization, typical of AIM@SHAPE, induced me to deepen a point of view on objects which is not only bound to the geometric properties, but also to their conceptualisation in user-oriented domains. I was responsible for the formalizations of the different ontologies developed in this context, and in particular of the one concerning the domain of the acquisition and processing of shapes. In the meanwhile I took responsibility roles in different Tasks of the project, among which the ones devoted to the creation and maintenance of a Digital Library of bibliographic references and to the creation of a glossary of terms relevant for the scientific community. In 2006 began my PhD activity, within which my path about the formalization of conceptual aspects of shapes continued and deepened in the direction of a tout-court description of shapes, also integrating contextual and cognitive aspects. In 2006 also the project SHALOM started, within which I had the chance to tackle concepts inherent to my PhD activity, with particular emphasis on the aspects of representation, description and retrieval of shapes. One of the main achievements of this period is the design and development of the ShapeAnnotator (http://shapeannotator.sourceforge.net), a tool designed to ease a part-based annotation of 3D objects, by providing means to segment a surface mesh in relevant parts and to attach to each part the corresponding semantic-based concepts. In 2008 the Coordination Action FOCUS K3D started, and it allowed me to focus on specific application domains, which are characterized by a massive use of 3D digital resources: Medicine and Bioinformatics, Gaming and Simulation, CAD/CAE and Virtual Product Modeling and Archaeology and Cultural Heritage. In November 2009 I spent three weeks (Short Mobility Programme of CNR, Italy) at the Centrum Wiskunde & Informatica (CWI) in Amsterdam, The Netherlands, with the group headed by Prof. Lynda Hardman, with the aim of laying the foundations for the integration of Computer Graphics tools with the Semantic Web Approach. In April 2010 I got my Ph.D, with the dissertation "Descriptions of 3D objects based on concepts, content and context".

4   Languages

- **Italian   Mother Tongue**

- **English   Very good** level, written and oral.

5   Courses

a)   Participant at the school "**Multimedia Retrieval**", Utrecht, The Netherlands, August 2007

b)   Participant at the school "**International School on Shape Modeling and Reasoning**", Genova, Italy, June 2007

c)   Participant at the school "**Summer School on Multimedia Semantics** – Analysis, annotation, retrieval and applications", Chalkidiki, Greece, September 2006

d)   Participant at the school "**Application of 3D Shapes: Ontologies, Software Tools and Industrial Case Studies**", Tallinn, Estonia, July 2006

e)   Participant at the school "**International Summer School on Computational Methods for Shape Modelling and Analysis**", Genova, Italia, June 2004

f)   Participant at the course "**Open Access**: strategie e nuove tecnologie per rinnovare la comunicazione scientifica" at CILEA – Segrate, May 2005

g)   Participant at the course "**Elementi di XML** per trattare e presentare i dati", at CILEA – Segrate, October 2004

6   Participation to scientific committees, commission and conference organization

a)   Member of the program committee of the IADIS International Conference WWW/Interned 2009, Rome, Italy

b)   Member of the program committee of the SAMT Workshop on Semantic 3D Media, Koblenz, Germany, December 3rd, 2008.

c)   Member of the local organizing committee of the Second international conference on Semantics And digital Media Technologies (SAMT 2007), Genova, December 5th-7th, 2007

d)   Member of the scientific committee of the 1st International Workshop on Shapes and Semantics, Matsushima, Japan, June 2006

e)   Member of the local organizing committee of the *International Convention on Shapes and Solids 2004*, Genova, June 7th-11th, 2004

f)   Member of the local organizing committee of the *International Summer School on Computational Methods for Shape Modelling and Analysis*, Genova, giugno 2004.

7   Didactic activity and invited talks

a)   Invited talk at CWI, Amsterdam, The Netherlands, within the cycle "The Data Explosion Seminar Series", November 2009.

b)   Invited talk at the 7th Eurographics Italian Chapter Conference 2009. Title:"*Content-based and context-driven retrieval of semantic 3D media*", 22 Ottobre 2009

c)   Lecture on "Retrieval of 3D objects" within the Summer School "Multimedia Retrieval", August 20th'24th 2007, Utrecht, The Netherlands.

d)   Invited talk at the International School on Shape Modeling and Reasoning, Genova, Italy, June 2007. Title: "*Descriptors and contexts: semantic characterization of shape descriptors*"

e)   Contribution in the training session "Introduction of the Shape Acquisition Ontology" at the Summer School "Application of 3D Shapes: Ontologies, Software Tools and Industrial Case Studies", Tallinn, Estonia, July 2006

8   Responsibilities

I took and still take the following responsibilities:

a) Responsible of the Digital Library of scientific references within the Network of Excellence AIM@SHAPE.

b) Responsible of the IMATI-Ge activity in the Task related to the "Ontology for Shape Acquisition and Processing" within the Network of Excellence AIM@SHAPE.

c) Responsible of the Glossary Steering Committee activity within the Network of Excellence AIM@SHAPE.

d) Responsible of the creation and maintenance of the IMATI-Ge Shape Modelling Group web site (http://www.ge.imati.cnr.it/ima/smg/home.html).

e) Co-editor of NoSMOG, the IMATI-Ge Shape Modelling Group newsletter (http://www.ge.imati.cnr.it/ima/smg/newsletter.html).

9 PUBLICATIONS

9.1 PAPERS – PUBLISHED AND INDEXED IN THE JOURNAL CITATION REPORTS (JCR)

[RI1] Albertoni R., Papaleo R., Pitikakis M., Robbiano F., Spagnuolo M., Vasilakis G., "Ontology-Based Searching Framework for Digital Shapes", Lecture Notes in Computer Science (JCR) Vol.3762, Springer, pp. 896-905, 2005.

[RI2] Attene M., Robbiano F., Spagnuolo M. and Falcidieno B., "Semantic Annotation of 3D Surface Meshes based on Feature Characterization", In Proceedings of SAMT, Genova, Italy, Lecture Notes in Computer Science (JCR) Vol.4816, Springer, pp. 126-139, 2007

[RI3] Attene M., Robbiano F., Spagnuolo M., Falcidieno B. "Characterization of 3D Shape Parts for Semantic Annotation". Journal of Computer Aided Design, Vol. 41, No. 10, pp. 756-763, 2009.

[RI4] Vasilakis G., Garcia-Rojas A., Papaleo L., Catalano C.E., Robbiano F., Spagnuolo M., Vavalis M., Pitikakis M. "Knowledge-Based Representation of 3D Media". International Journal of Software Engineering and Knowledge Engineering, in press (to appear in May 2010).

9.2 PAPERS – PUBLISHED ON INTERNATIONAL CONVENTIONS PROCEEDINGS

[CI1] Papaleo L., Albertoni R., Marini S., Robbiano F.: "An ontology-based Approach to Acquisition and Reconstruction". In Proceedings of workshop toward Semantic Virtual Environment 2005, Villars, Switzerland, (2005).

[CI2] Albertoni R., Papaleo L., Robbiano F., Spagnuolo M.: "Towards a Conceptualization for Shape Acquisition and Processing". In Proceedings of 1st International Workshop on Shapes and Semantics, Matsushima, Japan, (2006)

[CI3] Albertoni R., Papaleo L., Robbiano F.: "Preserving Information from Real Objects to Digital Shapes". In Proceedings of Fifth Eurographics Italian Chapter Conference, Trento, Italy (2007)

[CI4] Vasilakis, G., Garcia-Rojas, A., Papaleo, L., Catalano, C.E., Robbiano, F., Spagnuolo, M., Vavalis, M., Pitikakis, M. "A common ontology for multi-dimensional shapes", In Proceedings of MAReSO workshop, Genova, Italy (2007)

[CI5] Attene,M., Robbiano,F., Spagnuolo,M., Falcidieno,B. "Part-based Annotation of Virtual 3D Shapes". In Proceedings of Cyberworlds '07, spec. sess. on NASAGEM workshop, Hannover, Germany, IEEE Computer Society Press, pp. 427-436, 2007.

[CI6] Attene M., Robbiano F., Patanè G., Mortara M., Spagnuolo M., Falcidieno B. (2007). "Semantic Annotation of Digital 3D Objects". In Posters and Demos Proceedings of The second International Conference on Semantic And digital Media Technologies (SAMT 2007), Genova, Italy, December 5th-7th, 2007, pp. 25-26

[CI7]   Catalano C.E., Falcidieno B., Attene M., Robbiano F., Spagnuolo M. (2008). "Shape knowledge annotation for virtual product sharing and reuse". In Proceedings of ASME Conference on Engineering Systems Design and Analysis. Haifa, Israel

[CI8]   Robbiano F., Spagnuolo M., Falcidieno B. (2008). "The Role of Contexts and Descriptors for Expressing Semantics in 3D Media". In Proceedings of the SAMT Workshop on Semantic 3D Media. Koblenz, Germany, December 3rd, 2008, pp. 53-57

9.3   TECHNICAL REPORTS AND OTHER PUBLICATIONS

[RT1]   F.Robbiano, M.Spagnuolo, B.Falcidieno, "The Role of Concepts and Contexts in 3D Shape Description and Retrieval", IMATI-GE/CNR Technical Report 03/2008

[RT2]   M. Attene, S. Biasotti, M. Mortara, G. Patane, F. Robbiano, R. Albertoni, C. E. Catalano, S. Marini, M. Spagnuolo and B. Falcidieno, "Multi-Segmentation and Annotation of 3D Surface Meshes", IMATI-GE/CNR Technical Report 06/2006.

[RT3]   M. Attene, F. Robbiano, M. Spagnuolo and B. Falcidieno, "Part-based Annotation of 3D Surface Meshes", IMATI-GE/CNR Technical Report 01/2007.

[RT4]   L. Papaleo, R. Albertoni, F. Robbiano, A. Garcia Rojas, "Ontology for Acquisition and Processing – 4th version" Joint Research Report AIM@SHAPE, deliverable 1.2.2.4

[RT5]   L. Papaleo, R. Albertoni, M. Pitikakis, F. Robbiano, G. Vasilakis., "Ontology for Acquisition and Processing – 3rd version" Joint Research Report AIM@SHAPE, deliverable 1.2.2.3

[RT6]   L. Papaleo, R. Albertoni, S. Marini, M. Pitikakis, G. Vasilakis, "Ontology for Acquisition and Processing – 2nd version" Joint Research Report AIM@SHAPE, deliverable 1.2.2.1

[RT7]   M. Pitikakis, G. Vasilakis, S. Marini, F. Robbiano, N. Selivmis, L. Saboret, W. Saleem, S. Hammann, "Digital Shape Workbench - Overall Architectural Design v.2.1" Joint Research Report AIM@SHAPE, deliverable 2.4.4

[RT8]   F.Robbiano, R.Di Cintio, R.Maggi, "Digital Library version 6" Joint Research Report AIM@SHAPE, deliverable 3.3.1v5.

[RT9]   F.Robbiano, R.Di Cintio, R.Maggi, "Digital Library version 5" Joint Research Report AIM@SHAPE, deliverable 3.3.1v4.

[RT10] F.Robbiano, R.Di Cintio, R.Maggi, "Digital Library version 4" Joint Research Report AIM@SHAPE, deliverable 3.3.1v3.

[RT11] L.Papaleo, R.Albertoni, F.Robbiano, "Preserving Information from Real Objects to Digital Shapes", rapporto tecnico DISI-TR-06-20

[RT12] Papaleo L., Albertoni R., Robbiano F., "Preserving Information from Real Objects to Digital Shapes", Technical Report, n. DISI-TR-06-20, Department of Computer Science, University of Genova, September 2006

[RT13] Pitikakis M., Vasilakis G., Marini S., Robbiano F., Sevilmis N., Saboret L., Saleem W., Hammann S., "DSW Overall Architectural Design" European Commission, AIM@SHAPE FP6 IST NoE 506766, Project Deliverable 2.4.4, Bruxelles, 2006

[RT14] Bertone A., Di Cintio R., Maggi R., Robbiano F., "Digital Library version 3", European Commission AIM@SHAPE, FP6 IST NoE 506766, Project Deliverable 3.3.1v2, Bruxelles, 2005

[RT15] Catalano C., Dokken T., Hassner T., Pitikakis M., Robbiano F., Vavalis M., Veltkamp R. "Glossary – 2nd version", European Commission, AIM@SHAPE FP6 IST NoE 506766, Project Deliverable 1.2.1, Bruxelles, 2005

[RT16] Papaleo L., Albertoni R., Robbiano F., Marini S., Vasilakis G., Pitikakis M., Spagnuolo M., Moccozet L., Hassner T., "Ontology for Acquisition and Reconstruction Processes (1st version)", European Commission, AIM@SHAPE FP6 IST NoE 506766, Project Deliverable 1.2.2.1, Bruxelles, 2005.

[RT17] Bertone A., Di Cintio R., Maggi R., Robbiano F., "Digital Library version 2", European Commission AIM@SHAPE, FP6 IST NoE 506766, Project Deliverable 3.3.1, Bruxelles, 2005

[RT18] Pitikakis M., Vasilakis G., Marini S., Albertoni R., Bertone A., Robbiano F., "Ontology and Metadata Repository Design", European Commission AIM@SHAPE, FP6 IST NoE 506766, Project Deliverable 2.4.2, Bruxelles, 2005.

[RT19] Bertone A., Di Cintio R., Maggi R., Robbiano F., "Digital Library version 1", European Commission AIM@SHAPE, FP6 IST NoE 506766, Project Deliverable 3.3, Bruxelles, 2005

[RT20] Robbiano F., "The Integrated Feature-based Modeller – The Completion Step". Technical Report n. 5/2004, CNR-IMATI, Genova, 2004

9.4 PH.D. THESIS

[T1]   Robbiano F., "Description of 3D objects based on concepts, content, and context". Ph.D. Thesis, April 7th, 2010.

April 26th, 2010